

The Hidden Plumbing of Stablecoins: Risks, Regulation, and Implications for Financial Services

RESEARCH BRIEF

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Date: February 2026

Executive Summary

In reviewing this research from MIT and the Bank of England, I am struck by its central argument: U.S. dollar stablecoins have crossed from the margins of crypto markets into mainstream financial infrastructure, and the GENIUS Act (2025) — while a meaningful step forward — solves only part of the stability problem. In my assessment, the paper makes a compelling case that stablecoin stability under stress depends not just on the quality of reserve assets, but on the functioning of Treasury and repo markets, the balance-sheet capacity of broker-dealers, and the operational reliability of blockchain technology. All three of these layers carry underappreciated risks that the GENIUS Act largely leaves unaddressed. I believe every financial services professional should understand these dynamics as stablecoins scale into mainstream use.

Part I: What the GENIUS Act Does (and Doesn't Do)

What the Act Establishes

The GENIUS Act requires stablecoin issuers to maintain 1:1 backing reserves in U.S. cash, bank deposits, or Treasury securities, and to redeem stablecoins at par value (i.e., \$1 stablecoin = \$1 USD). Issuers must publish monthly public disclosures of reserve composition and are prohibited from rehypothecating backing assets. These provisions meaningfully improve reserve quality and transparency compared to the pre-GENIUS environment. The Act also creates the Stablecoin Certification Review Committee (SCRC) to develop further capital and liquidity standards.

What the Act Leaves Unresolved

In my view, the GENIUS Act implicitly treats stablecoin stability as a **balance-sheet problem** — one that can be solved through conservative asset holdings alone. The paper's central thesis, which I find persuasive, is that this framing is dangerously incomplete. Four critical gaps remain:

- **No capital adequacy standard** — GENIUS appears to prohibit applying bank-style capital requirements to stablecoin issuers, yet most issuers analyzed would have been classified as critically undercapitalized under FDICIA bank standards
- **No defined redemption mechanics** — The Act requires a redemption policy but doesn't specify how it works; today, Circle limits direct redemption to 521 entities and Tether to just 6
- **No Fed backstop access** — Unlike banks, stablecoin issuers have no access to the Fed discount window or deposit insurance
- **No technical infrastructure requirements** — There are no mandates for smart contract audits, key management practices, or cross-chain interoperability standards

Part II: The Three Layers of Stablecoin Risk

Layer 1 — Financial Risk: Capital Fragility

One of the most important concepts I take from this paper is where stablecoins actually sit in the monetary hierarchy. Stablecoins sit below bank deposits because redemption must settle through commercial bank deposits — and, when Treasuries are involved, through broker-dealer intermediation. This structural placement means stablecoins carry real redemption risk even when reserves appear high quality.

What I find most striking is the capital adequacy data. The paper calculates leverage ratios for five major issuers across 2023–2025:

Issuer	Avg. Leverage Ratio	Bank Equivalent Status
Circle (USDC)	0.04% – 0.21%	Critically Undercapitalized
PayPal (PYUSD)	0.27% – 2.29%	Critically/Significantly Undercapitalized
Paxos (USDP)	0.00% – 0.61%	Critically Undercapitalized
Tether (USDT)	2.99% – 5.68%	Ranges from Undercapitalized to Well-Capitalized

Ripple (RLUSD)	3.40% – 7.21%	Ranges from Undercapitalized to Well-Capitalized
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Note: FDICIA minimum for 'adequately capitalized' bank: 4%; 'well capitalized': 5%

The structural paradox I draw from this data: the issuers with reserve portfolios **most aligned with GENIUS** (Circle, PayPal, Paxos) have the **lowest capital buffers**. Tether and Ripple, which hold riskier assets like Bitcoin and corporate bonds, paradoxically appear better capitalized on this measure.

Layer 2 — Market Risk: Treasury Market Fragility

Stablecoin issuers hold the majority of reserves in short-duration Treasuries and overnight repos. To meet a redemption surge, they must liquidate those securities through broker-dealers. In my view, this creates a critical and underappreciated dependency on Treasury market intermediation infrastructure. Two recent stress events illustrate the concern:

- **September 2019 repo spike:** SOFR jumped from 2.43% to 5.25% in a single day on no unusual volume
- **March 2020 "dash for cash":** A selloff of less than \$100 billion — less than ½ of 1% of publicly held U.S. Treasuries — caused a market meltdown requiring emergency Fed intervention

That \$100 billion figure should be a red flag. It represents approximately **one-third of the current total market value of all stablecoins**. Optimistic forecasts project stablecoin market value reaching \$2–\$4 trillion by 2030 — potentially a destabilizing share of the \$26–27 trillion in publicly held U.S. government debt forecast for that year.

