

Stablecoin Depegging, Financial Intermediary Balance Sheet Constraints, and Liquidity in the U.S. Traditional Money Market

Mo-Lei Chen

East China Normal University

Yin-Ting Zhang

East China Normal University

Wei-Xing Zhou

wxzhou@ecust.edu.cn

East China University of Science and Technology

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Stablecoin Depegging, Financial Intermediary Balance Sheet Constraints, and Liquidity in the U.S. Traditional Money Market

Abstract

As the stablecoin market has expanded rapidly, its links with the U.S. traditional money market have become increasingly close. This paper examines the dynamic effects of stablecoin depegging on U.S. money market liquidity. We develop an analytical framework incorporating stablecoins and show that depegging transmits liquidity stress by tightening financial intermediaries' balance sheet constraints. Using local projections, we find marked heterogeneity across markets: Treasury bill liquidity improves initially before reversing, commercial paper liquidity deteriorates on the shock day, and repo market liquidity worsens with a delayed peak. Further analysis shows that these effects operate mainly through a higher marginal cost of expanding balance sheet capacity, rather than a large capital drawdown. When intermediary capital is under stress, liquidity deterioration is significantly amplified across all three markets. These findings document risk coupling between crypto-asset markets and traditional money markets and offer policy implications for macroprudential stablecoin regulation.

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1 Introduction

Stablecoins originally emerged as intermediaries for crypto-asset transactions, and by pegging to assets with intrinsic value such as fiat currencies and precious metals, they largely addressed the problem of high volatility in cryptocurrency markets. As the stablecoin market has grown in scale, stablecoins have gradually evolved into a critical nexus linking decentralized finance with traditional money markets. By end-2025, the total market capitalization of the global stablecoin market had grown from approximately \$25 billion in 2020 to over \$300 billion¹. Throughout this period, the market has displayed a highly concentrated winner-take-most structure: Tether (USDT) surpassed a market capitalization of \$180 billion, commanding approximately 65% of total market share, while USD Coin (USDC), buoyed by its regulatory compliance advantages, maintained a market capitalization of around \$75 billion. These digital assets not only

¹Data Source: <https://www.coingecko.com/categories/stablecoins>

provide a unit of account for decentralized finance, but also exert a profound influence on the supply-demand dynamics of the U.S. money market through the allocation of their reserve assets. Approximately 70% to 80% of the reserves held by major stablecoins consist of U.S. Treasury securities and reverse repurchase agreements (Wang 2025), an asset allocation pattern that has established stablecoin issuers as significant participants in traditional financial markets. Stablecoin issuers have come to exhibit the functional characteristics of shadow banks (Li and Mayer 2021), signaling that a deep coupling has formed between digital asset risks and the U.S. traditional financial system.

Although stablecoins nominally maintain a 1:1 peg to the U.S. dollar, they are in essence private liabilities unsupported by a lender of last resort (Gersbach et al. 2026). Due to limited balance sheet transparency and the maturity mismatch between reserve assets and stablecoin redemption obligations, stablecoins are highly vulnerable to runs under conditions of extreme market stress. Several depegging episodes, including those triggered by the Terra/LUNA collapse in May 2022 and the failure of Silicon Valley Bank in March 2023, reveal a critical risk transmission channel: when a stablecoin loses its peg, large-scale redemption requests force issuers to liquidate their most liquid reserve assets, releasing selling pressure into short-term funding markets. This process bears the hallmarks of a “fire sale” (Shleifer and Vishny 2011), in that the selling is driven not by any deterioration in asset fundamentals but by the liquidity obligations of the holders. Yet the financial intermediaries best positioned to absorb these assets frequently face binding balance sheet constraints during the same period, limiting their ability to expand positions sufficiently to absorb the selling pressure.

When large-scale redemptions create selling pressure on stablecoin issuers, whether this pressure escalates into broader liquidity tightening depends on the capacity of financial intermediaries to absorb the shock. Under normal market conditions, primary dealers absorb supply-side shocks and dampen price volatility through their market-making function. However, under regulatory constraints such as Basel III and the supplementary leverage ratio, dealers face limits on their ability to expand their balance sheets (Duffie 2023). When intermediary capital is already tight, the forced absorption of reserve asset positions further erodes their market-making capacity and drives up funding costs. The balance sheet constraints of financial intermediaries therefore represent a critical conditioning factor in determining whether stablecoin depegging propagates into cross-market risk. Empirical investigation of this transmission channel remains limited in the existing literature. Prior work has focused primarily on the internal risk dynamics of stablecoins within crypto markets, such as flight-to-quality flows across stablecoins during stress episodes (Anadu et al. 2025; Oefele et al. 2024), or the differential responses of stablecoins and money market funds to crypto market shocks and monetary policy surprises (Aldasoro et al. 2025). A smaller body of research has begun to examine the effects of stablecoins on traditional markets, but has focused on volatility spillovers arising from reserve asset reallocation by stablecoin issuers (Wu and Leung 2023) or the impact of stablecoin supply changes on Treasury yields (Ahmed and Aldasoro 2025). Few studies have identified stablecoin depegging as a discrete shock event, and none have examined the role of financial intermediary balance sheet constraints in the transmission process.

Although the existing literature has begun to address stablecoin stability, empirical evidence on how depegging events affect the U.S. money market remains scarce. This paper develops a cross-market liquidity model that incorporates stablecoins and characterizes how depegging shocks are transmitted to traditional money markets through the financial intermediary balance sheet channel. Building on this framework, the paper employs daily data on major stablecoins from 2022 to 2025 and applies the local projection method to examine the heterogeneous effects of stablecoin depegging on liquidity across three markets: U.S. Treasury bills, commercial paper, and repurchase agreements. It further tests the impact of depegging on financial intermediary balance sheet constraints and analyzes how intermediary capital constraints moderate the intensity of liquidity risk transmission. The empirical results indicate that stablecoin depegging generates liquidity shocks of different signs and durations across the three markets, and that these shocks are significantly amplified during periods of intermediary capital stress. At the same time, the effect of stablecoin depegging on intermediary balance sheets is primarily manifested as a rise in the marginal cost of expanding balance sheet capacity, rather than a material reduction in capital stocks.

The main contributions of this paper are as follows. First, we develop an analytical framework for money market liquidity that incorporates stablecoins, and characterize both the impact of depegging shocks on financial intermediary balance sheets and the mechanism through which this impact propagates to traditional money markets. Second, we provide empirical evidence on the dynamic responses to this transmission across three markets, namely Treasury bills, commercial paper, and repurchase agreements, and document the heterogeneity in response patterns across these markets. Third, we show that the transmission effect is contingent on the state of intermediary capital constraints, such that depegging shocks of equivalent magnitude produce significantly greater liquidity deterioration during periods when intermediary capital is under stress.

The remainder of the paper is organized as follows. Section 2 reviews the related literature. Section 3 describes the data and empirical methodology. Section 4 presents the empirical results. Section 5 provides further discussion. Section 6 concludes and discusses policy implications.

2 Literature Review

2.1 Stablecoins and Their Linkages to Traditional Financial Markets

The influence of stablecoins on traditional financial markets is most directly reflected in the allocation of their reserve assets. The pegging efficiency of fiat-backed stablecoins depends to a considerable extent on the composition of their reserves ([Lyons and Viswanath-Natraj 2023](#)), and the practice of allocating the majority of reserves to short-term U.S. Treasury securities and money market instruments has made mainstream stablecoins a non-negligible marginal participant in short-term dollar debt markets ([Gorton and Zhang 2023](#)). The continued growth in stablecoin issuance has generated additional demand for short-term dollar-denominated assets, and should this trend persist, traditional short-term debt markets may face systemic pressure

from the ongoing expansion of the stablecoin sector (Barthélemy et al. 2026). Should stablecoins continue to grow in scale, the potential impact of reserve liquidations on traditional financial markets may be further amplified (Seegolam and Joseph 2026).

Moreover, the linkage between stablecoins and traditional markets becomes particularly pronounced under stress conditions (Ben Hamadou et al. 2025). When stablecoins face large-scale redemptions, issuers must liquidate traditional financial assets held in their reserves, and if the scale of liquidation is sufficiently large relative to market depth, such selling can directly tighten liquidity in traditional money markets (Caramichael and Liao 2022). Existing empirical work shows that the connection between stablecoins and short-term funding markets first emerged in the commercial paper market, where rising stablecoin demand contributed to increased commercial paper issuance (Barthélemy et al. 2026). Beyond this, large-scale stablecoin redemptions have been shown to significantly push up short-term U.S. Treasury yields, with the yield increase induced by outflows running at two to three times the magnitude of the corresponding effect from inflows of equivalent size (Ahmed and Aldasoro 2025). Notably, crypto assets have been shown to improve out-of-sample portfolio performance and are attractive from an allocation perspective for a wide range of investor types (Arvanitis et al. 2026), suggesting that the participation of financial intermediaries in crypto markets will continue to deepen. Stablecoins, as a central collateral and liquidity instrument within these markets, can therefore no longer be regarded as a simple medium of exchange between cryptocurrencies and fiat currencies; they are now deeply embedded in the functioning of the traditional financial system and serve as a channel for risk contagion between crypto markets and traditional financial markets (Gubareva et al. 2023).

2.2 Financial Intermediaries and Liquidity Transmission

Contractions in money market liquidity are typically transmitted through the balance sheets of financial intermediaries as the central conduit. Brunnermeier and Pedersen (2009) distinguish between market liquidity and funding liquidity, and show that asset price declines triggered by external shocks are self-reinforcing through two mechanisms, namely the loss spiral and the margin spiral, whereby traders are forced into procyclical deleveraging to meet margin requirements, ultimately generating a vicious cycle of liquidity exhaustion and price collapse. This liquidity spiral framework implicitly highlights that the state of intermediary balance sheet constraints determines both whether an external shock propagates to money markets and the intensity with which it does so. Consistent with this mechanism, Wen et al. (2020) show that systemic risk propagates across the money, bond, equity, foreign exchange, and financial-intermediary segments of the financial system, with money-market turbulence acting as a primary source of systemic risk during major stress episodes. Empirical evidence further shows that distress within financial institutions contributes to systemic risk, as the financial system becomes especially sensitive to institutions' downside losses during crisis periods (Rouz et al. 2024). Taken together, these findings further highlight the central role of intermediary vulnerabilities and money-market conditions in shock transmission.

Building on this foundation, [He and Krishnamurthy \(2013\)](#) develop an asset pricing model centered on intermediary capital constraints, and show that when these constraints bind, risk premia rise nonlinearly, with both the crisis dynamics of asset prices and the speed of recovery depending on the adequacy of intermediary capital. This prediction finds empirical support in [Adrian and Shin \(2010\)](#), who document the procyclical nature of financial intermediary leverage, whereby intermediaries actively expand leverage during asset price increases and are forced to contract it during declines, a behavioral pattern that causes balance sheet constraints to become self-reinforcing during periods of stress. Even in the presence of apparent arbitrage opportunities, intermediaries may be unable to supply liquidity owing to the rising costs of balance sheet utilization ([DU et al. 2018](#)).

The risk-bearing capacity of intermediaries depends not only on the level of their capital, but also on the remaining space on their balance sheets. When this space approaches regulatory limits, market liquidity can tighten even in the absence of any deterioration in fundamentals ([HADDAD and MUIR 2021](#)). Because primary dealers face hard constraints on leverage, their balance sheets cannot expand in a timely manner to absorb selling pressure, a mechanism that has contributed to severe liquidity deterioration in the U.S. Treasury market during periods of stress ([Duffie 2023](#)). Furthermore, these constraints propagate through the repo market to non-bank financial intermediaries, generating risk resonance across markets ([Carstens 2021](#)).

2.3 Literature Appraisal

Taking stock of these two strands of the literature, significant progress has been made separately on the linkages between stablecoins and money markets and on the role of financial intermediaries in liquidity transmission, yet the intersection of these two areas remains largely unexplored. On one hand, the stablecoin literature on the reserve asset channel has focused primarily on flow effects during normal times, examining how changes in stablecoin issuance affect short-term debt markets, while direct empirical investigation of the dynamic transmission process under the extreme scenario of stablecoin depegging remains absent. On the other hand, the literature on financial intermediaries and risk transmission has examined shocks originating within the traditional financial system, and although some studies have incorporated stablecoins into discussions of the intermediary risk transmission framework ([Gorton and Zhang 2023](#); [Caramichael and Liao 2022](#); [Gersbach et al. 2026](#)), this line of reasoning remains at the level of theoretical conjecture. Whether external shocks originating in crypto markets can trigger liquidity contractions in money markets through financial intermediary balance sheet constraints, and whether such transmission is contingent on the state of intermediary capital, both remain without direct empirical support. This paper aims to fill this gap.

3 Data and Methodology

3.1 An Analytical Framework for Money Market Liquidity Risk Incorporating Stablecoins

Stablecoin issuers and financial intermediaries are indirectly connected through short-term debt markets (Coste 2024; Wang 2025). The reserve assets of mainstream stablecoins consist primarily of short-term Treasury securities and repurchase agreements, and financial intermediaries represented by primary dealers are the core market makers in these markets. Under normal conditions, stablecoin issuance and redemptions generate routine buying and selling flows in money markets, and intermediaries have sufficient balance sheet capacity to absorb these flows without affecting market prices. When a severe depegging event occurs, however, stablecoin holders seek to convert their holdings into dollars to avoid further losses, causing redemption volumes faced by issuers to surge in a short period of time. Issuers are forced to liquidate reserve assets in concentrated fashion, and intermediaries, as core market makers, must continue to provide bid quotes to sustain market functioning, thereby absorbing substantial selling pressure. At the same time, depegging implies a deterioration in the credit quality of stablecoins as collateral, prompting intermediaries to raise margin requirements on crypto-related exposures. The combined effect of inventory pressure and margin pressure on intermediaries' limited balance sheet capacity erodes their market-making ability in traditional money markets, potentially driving up funding costs and tightening liquidity conditions.

On this basis, we develop an analytical model to examine how stablecoin depegging transmits liquidity stress to traditional money markets through the balance sheet constraints of financial intermediaries. The model builds on the liquidity spiral framework of Brunnermeier and Pedersen (2009) and incorporates stablecoins into the intermediary's asset portfolio, analyzing how, when intermediaries are active in both crypto and traditional markets simultaneously, stablecoin depegging crowds out intermediary balance sheet capacity and further deteriorates liquidity conditions in traditional money markets.

3.1.1 Risk Generation from Stablecoin Depegging

Consider a representative financial intermediary that participates simultaneously in the crypto market(c) and the traditional money market(T). The crypto market asset is a stablecoin whose price $p_{c,t}$ is approximately equal to 1 during tranquil periods. The traditional market asset is a Treasury bill or repurchase agreement, whose illiquidity premium, expressed as a spread, is denoted $\Lambda_{T,t}$. The intermediary holds positions $x_{c,t}$ and $x_{T,t}$ in the two asset classes, subject to a capital stock constraint.

The intermediary's funding constraint takes the form of margin requirements. Let $m_{c,t}$ and $m_{T,t}$ denote the margin rates on the two asset classes, respectively. The intermediary's net worth W_t must then cover total margin demand:

$$x_{c,t}m_{c,t} + x_{T,t}m_{T,t} \leq W_t \quad (1)$$

This constraint reflects the upper bound on the intermediary's balance sheet expansion. The financial intermediary is risk-neutral and seeks to maximize expected wealth at time $t + 1$, denoted $E_t[W_{t+1}]$.

$$W_{t+1} = W_t + \sum_{i \in \{c, T\}} x_{i,t}(p_{i,t+1} - p_{i,t}) + e_t \quad (2)$$

where e_t denotes the exogenous income earned by the financial intermediary from other business activities, independent of position decisions in the crypto and traditional markets. For market $i \in \{c, T\}$, we construct the Lagrangian:

$$\mathcal{L} = E_t[W_{t+1}] + \lambda_t (W_t - x_{c,t}m_{c,t} - x_{T,t}m_{T,t}) \quad (3)$$

where $\lambda_t \geq 0$ is the Lagrange multiplier associated with the funding constraint (1). Taking the first-order condition with respect to position $x_{i,t}$ yields:

$$\Lambda_{i,t} \equiv E_t[p_{i,t+1} - p_{i,t}] = \lambda_t m_{i,t} \quad (4)$$

The Lagrange multiplier λ_t measures the marginal increase in the intermediary's expected wealth for a unit relaxation of the capital constraint. Following [Brunnermeier and Pedersen \(2009\)](#), we define $\phi_t = 1 + \lambda_t$, so that the illiquidity premium can be written as:

$$\Lambda_{i,t} = (\phi_t - 1)m_{i,t} \quad (5)$$

We interpret ϕ_t as the shadow cost of the capital constraint, representing the total cost to the intermediary of occupying one additional unit of balance sheet capacity. When intermediary capital is ample and constraint (1) is not binding, balance sheet capacity remains available ($\phi_t = 1$) and assets carry no illiquidity premium. As capital utilization approaches the net worth ceiling, each additional unit of position the intermediary absorbs must crowd out capital allocated to existing business. Since $\lambda_t > 0$ and increases monotonically with the tightness of the constraint, ϕ_t rises accordingly and illiquidity premia across markets widen.

Equation (5) is the central pricing equation of the model. Its economic interpretation is that the spread on an asset is jointly determined by the deviation of the shadow price of capital from its benchmark level and the margin rate on that asset. The shadow price ϕ_t is determined by the intermediary's overall capital condition rather than the characteristics of any individual asset, so that different markets become risk-coupled through the intermediary's balance sheet. At the same time, margin requirements act as a leverage amplifier, such that assets with higher margin rates experience more severe liquidity deterioration when capital is under stress. It is worth noting that the rise in the shadow price ϕ_t and the widening of the illiquidity premium $\Lambda_{i,t}$ in equation (5) are not two independent processes. Given the intermediary's optimal decisions, both are simultaneously determined by the tightening of the constraint. Accordingly, the subsequent empirical analysis uses changes in money market spreads as the direct measure of transmission outcomes, while treating the shadow price as a proxy for the state of intermediary constraints.

The shock that stablecoin depegging imparts to intermediary balance sheets may arise through two channels. First, stablecoin depegging triggers an upward adjustment in crypto asset margin requirements. Drawing on the discussion of information-sensitive debt in [Gorton and Ordoñez \(2014\)](#), we argue that stablecoins are information-insensitive during normal periods, in the sense that market participants need not scrutinize the underlying reserve assets. However, once the price falls below the threshold $\bar{p}$, adverse selection risk rises sharply and margin requirements are adjusted upward:

$$m_{c,t}(p_{c,t}) = m_c^L + \mathbb{1}_{\{p_{c,t} < \bar{p}\}} [\Delta m_c + \gamma(1 - p_{c,t})] \quad (6)$$

where $\mathbb{1}_{\{\cdot\}}$ is an indicator function that takes the value of 1 when the condition in brackets holds and 0 otherwise; m_c^L is the baseline margin rate under normal conditions; Δm_c is the increment in the margin rate triggered by depegging; and γ captures the sensitivity coefficient governing the linear increase in margin requirements as the stablecoin price declines further. Second, when issuers face redemption pressure they must liquidate reserve assets, and intermediaries, acting as market makers in these markets, must continuously provide bid quotes and consequently absorb substantial selling pressure, causing their positions in traditional markets to expand:

$$x_{T,t} = x_{T,t}^0 + \frac{R(p_{c,t})}{p_{T,t}} \quad (7)$$

where $x_{T,t}^0$ is the intermediary's initial position in the traditional market, $R(p_{c,t})$ is the volume of redemptions triggered by a decline in the stablecoin price and is monotonically decreasing in $p_{c,t}$, and $p_{T,t}$ is the price of the traditional market asset. Equation (7) is built on a simplified accounting identity whereby reserve assets liquidated by issuers, valued at the market price $p_{T,t}$, translate into additional positions held by the intermediary in the traditional market ([Caramichael and Liao 2022](#); [Gorton and Zhang 2023](#)). In the model, these two forces jointly drive up the intermediary's total capital utilization. It should be noted that the empirical analysis in this paper focuses on the combined effect of these two channels rather than attempting to disentangle the separate contributions of the margin channel and the redemption channel, as the two micro-level mechanisms are difficult to observe independently in the available data, and the overall magnitude of the transmission and its dependence on the state of intermediary constraints are themselves the central questions of interest.

3.1.2 Transmission Channels of Stablecoin Depegging Risk: A Financial Intermediary Balance Sheet Perspective

From the perspective of financial intermediary funding constraints, we further analyze how stablecoin depegging transmits latent liquidity risk to traditional money markets. Substituting the two channels 6 and 7 into the funding constraint (1):

$$x_{c,t} m_{c,t}(p_{c,t}) + \left(x_{T,t}^0 + \frac{R(p_{c,t})}{p_{T,t}} \right) m_{T,t} \leq W_t \quad (8)$$

As $p_{c,t}$ declines, both terms on the left-hand side of the inequality increase simultaneously, while W_t may shrink due to falling asset prices. The tightening of the capital constraint drives up ϕ_t , which in turn widens spreads in the traditional market through the pricing equation (5). In other words, even in the absence of any change in the fundamentals of traditional assets themselves, capital stress on the intermediary side can deteriorate liquidity conditions in traditional markets.

To characterize the quantitative structure of this transmission mechanism, we assume that the deviation of the shadow price from its baseline is proportional to the rate of capital utilization. Let Ψ denote the system sensitivity coefficient:

$$\phi_t - 1 = \frac{\Psi}{W_t} K_t \quad (9)$$

where $K_t = x_{c,t}m_{c,t}(p_{c,t}) + (x_{T,t}^0 + R(p_{c,t})/p_{T,t})m_{T,t}$ denotes total capital utilization. Combining (9) and (5), we obtain the closed-form solution for the spread in the traditional market:

$$\Lambda_{T,t} = \frac{\Psi m_{T,t}}{W_t} \left[x_{c,t}m_{c,t}(p_{c,t}) + \left(x_{T,t}^0 + \frac{R(p_{c,t})}{p_{T,t}} \right) m_{T,t} \right] \quad (10)$$

Equation (10) decomposes the transmission into components corresponding to the two constraint dimensions of the intermediary's balance sheet.

Capital Stock Constraint (W_t)

The multiplier $\Psi m_{T,t}/W_t$ in equation (10) implies that a depegging shock of given magnitude generates substantially greater spread widening when intermediary capital is scarce than when it is ample. As a stock measure of intermediary capital, W_t determines the total capacity of the balance sheet to absorb external shocks. When W_t is low, incremental increases in capital utilization are amplified into proportionally larger spread widening. This implies that the transmission effect is inherently nonlinear, with the magnitude of shock propagation conditioned on the level of intermediary capital. Furthermore, this structure admits the possibility of spiral amplification. Widening of the spread $\Lambda_{T,t}$ raises volatility in traditional markets, which in turn triggers a procyclical increase in the margin rate $m_{T,t}$ (Brunnermeier and Pedersen 2009), further tightening the capital constraint. When the initial level of capital W_t is already low, this positive feedback mechanism can amplify small initial disturbances into substantial liquidity deterioration. As this paper focuses on the static conditions of stablecoin depegging, we do not extend the analysis to the dynamics of liquidity spiral generation.

Shadow Cost Constraint (ϕ_t)

Equation (9) shows that even in the absence of any observable change in the capital stock W_t , the shadow price ϕ_t will rise as long as stablecoin depegging pushes up total capital utilization K_t . ϕ_t captures the marginal cost of expanding the intermediary's balance sheet capacity: when margin increases and reserve liquidations simultaneously drive up capital utilization, the opportunity cost borne by the intermediary for each additional unit of position rises, and this increase in marginal cost widens spreads in

traditional markets through the pricing equation (5). The marginal cost constraint channel therefore allows liquidity deterioration to occur even when the intermediary’s book capital has not been materially impaired.

Taken together, the model characterizes the following transmission: stablecoin depegging deteriorates liquidity in traditional money markets by tightening the balance sheet constraints of financial intermediaries. In this process, the marginal cost constraint implies that depegging need only push up total capital utilization K_t to widen traditional market spreads through a rise in ϕ_t , a process that need not be accompanied by any actual erosion of intermediary capital stock. The capital stock constraint further implies that the transmission effect is amplified when intermediary capital is already at a low level. The following section employs the local projection method to test these predictions across multiple segments of the U.S. money market.

3.2 Dynamic Effect Estimation Using Local Projections

This paper estimates dynamic impulse responses using the local projection method proposed by Jordà (2005). The baseline regression specification is as follows:

$$\begin{aligned}
y_{t+h} - y_{t-1} = & \alpha_h + \beta_h \text{DepegShock}_t + \sum_{\ell=1}^L \phi_{h,\ell} \text{DepegShock}_{t-\ell} \\
& + \sum_{f=1}^F \psi_{h,f} \text{DepegShock}_{t+f} + \sum_{\ell=1}^5 \gamma_{h,\ell} y_{t-\ell} + \boldsymbol{\delta}'_h \mathbf{X}_t + \varepsilon_{t+h}
\end{aligned} \tag{11}$$

where $y_{t+h} - y_{t-1}$ denotes the cumulative change in the liquidity measure h periods ahead relative to the period preceding the shock, and α_h is the horizon-specific intercept. β_h is the coefficient of interest, capturing the cumulative effect of a stablecoin depegging shock on liquidity spreads at horizon h ; the sequence of β_h estimates across different values of h constitutes the impulse response function in this paper. $\phi_{h,\ell}$ is the coefficient on lagged values of the depegging shock, included to control for serial correlation in the shock; $\psi_{h,f}$ is the coefficient on forward values of the shock, included to absorb anticipation effects and ensure that β_h captures the causal dynamics following the shock rather than pre-shock expectations. $\gamma_{h,\ell}$ is the coefficient on lagged values of the dependent variable, controlling for the autocorrelation structure of the liquidity measure. $\boldsymbol{\delta}_h$ is the coefficient vector on the control variable vector $\mathbf{X}_t$, which includes $\text{BTC}_t, \text{MOVE}_t, \text{TGA}_t, \text{VIX}_t$ and Dollar_t , serving to isolate the effect of stablecoin depegging from concurrent macrofinancial shocks. All regressions use Newey-West standard errors to correct for heteroskedasticity and serial correlation, with the bandwidth parameter set to 6 and the lag order for both the shock variable and the dependent variable set to 5. To ensure that the results are not sensitive to these parameter choices, the robustness checks in 4.2.3 report estimates using lag orders of 3 and 8 and Newey-West bandwidths of 4 and 9, and the conclusions remain unchanged. To examine the role of intermediary balance sheet constraints in shaping

liquidity deterioration, we estimate the following state-dependent model:

$$y_{t+h} - y_{t-1} = \mathbb{I}_{t-1}(\alpha_h^{Hi} + \beta_h^{Hi} \text{DepegShock}_t) + (1 - \mathbb{I}_{t-1})(\alpha_h^{Lo} + \beta_h^{Lo} \text{DepegShock}_t) + \sum_{\ell=1}^L \phi_{h,\ell} \text{DepegShock}_{t-\ell} + \sum_{\ell=1}^5 \gamma_{h,\ell} y_{t-\ell} + \delta'_h \mathbf{X}_t + \varepsilon_{t+h} \quad (12)$$

where $\mathbb{I}_{t-1}$ is an indicator variable constructed from the lagged state of financial intermediary capital (W_t), sign-adjusted and assigned values based on a median split of the capital state. The stablecoin depegging shock and control variables are identical to those in the baseline regression. The coefficients β_h^{High} and β_h^{Low} capture the heterogeneous dynamic effects of stablecoin depegging shocks on liquidity measures under high and low capital constraint states, respectively.

3.3 Variable Selection

3.3.1 Variable Definitions

This paper uses daily data from January 1, 2022 to January 1, 2025, a sample period that encompasses multiple major stablecoin depegging events. The definitions and construction of each variable are described below.

Stablecoin Depegging Shock

The key explanatory variable DepegShock_t measures the intensity of stablecoin depegging events. This paper focuses on the three major stablecoins that together account for more than 90% of total market capitalization over the sample period, namely USDT (Tether), USDC (Circle), and DAI (MakerDAO). For each stablecoin j on day t , we compute the downward price deviation $d_{j,t} = \max(0, 1 - p_{j,t})$, where $p_{j,t}$ is the closing price. We then construct a market-capitalization-weighted composite depegging index:

$$D_t = \frac{\sum_j \text{Cap}_{j,t} \cdot d_{j,t}}{\sum_j \text{Cap}_{j,t}} \quad (13)$$

where $\text{Cap}_{j,t}$ is the market capitalization of stablecoin j on day t . This weighting scheme ensures that systemically more important stablecoins receive correspondingly greater weight when depegging occurs. To distinguish genuine stablecoin depegging events from routine price noise, we model the composite index D_t using a three-regime Markov regime-switching model (Hamilton 1989). The model endogenously identifies three distinct states of the stablecoin market: a normal state (mean deviation: 0.005%, low volatility), a mild deviation state (mean deviation: 0.033%, moderate volatility), and a depegging state (mean deviation: 0.109%, high volatility). This approach reduces the subjectivity associated with threshold selection when defining stablecoin depegging events. We define the baseline shock variable as the regime-probability-weighted

deviation magnitude:

$$\text{DepegShock}_t = D_t \times P(\text{Regime}_t = \text{de-pegging} \mid \mathcal{I}_T) \quad (14)$$

where $P(\text{Regime}_t = \text{de-pegging} \mid \mathcal{I}_T)$ is the smoothed regime probability of the depegging state, obtained via the Hamilton filter and conditioned on the full-sample information set $\mathcal{I}_T$. This continuous variable naturally decays toward zero during normal periods when the regime probability is close to zero, while fully retaining deviation magnitude information during periods identified as depegging episodes. As shown in Figure 1, the model identifies 85 trading days on which the depegging regime probability exceeds 0.5, distributed across all sample years, successfully capturing major events including the Terra/UST collapse (May 2022), the FTX bankruptcy (November 2022), the FTX bankruptcy (November 2022), and the failure of Silicon Valley Bank (March 2023).

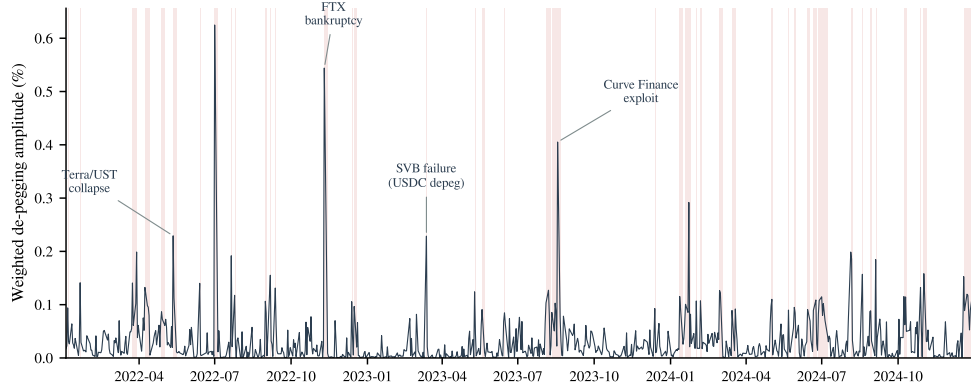


Fig. 1: Stablecoin De-pegging Shocks. *Note:* Stablecoin de-pegging episodes identified by the three-regime Markov switching model. The solid line plots the market-capitalization-weighted composite de-pegging amplitude (%) constructed from USDT, USDC, and DAI. Shaded regions indicate periods in which the smoothed probability of the de-pegging regime exceeds 0.5. The model endogenously identifies three market states—normal (mean: 0.005%), mild deviation (mean: 0.033%), and de-pegging (mean: 0.109%)—with an average de-pegging duration of 2.1 days. A total of 85 trading days are classified in the de-pegging regime, distributed across 2022 (25 days), 2023 (14 days), and 2024 (46 days). Major episodes are annotated.

Money Market Liquidity

This paper measures liquidity conditions in the U.S. traditional money market along three dimensions, with each measure corresponding to a distinct segment of the short-term funding market:

Repo market liquidity. The spread between the Secured Overnight Financing Rate (SOFR) and the reverse repurchase agreement rate (RRP), measuring the secured

Table 1: Variable Definitions and Data Sources

Variable	Definition	Source
<i>De-pegging Shock</i>		
DepegShock_t	Market-capitalization-weighted composite de-pegging amplitude of USDT, USDC, and DAI, scaled by the smoothed probability of the de-pegging regime from a three-state Markov switching model (Hamilton 1989). For each stablecoin j , the downward deviation is $d_{j,t} = \max(0, 1 - p_{j,t})$, aggregated using market-cap weights.	CoinMarketCap
<i>Money Market Liquidity</i>		
T-bill Spread	Bid-ask spread of 3-month U.S. Treasury bills (bps).	Bloomberg
CP Spread	90-day AA-rated financial commercial paper rate minus the 3-month Treasury bill yield (bps).	FRED
Repo Spread	Secured Overnight Financing Rate (SOFR) minus the Reverse Repurchase Agreement (RRP) rate (bps).	NY Fed
<i>Intermediary Constraint Variables</i>		
W_t	Aggregate equity-to-asset ratio of primary dealers designated by the Federal Reserve Bank of New York, following He et al. (2017).	NY Fed
ϕ_t	First principal component of covered interest parity (CIP) deviations for G10 currencies against the U.S. dollar, following DU et al. (2018). The first principal component explains 56% of total variation.	Bloomberg
<i>Control Variables</i>		
MOVE_t	ICE BofA MOVE Index, measuring implied volatility of U.S. Treasury options.	Bloomberg
VIX_t	CBOE Volatility Index, measuring implied volatility of S&P 500 index options.	Bloomberg
BTC_t	Daily log return of Bitcoin, controlling for broad crypto-market movements.	CoinMarketCap
TGA_t	U.S. Treasury General Account balance held at the Federal Reserve, controlling for fiscal liquidity shocks to reserve supply.	FRED
Dollar_t	Trade-weighted broad U.S. dollar index, controlling for global dollar liquidity conditions.	FRED

Note: The sample covers daily observations from January 1, 2022 to January 1, 2025. All spreads are expressed in basis points. Panel A variables are constructed by the authors; Panels B–D variables are obtained directly from the indicated sources.

funding premium in the repo market. A widening of this spread indicates tightening repo market conditions, as dealers demand greater compensation for providing secured funding.

Treasury market liquidity. The bid-ask spread on 3-month U.S. Treasury bills, capturing transaction costs in the market for the safest short-term assets. A widening bid-ask spread reflects a decline in dealers' willingness to provide liquidity.

Commercial paper market liquidity. The spread between the 90-day AA-rated financial commercial paper rate and the 3-month Treasury yield, measuring the unsecured funding premium. This spread captures the credit and liquidity risk in the commercial paper market relative to the risk-free benchmark.

Balance Sheet Constraint Variables

The theoretical model identifies two key balance sheet constraint variables: the capital stock constraint W_t and the marginal cost constraint ϕ_t . We construct empirical proxies for each.

Capital stock constraint (W_t). Following He et al. (2017), we use the aggregate capital ratio of primary dealers as a proxy for financial intermediary capital adequacy. This measure is defined as the equity-to-asset ratio of primary dealers designated by the Federal Reserve Bank of New York, and has been widely used in the intermediary asset pricing literature to characterize the health of financial intermediary balance sheets. In the state-dependent local projection analysis, we use this variable to classify high- and low-constraint states, directly corresponding to the moderating term $\Psi m_{T,t}/W_t$ in equation (10).

Marginal cost constraint (ϕ_t) We use daily data on covered interest parity (CIP) deviations for G10 currencies against the U.S. dollar, and extract the first principal component via principal component analysis as a proxy for the shadow price of intermediary capital. Following DU et al. (2018), persistent CIP deviations are themselves indicative of binding intermediary balance sheet constraints: if intermediaries were unconstrained, arbitrage activity would quickly eliminate such deviations, and their persistence in practice reveals the marginal cost faced by intermediaries when expanding balance sheet capacity to exploit cross-currency arbitrage opportunities. The first principal component accounts for 56% of total variation, capturing the common component of funding stress across currencies, and retains the systemic dimension of intermediary funding constraints while filtering out the idiosyncratic noise of individual currency pairs.

Control Variables

To isolate the effect of stablecoin depegging from concurrent macrofinancial shocks, all regressions include the following control variables:

ICE BofA MOVE Index ($MOVE_t$): measures the implied volatility of U.S. Treasury options, controlling for interest rate uncertainty and unexpected monetary policy shocks.

CBOE Volatility Index (VIX_t): captures equity market risk sentiment and overall financial stress conditions.

Bitcoin return (BTC_t): the daily log return on Bitcoin, included to absorb general cryptocurrency market fluctuations and ensure that the depegging shock variable captures stablecoin-specific stress rather than broad crypto market downturns.

Treasury General Account balance (TGA_t): the balance of the U.S. Treasury's general account at the Federal Reserve, controlling for fiscal liquidity shocks that mechanically affect money market conditions through changes in reserve supply.

Dollar index ($Dollar_t$): the trade-weighted broad dollar index, controlling for global dollar liquidity conditions and cross-border capital flow pressures.

3.4 Data Sources

The empirical analysis in this paper is based on daily data from January 1, 2022 to January 1, 2025. Stablecoin price and market capitalization data are obtained from

CoinMarketCap, covering the daily closing prices and circulating market capitalizations of the three major stablecoins: USDT, USDC, and DAI. Since cryptocurrency markets operate around the clock while traditional financial markets are open only on business days, we align the crypto market data to the New York closing time and restrict the sample to U.S. money market trading days. All other data are sourced from the Federal Reserve Bank of New York, Bloomberg, and FRED. Further details are provided in Table 1.

3.4.1 Descriptive Statistics

Descriptive statistics for all variables are reported in Table 2.

Table 2: Descriptive Statistics

Variable	N	Mean	Std. Dev.	Pctl(25)	Median	Pctl(75)
<i>De-pegging Shock</i>						
DepegShock $_t$ ($\times 10^{-4}$)	748	1.504	4.899	0.001	0.026	0.233
<i>Money Market Liquidity</i>						
T-bill Spread	748	3.385	2.661	1.500	2.400	4.700
CP Spread	748	13.054	13.658	4.000	10.000	19.000
Repo Spread	748	0.905	3.313	0.000	1.000	2.000
<i>Intermediary Constraint Variables</i>						
W_t (%)	748	93.777	0.664	93.235	93.906	94.340
ϕ_t	748	1.000	1.000	0.363	1.209	1.796
<i>Control Variables</i>						
MOVE $_t$	748	4.734	0.155	4.628	4.737	4.843
VIX $_t$	748	19.351	5.724	14.318	18.365	22.845
BTC $_t$ (%)	748	0.053	2.994	-1.290	-0.052	1.469
TGA $_t$	748	13.245	0.544	13.143	13.427	13.557
Dollar $_t$	748	4.799	0.025	4.785	4.800	4.815

4 Empirical Results

4.1 Baseline Results

Figure 2 and Table 3 present the baseline results, showing the impulse responses of money market liquidity at different horizons following a stablecoin depegging shock.

The empirical results reveal significant heterogeneity in the liquidity dynamics across markets following a stablecoin depegging event.

In the underlying safe asset market, liquidity in the 3-month Treasury bill market (Figure 2a) follows a non-monotonic dynamic path. In the initial period following depegging ($h = 0, 1$), a 1% increase in the depegging measure is associated with cumulative declines in the Treasury bid-ask spread of 2.23 and 3.52 basis points, respectively. This pattern is consistent with a flight-to-safety effect, whereby depegging events prompt investors to shift into short-term Treasuries, improving their liquidity in the short run. However, this improvement is quickly reversed at $h = 2$, when a 1% depegging shock is associated with a spread increase of 3.69 basis points, after which the spread rapidly returns to its pre-depegging level. The non-monotonic pattern of Treasury liquidity, improving initially before subsequently deteriorating, suggests that safe-haven demand dominates in the immediate aftermath of the shock, while the balance sheet crowding effect of reserve liquidation pressure emerges with a lag, though the latter does not reach statistical significance in this sample. In the unsecured com-

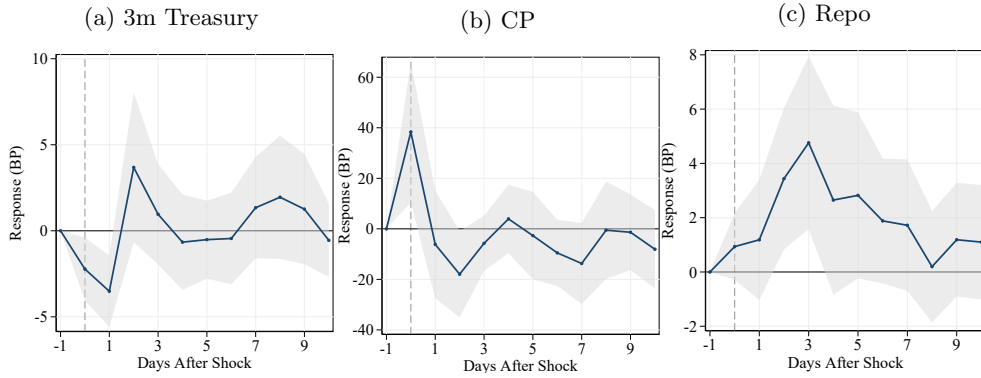


Fig. 2: The Impact of Stablecoin Depegging on Money Market Liquidity. *Note:* This figure displays the dynamic responses of liquidity indicators across three key segments of the US money market. Panels from left to right represent the 3-month Treasury (T-bill) market, the commercial paper (CP) market, and the repo market, respectively. Estimates represent β_h from the local projection model in Eq. (11), reflecting the cumulative liquidity impact at horizon h following a de-pegging event. Coefficients denote the cumulative basis-point (bps) change in spreads per 1% increase in de-pegging. Shaded areas indicate 90% confidence intervals.

mercial paper market (Figure 2b), a 1% depegging shock causes the CP spread to jump sharply by 38.35 basis points on the day of the depegging event ($h = 0$), but the liquidity deterioration is quickly corrected and the spread reverses significantly by the second day ($h = 2$). No significant fluctuations are observed in the subsequent horizons. The immediate response in the CP market is consistent with its unsecured, credit-sensitive nature: depegging events may trigger a reassessment of the credit risk of stablecoin issuers and their counterparties, and commercial paper, as an unsecured short-term credit instrument, is particularly sensitive to such information shocks. The

repo spread (Figure 2c) exhibits a pattern of significant and persistent widening following stablecoin depegging. Unlike the unsecured commercial paper market, the secured repo spread displays a delayed peak pattern, with a 1% depegging shock leading to cumulative increases of 3.44 and 4.76 basis points at $h = 2$ and $h = 3$, respectively, reaching the peak within the estimation window. The spread subsequently begins to revert toward its pre-depegging level. The delayed peak pattern in the repo market is consistent with the transmission logic of the collateral quality channel: the liquidation pressure on reserve assets may take some time to be fully reflected in funding spreads through the collateral valuation channel.

Table 3: Impulse Responses of Money Market Liquidity to Stablecoin Depegging

	T-bill Spread				CP Spread				Repo Spread			
	$h=0$	$h=1$	$h=2$	$h=3$	$h=0$	$h=1$	$h=2$	$h=3$	$h=0$	$h=1$	$h=2$	$h=3$
<i>Panel A: With controls</i>												
DepegShock _{<i>t</i>}	-2.225** (1.113)	-3.516*** (1.263)	3.686 (2.642)	0.960 (1.772)	38.354** (16.970)	-6.152 (12.937)	-17.962* (10.374)	-5.736 (6.642)	0.935 (0.745)	1.185 (1.347)	3.438** (1.585)	4.759** (1.932)
Constant	0.116** (0.132)	0.119*** (0.148)	0.152 (0.168)	0.210 (0.183)	0.176** (0.716)	-0.006 (1.005)	-0.123* (1.243)	-0.138 (1.436)	-0.158 (0.111)	-0.379 (0.208)	-0.656** (0.299)	-0.868** (0.366)
Observations	738	738	738	738	738	738	738	738	738	738	738	738
<i>R</i> ²	0.458	0.422	0.449	0.436	0.273	0.300	0.332	0.355	0.155	0.238	0.255	0.255
<i>Panel B: Without controls</i>												
DepegShock _{<i>t</i>}	-1.652 (1.264)	-2.717** (1.244)	4.278 (2.769)	1.152 (1.650)	38.460** (16.473)	-2.160 (13.117)	-12.177 (8.355)	-2.439 (6.117)	0.348 (0.785)	0.029 (1.527)	2.142 (1.717)	3.861* (2.025)
Constant	0.004 (0.001)	0.004** (0.001)	0.005 (0.002)	0.005 (0.002)	0.023** (0.006)	0.035 (0.008)	0.045 (0.011)	0.051 (0.013)	0.001 (0.001)	0.001 (0.001)	0.001 (0.002)	0.001* (0.002)
Observations	738	738	738	738	738	738	738	738	738	738	738	738
<i>R</i> ²	0.440	0.396	0.423	0.403	0.261	0.278	0.292	0.300	0.127	0.184	0.187	0.184

Note: This table reports local projection estimates across horizons $h = 0, \dots, 3$. Each coefficient denotes the cumulative basis-point change in the respective liquidity spread per 1% increase in DepegShock_{*t*}, relative to period $t - 1$. The three market segments are the 3-month Treasury bid-ask spread (T-bill), the AA financial commercial paper spread (CP), and the repo market spread (SOFR minus RRP rate). Panel A includes the full set of control variables (BTC_{*t*}, MOVE_{*t*}, TGA_{*t*}, VIX_{*t*}, Dollar_{*t*}) and their lags; Panel B omits controls. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

4.2 Robustness Checks

To verify the robustness of the empirical results, we conduct a series of robustness checks, including a placebo test, exclusion of windows around major depegging events, and variations in the lag structure of the baseline regression.

4.2.1 Placebo Test

As an intermediary between crypto markets and traditional financial markets, stablecoin prices are susceptible to fluctuations originating within the crypto market.

Although the baseline regression includes bitcoin returns as a control variable to address the linear influence of broad crypto market movements, the impact of sharp crypto market downturns on money market liquidity cannot be fully disentangled in this way. This potential confound raises the question of whether the observed changes in money market liquidity are driven by stablecoin depegging specifically or by broad crypto market downturns more generally. To address this concern, we construct a placebo test by selecting dates on which Bitcoin returns are extremely low (BTC below the 10th percentile) but the depegging shock variable remains unaffected (DepegShock below the 20th percentile), and use these placebo events to obtain the results shown in Figure 3.

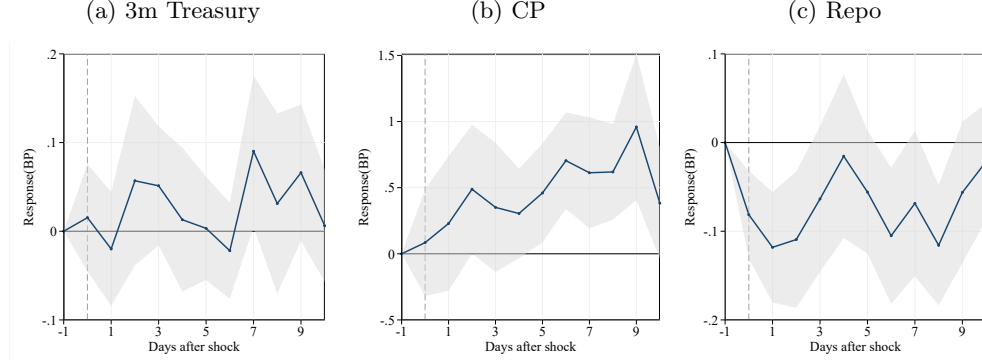


Fig. 3: Placebo Test. *Note:* This figure displays the dynamic responses of liquidity indicators across three key segments of the US money market under placebo de-pegging events. Panels from left to right represent the 3-month Treasury (T-bill) market, the commercial paper (CP) market, and the repo market, respectively. Placebo events are constructed by selecting dates on which Bitcoin returns fall below the 10th percentile while the de-pegging variable remains below the 20th percentile, capturing episodes of severe crypto market downturns without significant stablecoin de-pegging. Estimates reflect the cumulative liquidity impact at horizon h following a placebo event. Coefficients denote the cumulative basis-point (bps) change in spreads per 1% increase in the placebo de-pegging measure. Shaded areas indicate 90% confidence intervals.

In the Treasury market, the placebo events have no statistically significant effect on liquidity spreads at any horizon, indicating that the Treasury market liquidity changes observed in the baseline regression are driven by stablecoin depegging shocks rather than broad crypto market downturns. The commercial paper and repo markets show statistically significant coefficients at isolated horizons, but their economic implications differ fundamentally from those in the baseline regression. In the commercial paper market, the significant placebo effects are concentrated at $h = 5$ and beyond, and the coefficient magnitudes are more than 95% smaller than the immediate deterioration observed at $h = 0$ in the baseline regression. The shift in timing from an immediate to a delayed response, combined with coefficients falling below 1 basis point, suggests that even if broad crypto market downturns have a weak indirect effect on the commercial paper market, this is insufficient to account for the main effect driven by stablecoin depegging in the baseline regression. The placebo results

for the repo market are particularly noteworthy. In contrast to the liquidity deterioration observed in the baseline regression, the placebo events are associated with modest liquidity improvements at multiple horizons. This directional reversal is consistent with the flight-to-safety logic observed in the Treasury market: when crypto markets decline sharply but stablecoins do not depeg significantly, safe-haven flows into traditional money markets improve repo market liquidity. Once a stablecoin depegging shock is added on top of the crypto market decline, repo market liquidity shows a net deterioration, indicating that the additional pressure from depegging is sufficient to reverse the improvement from safe-haven inflows. This contrast further confirms that the liquidity deterioration in the repo market observed in the baseline regression is not caused by broad crypto market downturns, but rather reflects an independent effect of stablecoin depegging shocks operating through the reserve asset liquidation channel. Taken together, the placebo test results across all three markets confirm that the liquidity effects identified in the baseline regression are attributable to stablecoin depegging shocks.

4.2.2 Exclusion of Major Event Windows

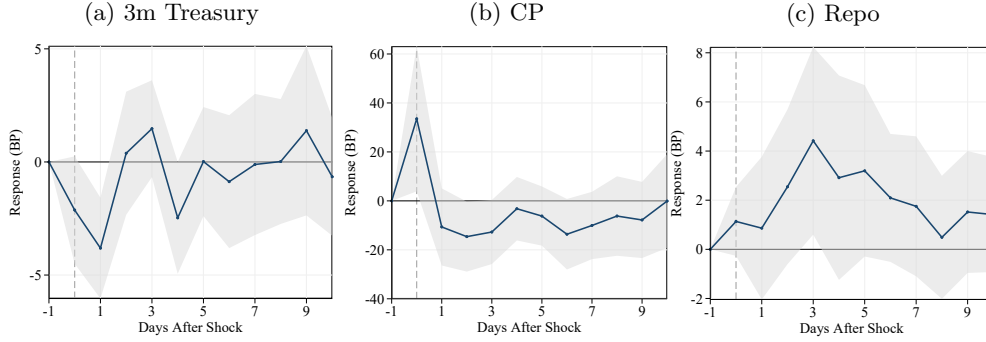


Fig. 4: Impulse Response Estimates Excluding Major Event Windows. *Note:* This figure displays the dynamic responses of liquidity indicators across three key segments of the US money market, estimated on a sample that excludes windows around major confounding events. Panels from left to right represent the 3-month Treasury (T-bill) market, the commercial paper (CP) market, and the repo market, respectively. The following event windows are excluded from estimation: the Terra/Luna collapse (May 2022, ± 10 trading days), the FTX bankruptcy (November 2022, ± 10 trading days), and the Silicon Valley Bank failure (March 2023, ± 10 trading days), along with Federal Reserve meeting days (± 5 trading days). Estimates reflect the cumulative liquidity impact at horizon h following a de-pegging event. Coefficients denote the cumulative basis-point (bps) change in spreads per 1% increase in de-pegging. Shaded areas indicate 90% confidence intervals.

The sample period from January 1, 2022 to January 1, 2025 encompasses several major events related to both money markets and crypto markets. To ensure that the main findings are not driven by a small number of extreme episodes or money market adjustments, we exclude the ten trading days before and after the Terra/Luna collapse, the FTX bankruptcy, and the SVB crisis, and also exclude the five trading days surrounding each Federal Reserve rate hike decision to rule out monetary policy

effects on market liquidity within the estimation window² The results based on the restricted sample are shown in Figure 4. The liquidity responses across all three market segments remain consistent with the baseline results, indicating that the main findings are not driven by extreme crypto market events or monetary policy shocks.

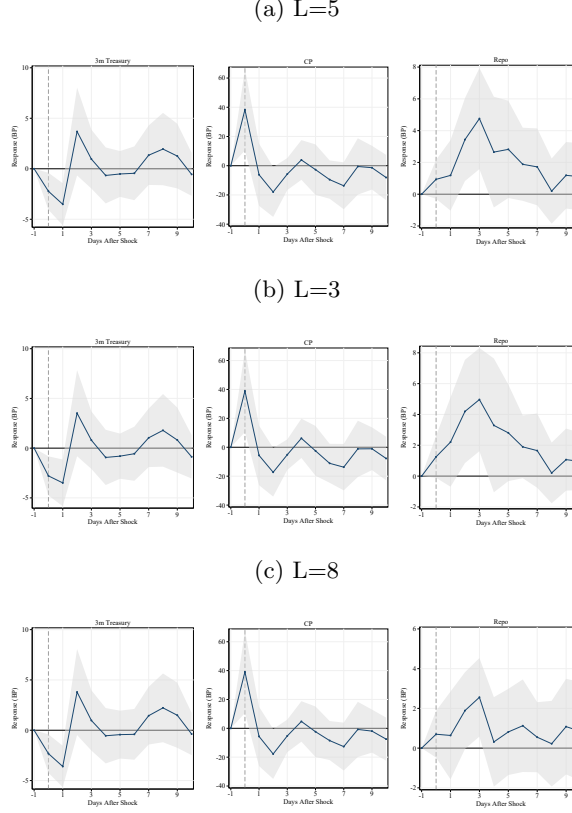


Fig. 5: Results of the Benchmark Impulse Response Using Different Orders of Delay. *Note:* This figure displays the dynamic responses of liquidity indicators across three key segments of the US money market under alternative lag order specifications. Panels from left to right represent the 3-month Treasury (T-bill) market, the commercial paper (CP) market, and the repo market, respectively. Each panel overlays estimates under three lag order choices: the baseline specification with 5 lags and leads of both the shock variable and the dependent variable, and two alternatives with 3 and 8 lags and leads. Estimates reflect the cumulative liquidity impact at horizon h following a de-pegging event. Coefficients denote the cumulative basis-point (bps) change in spreads per 1% increase in de-pegging. Shaded areas indicate 90% confidence intervals.

²According to the FOMC meeting calendar on the Federal Reserve's official website(<https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm>), there are 12 rate hike decision days within the sample period: March 16, May 4, June 15, July 27, September 21, November 2, and December 14, 2022; and February 1, March 22, May 3, June 14, and July 26, 2023.

4.2.3 Alternative Lag Orders and Bandwidth Parameters

The baseline regression uses Newey-West standard errors to correct for heteroskedasticity and serial correlation, with the bandwidth parameter set to 6 and the lag order set to 5. To verify that the results are not sensitive to these choices, we report estimates using lag orders of 3 and 8 and Newey-West bandwidths of 4 and 9. As Figure 6 and Figure 5, the conclusions remain unchanged.

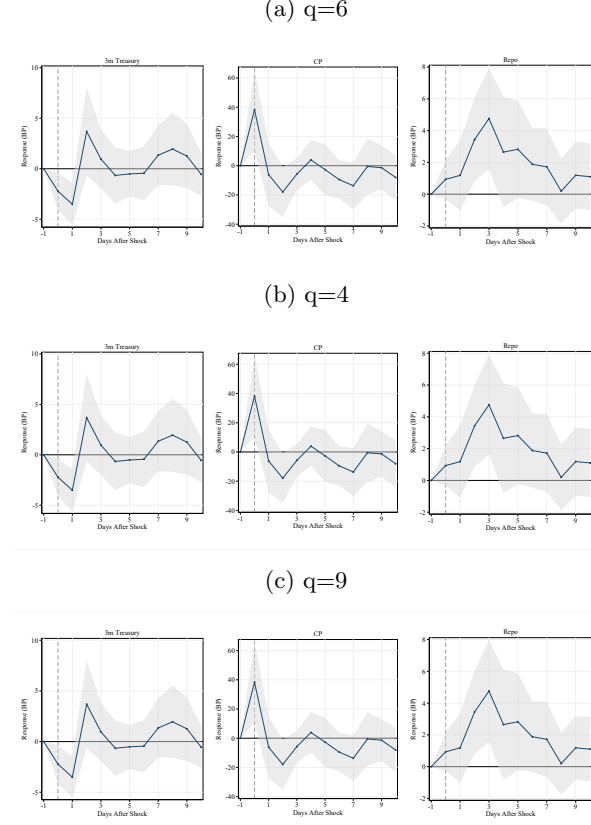


Fig. 6: Robustness to HAC Bandwidth. *Note:* This figure displays the dynamic responses of liquidity indicators across three key segments of the US money market under alternative Newey-West bandwidth parameters. Panels from left to right represent the 3-month Treasury (T-bill) market, the commercial paper (CP) market, and the repo market, respectively. Each panel overlays estimates under three bandwidth choices: the baseline specification with a truncation parameter of $q=6$, and two alternatives with $q=4$ and $q=9$. Estimates reflect the cumulative liquidity impact at horizon h following a de-pegging event. Coefficients denote the cumulative basis-point (bps) change in spreads per 1% increase in de-pegging. Shaded areas indicate 90% confidence intervals.

4.3 Identifying the Transmission Channel through Balance Sheet Constraints

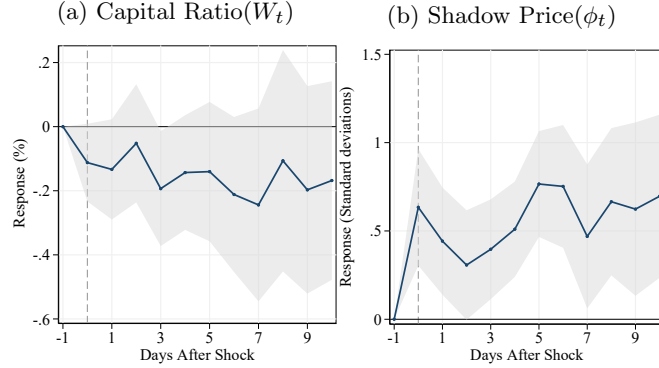


Fig. 7: The Response of Capital Stock Constraint (W_t) versus the Marginal Cost Constraint (ϕ_t). *Note:* This figure illustrates the transmission mechanism of de-pegging shocks to financial intermediaries. Estimates represent the cumulative impact on intermediary capital ratios and balance-sheet shadow prices at horizon h post-de-pegging. The capital stock constraint (W_t) is proxied by the primary dealer capital ratio, and the marginal cost constraint (ϕ_t) is proxied by the first principal component of G10-USD Covered Interest Parity deviations. The left panel reports cumulative changes in the capital ratio in percentage points; the right panel reports changes in the standardized CIP principal component in standard deviations. Shaded areas indicate 90% confidence intervals.

In the theoretical model 9, we predict that stablecoin depegging tightens the balance sheet constraints of financial intermediaries through two channels. First, stablecoin depegging leads to higher margin requirements on crypto assets and triggers reserve asset liquidations by stablecoin issuers, increasing intermediary capital utilization K and tightening the marginal cost constraint ϕ_t on balance sheet expansion. Second, if the depegging shock is large enough, the decline in stablecoin asset prices may reduce the total asset holdings of financial intermediaries, tightening the capital stock constraint on their funding capacity. Figure 7 and Table 4 show the effects of stablecoin depegging on both the capital stock constraint and the marginal cost constraint of financial intermediaries.

Turning to the capital stock constraint, the results indicate that the capital level of primary dealers is largely unaffected following a stablecoin depegging event. This finding is consistent with the current state of the market: while stablecoins have come to exert a non-negligible influence on money markets, their scale remains insufficient to materially impair the book capital of primary dealers globally. The response of W_t to stablecoin depegging suggests that the capital stock constraint is not the primary channel of liquidity risk transmission over the sample period. If capital erosion were the main driver of liquidity deterioration, a decline in the capital ratio should precede or coincide with the tightening of money market liquidity, yet the liquidity dynamics across all three market segments are inconsistent with this pattern. Taking the commercial paper market as an example, significant liquidity deterioration appears at

$h = 0$, while the capital ratio shows no measurable change at the same horizon and only a modest, short-lived decline at $h = 3$. This timing indicates that the transmission of liquidity stress does not require an observable decline in capital stock as a precondition. The results for the marginal cost constraint ϕ_t differ from those for W_t .

Table 4: Intermediary Balance Sheet Responses

	$h=0$	$h=1$	$h=2$	$h=3$	$h=4$	$h=5$	$h=6$	$h=7$	$h=8$	$h=9$	$h=10$
Panel A: Intermediary Capital Ratio (W_t, %)											
<i>(i) With controls</i>											
DepegShock $_t$	-0.112 (0.074)	-0.133 (0.095)	-0.052 (0.112)	-0.193* (0.109)	-0.143 (0.109)	-0.140 (0.132)	-0.212 (0.147)	-0.244 (0.183)	-0.106 (0.210)	-0.197 (0.197)	-0.168 (0.188)
Constant	0.032	0.060	0.088	0.115	0.140	0.166	0.188	0.206	0.223	0.238	0.256
Observations	738	738	738	738	738	738	737	736	735	734	733
R^2	0.091	0.077	0.082	0.094	0.103	0.105	0.112	0.117	0.122	0.132	0.141
<i>(ii) Without controls</i>											
DepegShock $_t$	-0.094 (0.076)	-0.125 (0.099)	-0.051 (0.123)	-0.213* (0.120)	-0.186 (0.123)	-0.176 (0.149)	-0.213 (0.157)	-0.262 (0.195)	-0.106 (0.223)	-0.206 (0.214)	-0.157 (0.203)
Constant	0.007	0.014	0.021	0.029	0.038	0.046	0.054	0.062	0.070	0.076	0.081
Observations	738	738	738	738	738	738	737	736	735	734	733
R^2	0.049	0.041	0.045	0.050	0.051	0.044	0.047	0.047	0.047	0.050	0.051
Panel B: Balance-Sheet Shadow Price (ϕ_t, s.d.)											
<i>(i) With controls</i>											
DepegShock $_t$	0.634*** (0.200)	0.442** (0.184)	0.307 (0.188)	0.396** (0.172)	0.510*** (0.164)	0.766*** (0.182)	0.752*** (0.211)	0.469* (0.248)	0.665*** (0.253)	0.624** (0.298)	0.697** (0.281)
Constant	0.957	1.000	1.044	0.987	0.618	-0.252	-0.428	-0.619	-0.752	-1.110	-1.653
Observations	738	738	738	738	738	738	737	736	735	734	733
R^2	0.130	0.181	0.185	0.156	0.131	0.154	0.179	0.183	0.182	0.187	0.210
<i>(ii) Without controls</i>											
DepegShock $_t$	0.630*** (0.202)	0.400** (0.181)	0.200 (0.188)	0.308** (0.139)	0.446*** (0.149)	0.641*** (0.171)	0.646*** (0.213)	0.341 (0.240)	0.551** (0.253)	0.511 (0.322)	0.538* (0.293)
Constant	0.011	0.024	0.036	0.041	0.043	0.047	0.061	0.073	0.083	0.093	0.106
Observations	738	738	738	738	738	738	737	736	735	734	733
R^2	0.106	0.143	0.133	0.097	0.066	0.082	0.096	0.091	0.082	0.078	0.091

Note: This table reports impulse response estimates from the baseline local projection model (11) with intermediary balance-sheet variables as dependent variables, across horizons $h = 0, \dots, 10$. Panel A reports the cumulative percentage-point change in the primary dealer capital ratio (W_t) per 1% increase in DepegShock $_t$. Panel B reports the cumulative change in the standardized first principal component of G10-USD CIP deviations (ϕ_t), measured in standard deviations, per 1% increase in DepegShock $_t$. All specifications include five lags of the dependent variable and the de-pegging shock. Newey-West standard errors (bandwidth = 6) are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

As shown in Figure 7b, the coefficients for ϕ_t are positive across the entire impulse response window and reach statistical significance at multiple horizons. The marginal cost constraint rises immediately on the day of the depegging shock ($h = 0$), continues to increase thereafter, and peaks at $h = 5$. The response pattern of ϕ_t corresponds

in timing to the liquidity dynamics across the three money market segments in the baseline results. The most direct correspondence appears in the commercial paper market, where liquidity deteriorates significantly at $h = 0$, in step with the immediate response of ϕ_t , consistent with the commercial paper market’s high sensitivity to funding costs. The delayed peak in the repo market corresponds to the sustained rise of ϕ_t over the estimation window, while the initial liquidity improvement in the Treasury bill market is gradually offset as ϕ_t increases. It should be noted that the timing correspondence described above is based on impulse response results from the local projection method and provides evidence consistent with the theoretical mechanism rather than strict causal identification.

Taking the impulse response results for both balance sheet constraints together, the primary driver of transmission is the marginal cost constraint rather than the capital stock constraint. Stablecoin depegging raises the marginal cost of balance sheet expansion for intermediaries, and this response appears before any measurable change in capital stock, with its timing consistent with the liquidity dynamics across all three money market segments. By contrast, the capital stock shows only modest declines at isolated horizons, which are insufficient to account for either the magnitude or the speed of the liquidity deterioration observed in the baseline results.

4.4 Heterogeneity Analysis

4.4.1 State-Dependent Effects of Liquidity Deterioration on Intermediary Capital

Figure 8 shows the responses of money markets to stablecoin depegging under tight and loose intermediary capital conditions. The results show that liquidity deterioration is more pronounced across all three market segments when intermediary capital is constrained, with this state-dependent pattern being particularly evident in the Treasury and commercial paper markets. When intermediary capital is ample, liquidity in these two markets not only fails to deteriorate significantly following a depegging event but actually improves in a statistically significant manner over the estimation window. By contrast, under tight capital conditions, a depegging shock of the same magnitude produces liquidity deterioration of the opposite sign and greater magnitude. Compared with the initial liquidity improvement in the Treasury market observed in the baseline regression, this improvement is completely reversed when intermediary capital is constrained. As shown in Figure 8a, a 1% depegging shock leads to a significant liquidity spread deterioration of 7.11 basis points at $h = 2$; while some reversal occurs over the following two days, the deterioration does not fully dissipate. In contrast, Figure 8d shows that when intermediary capital is loose, stablecoin depegging has a significant and persistent positive effect on Treasury market liquidity. These contrasts illustrate that safe-haven demand and reserve liquidation pressure coexist following a stablecoin depegging event, and the relative strength of the two forces depends on the state of intermediary capital stock constraints.

The state-dependent results across all three market segments indicate that the elasticity of transmission depends on the slack in intermediary balance sheets: shock transmission is dampened when capital is ample and significantly amplified when

capital is scarce. Intermediary capital conditions represent the key state variable governing liquidity supply capacity: when capital buffers are adequate and funding constraints are relatively loose, intermediaries can effectively perform their market-making function and have both the willingness and the capacity to supply liquidity. When intermediary capital is tight, however, value-at-risk constraints and leverage limits prevent intermediaries from fully absorbing the reserve assets that stablecoin issuers are forced to sell in response to redemptions, and depegging shocks are therefore significantly amplified through the intermediary balance sheet channel and transmitted to broader traditional financial markets.

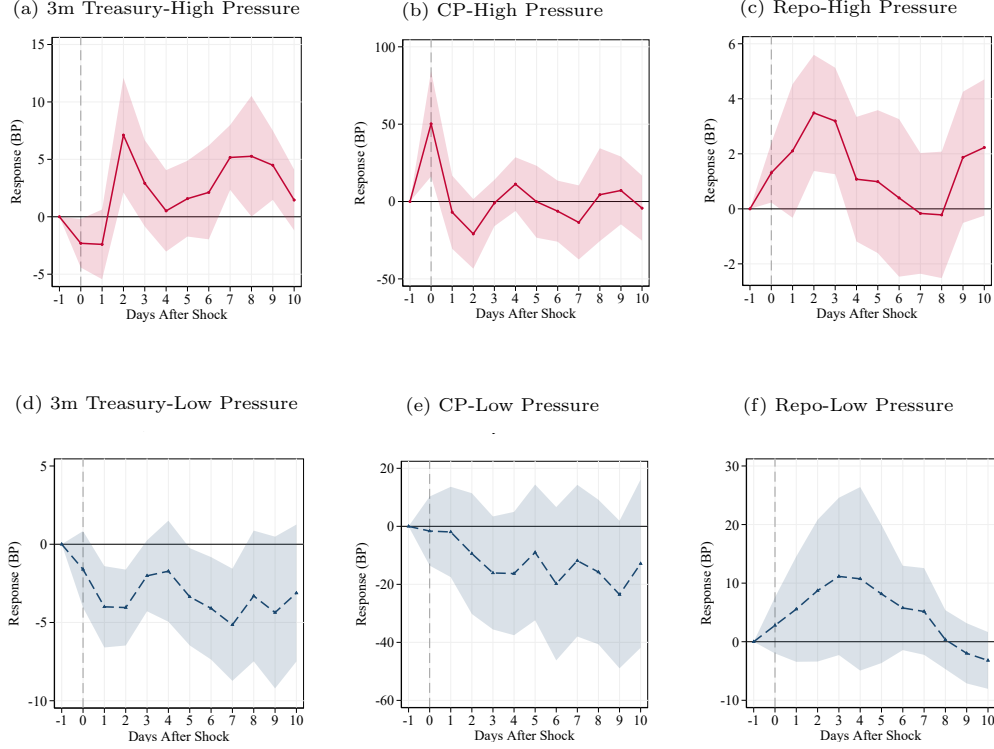


Fig. 8: Liquidity Responses to Stablecoin De-pegging by Intermediary Capital Status. *Note:* This figure illustrates how intermediary balance-sheet capacity conditions the impact of stablecoin de-pegging on money market liquidity. Estimates are derived from the state-dependent local projection model in Eq. (12), where regimes are defined by the level of intermediary capital scarcity. Coefficients denote the cumulative basis-point (bps) change in liquidity spreads per 1% increase in de-pegging within the “High Pressure” and “Low Pressure” regimes. Shaded areas indicate 90% confidence intervals.

4.4.2 State-Dependent Effects of Liquidity Deterioration on the Monetary Policy Environment

While intermediary capital adequacy serves as a direct proxy for the capital stock constraint on balance sheet capacity discussed in the theoretical framework, Federal Reserve monetary policy is another important factor shaping intermediary funding capacity, affecting not only funding demand through the interest rate channel but also credit supply by influencing the balance sheet conditions of financial intermediaries (Sengupta et al. 2025). To further examine how the broader monetary environment moderates the transmission effects of stablecoin depegging, we divide the sample period into two phases: a monetary tightening cycle and a non-tightening cycle. The tightening cycle covers March 2022 to August 2024, corresponding to the period of consecutive Federal Reserve rate hikes and the subsequent period of elevated rates; the non-tightening cycle includes the period before rate hikes began (January to February 2022) and the period after rate cuts commenced (September 2024 onward). Within the framework of equation (12), we replace the intermediary capital state with the monetary policy cycle as the regime indicator and re-estimate the state-dependent local projection model. The results are shown in Figure 9.

During the tightening cycle, the response patterns across all three markets closely mirror the baseline results. In the Treasury market (Figure 9a), the bid-ask spread declines at $h = 0$ and $h = 1$, consistent with the flight-to-safety effect in the baseline regression; a subsequent reversal occurs but does not reach statistical significance, and the remaining horizons within the window are also insignificant. The commercial paper market (Figure 9b) shows a significant spread jump on the day of the shock ($h = 0$), with a 1% depegging shock causing spreads to rise by 42.74 basis points, preserving the pattern of immediate sensitivity observed in the baseline regression, before quickly reverting. The repo market (Figure 9c) shows significant spread widening of 2.80 and 2.66 basis points at $h = 2$ and $h = 3$, respectively, for a 1% depegging shock, displaying the same delayed peak pattern as in the baseline regression, before gradually returning to pre-shock levels.

The responses during the non-tightening cycle exhibit different characteristics. The Treasury market (Figure 9d) shows no significant response in the early horizons, but from $h = 6$ onward the bid-ask spread shifts to a sustained and significant decline that does not reverse within the estimation window. This pattern is consistent with the interpretation that safe-haven flows into short-term safe assets persist for longer under an accommodative monetary environment. The commercial paper market (Figure 9e) shows significant spread declines at $h = 2$ and $h = 6$, in contrast to the immediate deterioration at $h = 0$ during the tightening cycle, possibly reflecting that the commercial paper market faces less credit reassessment pressure in an accommodative environment, allowing the effect of fund reallocation toward short-term credit instruments to emerge. The repo market (Figure 9f) shows a significant spread increase at $h = 3$, with a 1% depegging shock associated with a spread widening of 26.10 basis points, while all other horizons are insignificant. However, this result is accompanied by substantially wider confidence intervals, indicating greater dispersion in the repo market's response to depegging shocks during the non-tightening cycle, and the point estimates should therefore be interpreted with caution.

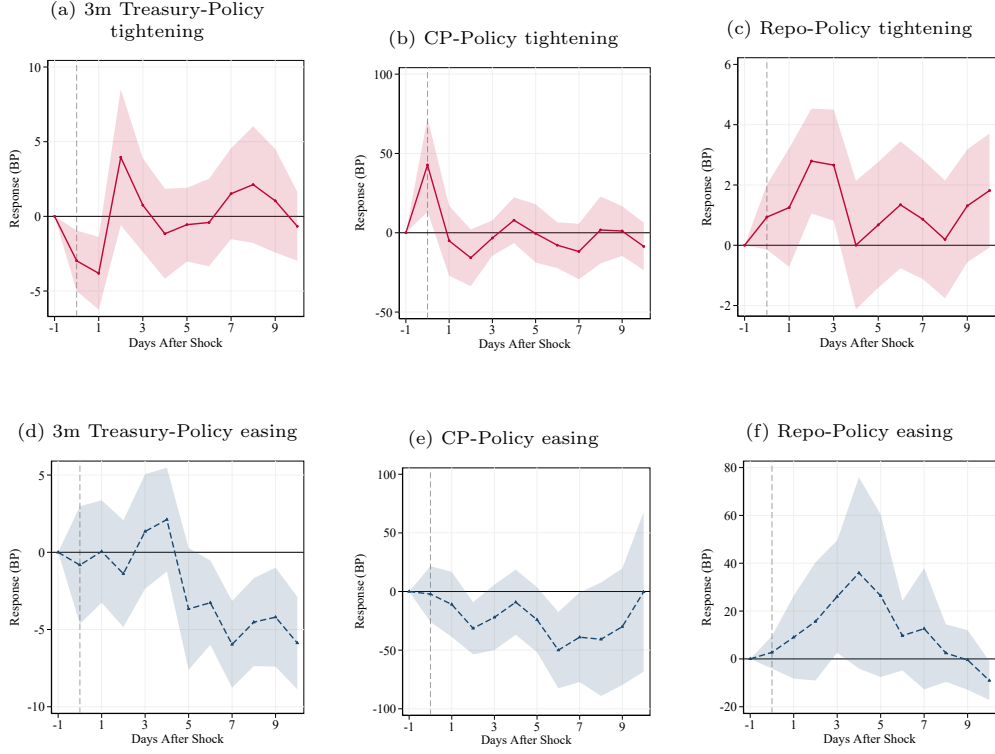


Fig. 9: Liquidity Responses to Stablecoin De-pegging across Monetary Policy Cycles. *Note:* This figure illustrates how the monetary policy cycle conditions the transmission of stablecoin de-pegging shocks to money market liquidity. Estimates are derived from the state-dependent local projection model in Eq. (12), where regimes are defined by the Federal Reserve's monetary policy stance. The tightening cycle covers March 2022 through August 2024, encompassing the consecutive rate-hike phase and the subsequent high-rate plateau; the non-tightening period comprises the pre-hike months (January–February 2022) and the easing phase beginning in September 2024. Upper panels (red, solid) report impulse responses during the tightening cycle; lower panels (blue, dashed) report responses during the non-tightening period. Coefficients denote the cumulative basis-point (bps) change in liquidity spreads per 1% increase in de-pegging within each regime. Shaded areas indicate 90% confidence intervals.

The comparison between the two cycles reveals the moderating role of the monetary policy environment in the transmission of stablecoin depegging shocks. During the tightening cycle, the three heterogeneous transmission patterns identified in the baseline regression, namely the initial flight-to-safety effect in the Treasury market, the immediate deterioration in the commercial paper market, and the delayed peak in the repo market, are fully replicated in the tightening subsample. During the non-tightening cycle, the response directions in the Treasury and commercial paper markets reverse, shifting from liquidity deterioration to improvement, indicating that stablecoin depegging shocks can produce liquidity effects of opposite signs under different monetary policy environments. While the repo market shows spread widening under both cycles, the tightening cycle produces moderate responses that are significant across multiple horizons, whereas the non-tightening cycle response is concentrated at

a single horizon and of much larger magnitude. These differences suggest that a tight monetary policy stance is an important background condition for the liquidity deterioration effects observed in the baseline regression, a finding that has implications for the countercyclical design of stablecoin regulatory frameworks.

5 Discussion

To assess the economic significance of the baseline estimates, we substitute the actual shock magnitudes from major stablecoin depegging events during the sample period into the baseline regression coefficients to evaluate the implied effects on liquidity. It should be noted that the depegging shock variable in this paper is weighted by both market capitalization and Markov regime probabilities, so large price deviations in a single stablecoin may be moderated in the composite index by the performance of other stablecoins. For example, during the Silicon Valley Bank crisis in March 2023, the maximum daily closing price deviation of USDC reached 0.63%, but USDT remained stable over the same period, so the peak value of the composite depegging shock variable was approximately 0.23%. Furthermore, since this paper uses daily closing data, the depegging shock variable captures market conditions at the close of each trading day and may understate the instantaneous liquidity pressure during intraday periods of extreme deviation. The estimated coefficients should therefore be regarded as conservative estimates of the transmission effects of stablecoin depegging.

Building on this, Table 5 summarizes the implied liquidity effects under the baseline estimates for three major stablecoin depegging events. The Silicon Valley Bank crisis (March 2023) and the Terra/Luna collapse (May 2022) both produced peak composite depegging magnitudes of approximately 0.23%, which, when applied to the baseline coefficients, imply a commercial paper spread increase of approximately 8.82 bp on the day of the shock and a cumulative repo spread widening of approximately 1.09 bp at $h = 3$. The FTX collapse (November 2022) produced a peak composite depegging shock of approximately 0.54%, implying an immediate CP spread shock of approximately 20.71 bp. Moreover, as shown in the state-dependent analysis in Section 4.4.1, when intermediary capital is under stress, the 3-month Treasury market reverses from liquidity improvement to significant deterioration, and the magnitude of liquidity deterioration in both the commercial paper and repo markets exceeds that in the baseline results.

We use the effects of Federal Reserve monetary policy as a benchmark, computing the actual changes in liquidity measures across the three markets on Fed rate hike announcement days during the sample period. It should be noted that market changes on rate hike days reflect the combined influence of all concurrent factors, not monetary policy alone, so the comparisons below are intended to provide a reference scale rather than a rigorous causal benchmark. Across the 11 rate hikes from March 2022 to July 2023, the average absolute change in the CP spread on the day of the hike ($h = 0$) was approximately 5.64 bp; the cumulative average absolute change in the Treasury bid-ask spread by the first day after the hike ($h = 1$) was approximately 2.72 bp; and the cumulative average absolute change in the repo spread by the third day ($h = 3$) was approximately 0.91 bp. Using this as a reference, the implied immediate CP spread

Table 5: Implied Liquidity Impact of Major De-pegging Events

Event	Peak Shock (%)	T-bill (bp)	CP (bp)	Repo (bp)
Terra/Luna Crash (May 2022)	0.23	−0.81	8.82	1.09
FTX Collapse (Nov 2022)	0.54	−1.90	20.71	2.57
SVB Crisis (Mar 2023)	0.23	−0.81	8.82	1.09
Sample Maximum (Jul 2022)	0.63	−2.22	24.16	3.00

Note: This table reports the implied liquidity impact of major de-pegging events based on the baseline local projection estimates. Peak Shock denotes the maximum daily value of the probability-weighted composite de-pegging variable (DepegShock_t) during each event window. Implied impacts are computed by multiplying the peak shock by the baseline coefficients: T-bill column uses $\hat{\beta}_0 = -3.52$ (bid-ask spread, $h = 1$); CP column uses $\hat{\beta}_0 = 38.35$ (CP spread, $h = 0$); Repo column uses $\hat{\beta}_3 = 4.76$ (repo spread, $h = 3$). All impacts are expressed in basis points.

effect of the FTX bankruptcy under the baseline estimates (20.71 bp) is approximately 3.7 times the average absolute change on rate hike days, and even the smaller-scale Silicon Valley Bank crisis and Terra/Luna collapse imply a CP spread shock (8.82 bp) that exceeds the rate hike day average. In the Treasury market, the implied cumulative change in the bid-ask spread from a Silicon Valley Bank-scale depegging event (approximately 0.81 bp at $h = 1$) is about one-third of the corresponding rate hike day change, suggesting that while the liquidity improvement from stablecoin depegging is statistically significant, its magnitude remains smaller than that of monetary policy shocks. In the repo market, the average cumulative change in the repo spread at $h = 3$ following rate hike decisions is only 0.91 bp, while the repo spread widening induced by stablecoin depegging shocks over the same window (1.09 bp to 2.97 bp) meets or exceeds this benchmark, indicating that the liquidity impact of stablecoin depegging on secured funding markets is no longer negligible in magnitude.

Looking ahead, the continued expansion of the stablecoin market could significantly amplify the magnitudes discussed above. During the sample period, the total stablecoin market capitalization was approximately \$200 billion³; according to projections by the U.S. Treasury Borrowing Advisory Committee, this figure could reach \$2 trillion by 2028⁴. If the allocation of reserve assets to Treasuries and repurchase agreements remains unchanged and the shock magnitude of depegging events stays constant, a depegging episode of equivalent severity at ten times the current market scale could trigger a proportional increase in reserve liquidation volumes.

This paper has several limitations. First, the sample period covers 2022 to early 2025, a time during which the regulatory environment for stablecoin markets was evolving rapidly across jurisdictions. Since 2025, several major economies have introduced stablecoin regulatory legislation, and requirements for reserve asset transparency and liquidity management are undergoing substantial changes. These new policies may alter both the intensity and the channels of stablecoin depegging shock

³Data Source: <https://data.coindesk.com/reports/stablecoins-cbdcs-report>

⁴Available at <https://home.treasury.gov/system/files/221/TBACCharge2Q22025.pdf>.

transmission. Future research could extend the sample period beyond the implementation of new regulatory frameworks to examine how institutional changes affect cross-market transmission mechanisms. In addition, the local projection method estimates conditional mean paths and cannot directly identify the dynamic parameters of liquidity spirals, leaving room for further development in future research.

6 Conclusion

The stablecoin market has grown rapidly in recent years. By pegging to real assets and maintaining a 1:1 exchange rate with the U.S. dollar, stablecoins have gained wide adoption in crypto markets on account of their perceived safety and stability. However, because stablecoins are traded in secondary markets, price swings caused by extreme events can cause their prices to deviate from the peg. The large-scale redemptions triggered by such depegging events force stablecoin issuers to liquidate their traditional reserve assets in a concentrated manner, potentially transmitting stress to traditional money markets. Using data on major stablecoins from 2022 to 2025, this paper develops a cross-market liquidity framework that incorporates stablecoins, employs the local projection method to examine the dynamic effects of stablecoin depegging shocks on three segments of the U.S. money market, and further analyzes how these effects depend on the capital conditions of financial intermediaries. The main findings are as follows.

Stablecoin depegging shocks generate liquidity effects that differ in both direction and timing across markets. Liquidity in the 3-month Treasury bill market improves briefly in the initial period following a depegging event before subsequently reversing. Liquidity in the commercial paper market deteriorates significantly on the day of the shock, reflecting the market’s immediate sensitivity to stablecoin depegging. Liquidity deterioration in the repo market follows a delayed peak pattern, consistent with the longer transmission lag characteristic of secured funding markets. The heterogeneous responses across the three markets indicate that the impact of stablecoin depegging on money markets is not uniform, but unfolds in a manner shaped by the structural characteristics of each market. The identification of the transmission channel shows that the impact of stablecoin depegging on financial intermediaries is primarily reflected in a rise in the marginal cost of expanding balance sheet capacity, that is, a tightening of the marginal cost constraint on intermediary funding, rather than a material decline in the level of capital stock. This suggests that stablecoin depegging events do not yet pose a direct threat to the capital stock of primary dealers, but have begun to affect the marginal cost at which they supply liquidity to money markets. Further heterogeneity analysis shows that liquidity deterioration in the Treasury bill, commercial paper, and repo markets is significantly amplified when intermediary capital constraints are tight or when the Federal Reserve is in a monetary tightening cycle. When intermediary capital constraints are loose or monetary policy is in an easing cycle, depegging shocks of the same magnitude have limited or even opposite effects on liquidity. This asymmetric dependence of transmission intensity on intermediary capital conditions and the broader monetary environment implies that the risk spillovers from stablecoin depegging vary with the underlying fragility of the financial system.

The above findings have three implications for the macroprudential regulation of stablecoins. First, reserve asset regulation should not be limited to a 100% reserve coverage requirement. The results of this paper show that even when reserves are fully in place, concentrated liquidation can itself cause significant disruption to money market liquidity. Regulatory frameworks should go beyond eligible asset lists to incorporate tiered monitoring based on the liquidity characteristics of different reserve asset categories, and should require issuers to maintain adequate liquidity buffers to reduce the supply-side pressure that reserve liquidations impose on underlying markets during peak redemption periods. Second, the indirect risk exposures of financial intermediaries to stablecoin markets need to be brought within the regulatory perimeter. This paper finds that the intensity of stablecoin depegging shock transmission depends on the state of intermediary balance sheet constraints, meaning that even intermediaries without direct stablecoin positions still bear redemption pressure from stablecoin markets in their capacity as market makers and liquidity providers for reserve assets. Incorporating this indirect exposure into stress testing and position limit frameworks would help ensure that intermediaries retain the capacity to maintain market-making functions under cross-market shocks. Third, the finding that commercial paper market liquidity deteriorates significantly on the day of the shock suggests that regulators should pay attention to the immediate impact of stablecoin depegging events on unsecured funding markets. As an important instrument of short-term corporate financing, a sudden tightening of commercial paper market liquidity could transmit to financing conditions in the real economy, and this indirect channel deserves consideration in future regulatory assessments.

Declarations

Funding

No funding was received for conducting this study.

Data Availability

The data that support the findings of this study are available from the corresponding author upon request.

Code Availability

The Stata code used for estimation is available from the corresponding author upon reasonable request.

References

Adrian T, Shin HS (2010) Liquidity and leverage. *Journal of Financial Intermediation* 19(3):418–437. <https://doi.org/10.1016/j.jfi.2008.12.002>, risk Transfer Mechanisms and Financial Stability

- Ahmed R, Aldasoro I (2025) Stablecoins and safe asset prices, vol 1270. Bank for International Settlements, Monetary and Economic Department, doi: <https://doi.org/10.2139/ssrn.5242448>
- Aldasoro I, Cornelli G, Ferrari Minesso M, et al (2025) Stablecoins, money market funds and monetary policy. *Economics Letters* 247:112203. <https://doi.org/10.1016/j.econlet.2025.112203>
- Anadu K, Azar P, Cipriani M, et al (2025) Runs and flights to safety: Are stablecoins the new money market funds? FRB of Boston Supervisory Research & Analysis Unit Working Paper No SRA pp 23–02. Available at SSRN: <https://ssrn.com/abstract=5314284>
- Arvanitis S, Topaloglou N, Tsomidis G (2026) Behavioral personae, narrow framing, and stochastic dominance in the cryptocurrency market. *Annals of Operations Research* <https://doi.org/10.1007/s10479-026-07135-8>
- Barthélemy J, Gardin P, Nguyen B (2026) Stablecoins and short-term funding markets. *Journal of International Money and Finance* 161:103469. <https://doi.org/10.1016/j.jimonfin.2025.103469>
- Ben Hamadou F, Mezghani T, Boujelbene Abbes M (2025) Quantile-time-frequency risk spillover between investor attention, clean, and dirty cryptocurrency returns. *RISK MANAGEMENT-AN INTERNATIONAL JOURNAL* 27(3). <https://doi.org/10.1057/s41283-025-00162-y>
- Brunnermeier MK, Pedersen LH (2009) Market liquidity and funding liquidity. *The Review of Financial Studies* 22(6):2201–2238. <https://doi.org/10.1093/rfs/hhn098>
- Caramichael J, Liao G (2022) Stablecoins: Growth potential and impact on banking. *International Finance Discussion Paper* (1334). <https://doi.org/10.17016/IFDP.2022.1334>
- Carstens A (2021) Non-bank financial sector: systemic regulation needed. *BIS Quarterly Review* URL https://www.bis.org/publ/qtrpdf/r_qt2112_foreword.htm
- Coste CE (2024) Toss a stablecoin to your banker-stablecoins' impact on banks' balance sheets and prudential ratios. *ECB Occasional Paper* (2024/353). <https://doi.org/10.2139/ssrn.4906255>
- DU W, TEPPER A, VERDELHAN A (2018) Deviations from covered interest rate parity. *The Journal of Finance* 73(3):915–957. <https://doi.org/10.1111/jofi.12620>
- Duffie JD (2023) Resilience redux in the us treasury market. In: Jackson Hole Symposium, Federal Reserve Bank of Kansas City, August, doi: <https://doi.org/10.2139/ssrn.4552735>

- Gersbach H, van Buggenum H, Zelzner S (2026) Stablecoins as private money: A policy agenda. CFS Working Paper Series 738, Goethe University Frankfurt, Center for Financial Studies (CFS), doi: <https://doi.org/10.2139/ssrn.6107827>
- Gorton G, Ordoñez G (2014) Collateral crises. *American Economic Review* 104(2):343–378. <https://doi.org/10.1257/aer.104.2.343>
- Gorton GB, Zhang JY (2023) Taming wildcat stablecoins. *University of Chicago Law Review* 90:909. <https://doi.org/10.2139/ssrn.3888752>
- Gubareva M, Bossman A, Teplova T (2023) Stablecoins as the cornerstone in the linkage between the digital and conventional financial markets. *The North American Journal of Economics and Finance* 68:101979. <https://doi.org/10.1016/j.najef.2023.101979>
- HADDAD VALENTIN, MUIR TYLER (2021) Do intermediaries matter for aggregate asset prices? *The Journal of Finance* 76(6):2719–2761. <https://doi.org/10.1111/jofi.13086>
- Hamilton JD (1989) A new approach to the economic analysis of nonstationary time series and the business cycle. *Econometrica* 57(2):357–384. URL <http://www.jstor.org/stable/1912559>
- He Z, Krishnamurthy A (2013) Intermediary asset pricing. *AMERICAN ECONOMIC REVIEW* 103(2):732–770. <https://doi.org/10.1257/aer.103.2.732>
- He Z, Kelly B, Manela A (2017) Intermediary asset pricing: New evidence from many asset classes. *Journal of Financial Economics* 126(1):1–35. <https://doi.org/10.1016/j.jfineco.2017.08.002>
- Jordà O (2005) Estimation and inference of impulse responses by local projections. *American Economic Review* 95(1):161–182. <https://doi.org/10.1257/0002828053828518>
- Li Y, Mayer S (2021) Money creation in decentralized finance: A dynamic model of stablecoin and crypto shadow banking. Working paper, CESifo, <https://doi.org/10.2139/ssrn.3912369>
- Lyons RK, Viswanath-Natraj G (2023) What keeps stablecoins stable? *Journal of International Money and Finance* 131:102777. <https://doi.org/10.1016/j.jimonfin.2022.102777>
- Oefele N, Baur DG, Smales LA (2024) Flight-to-quality—money market mutual funds and stablecoins during the march 2023 banking crisis. *Economics Letters* 234:111464. <https://doi.org/10.1016/j.econlet.2023.111464>

- Rouz OF, Vafa HS, Khoojine AS, et al (2024) Interconnectedness of systemic risk in the chinese economy: the granger causality and ciss indicator approach. RISK MANAGEMENT-AN INTERNATIONAL JOURNAL 26(2). <https://doi.org/10.1057/s41283-024-00142-8>
- Seegolam HK, Joseph L (2026) Financial stability and systemic risks of stablecoins. In: Stablecoins and the Future of Financial Regulation. IGI Global Scientific Publishing, p 141–188, <https://doi.org/10.4018/979-8-3373-6655-5.ch006>
- Sengupta R, Vardhan H, Verma A (2025) Bank capital and monetary policy transmission: Analyzing the central bank’s dilemma. Economic Modelling 152:107158. <https://doi.org/10.1016/j.econmod.2025.107158>
- Shleifer A, Vishny R (2011) Fire sales in finance and macroeconomics. Journal of Economic Perspectives 25(1):29–48. <https://doi.org/10.1257/jep.25.1.29>
- Wang JJ (2025) Banks in the age of stablecoins: Some possible implications for deposits, credit, and financial intermediation. Feds notes, Board of Governors of the Federal Reserve System, Washington, doi: <https://doi.org/10.17016/2380-7172.3970>
- Wen F, Weng K, Zhou WX (2020) Measuring the contribution of chinese financial institutions to systemic risk: an extended asymmetric covar approach. RISK MANAGEMENT-AN INTERNATIONAL JOURNAL 22(4):310–337. <https://doi.org/10.1057/s41283-020-00064-1>
- Wu GST, Leung PH (2023) Do asset-backed stablecoins spread crypto volatility to traditional financial assets? evidence from tether. Economics Letters 229:111213. <https://doi.org/10.1016/j.econlet.2023.111213>