The **Supplementary Leverage Ratio (SLR)** is the structural bottleneck I believe deserves the most attention. Major U.S. dealer banks are operating near their SLR regulatory floor of ~5% as of Q3 2025. The Fed's Standing Repo Facility (SRF), designed to address this, does not fully solve the problem: borrowing from the SRF still increases broker-dealer recorded assets, further compressing SLR headroom.

Layer 3 — Technological Risk: Blockchain Infrastructure

I consider the technological risk section to be the paper's most novel contribution to the policy debate. Public blockchains introduce risks that do not exist in traditional payment systems, and the GENIUS Act addresses virtually none of it. Key risks I believe warrant serious attention:

- **Smart contract bugs** — Logic errors can freeze funds, allow unauthorized minting/burning, or misroute redemptions; extremely difficult to patch on live blockchains
- **Key custody failures** — Loss or theft of administrative private keys can give attackers unchecked control over the stablecoin's total supply
- **Bridge vulnerabilities** — Cross-chain bridges are the most frequently exploited attack surface in crypto; over \$2 billion in losses documented through bridge hacks
- **Oracle manipulation** — External data feeds used by smart contracts can be manipulated to trigger adversarial conditions
- **Consensus/validator concentration** — Dominant validators can censor transactions, reorder them for profit, or destabilize finality guarantees
- **Network congestion** — Blockchain networks slow during stress events — precisely when fast, reliable settlement is most critical
- **Quantum computing risk** — Future advances could compromise the cryptographic key infrastructure underpinning all public blockchains

The key asymmetry I highlight from traditional finance: in bank payments, errors can be investigated and reversed through established dispute-resolution channels. On a public blockchain, **transactions are generally irreversible**, responsibility is diffuse, and there is limited scope for ex-post correction. Financial and technological risks also interact: a large stablecoin's transaction volume increases the incentive for adversaries to attack the underlying blockchain. A successful attack that delays redemptions can trigger a financial run even when reserves are fully intact.

Part III: The Fed Backstop Dilemma

The paper surfaces a central policy dilemma that I believe has no clean answer — and I think it is important to be honest about that complexity rather than paper over it.

Option A — Grant Stablecoin Issuers Fed Access (Discount Window / SRF)

- Directly resolves the liquidity bottleneck without market intermediation
- Reduces run incentives (holders know the issuer has a backstop)
- Requires bank-equivalent regulation, increasing costs; threatens viability in low-rate environments
- Risks disintermediating commercial banks by diverting reserves out of the banking system
- Complicates monetary policy transmission

Option B — Allow "Fed Skinny Accounts" (Non-Interest-Bearing Reserve Access)

- Reduces dependency on third-party banks for settlement
- Lower cost than full Fed membership
- Does not solve the broker-dealer bottleneck; issuers still must liquidate Treasuries through the market
- Reserve diversion out of the banking system still contracts bank deposits and reduces lending capacity

In my view, the right resolution will depend heavily on how large stablecoins become relative to the Treasury market — a threshold the industry may be approaching faster than regulators are moving.

Part IV: Industry Implications

For Stablecoin Issuers

I believe the most GENIUS-compliant issuers face a structural business model tension: conservatively held reserves generate thinner capital buffers. Expect regulatory pressure for explicit capital buffers that may challenge business economics at low interest rates. Technology governance — smart contract audits, key management, blockchain monitoring — will increasingly be a regulatory expectation and competitive differentiator. The current two-tiered redemption model (direct access limited to ~500 institutional clients) also faces growing scrutiny; regulatory pressure to expand direct access is likely, but this creates a competing run-risk tradeoff the industry needs to work through carefully.

For Commercial Banks

My read of this paper's implications for banks is sobering. Stablecoin growth creates a structural disintermediation channel: as consumers and corporates move dollars into stablecoins, bank deposits contract. If stablecoin issuers gain Fed reserve access, the effect is further amplified as reserves flow out of the banking system. The major dealer banks constrained by SLR face an especially difficult position: they are the critical intermediaries for stablecoin redemption but have limited capacity to absorb stress-event selling surges. Banks providing custody, banking services, or distribution for stablecoin issuers also need to carefully assess the new operational and reputational risk vectors this creates.

For Asset Managers and Broker-Dealers

I see a significant structural dynamic emerging for this segment. A \$2–4 trillion stablecoin market by 2030 would represent a continuous, structural source of demand for short-term

Treasuries and repos — but also a potentially concentrated seller in stress events. Broker-dealers face a structural conflict: SLR constraints mean that periods of greatest demand for their Treasury intermediation capacity coincide with the greatest constraint on their ability to provide it. The paper notes that central clearing mandates under GENIUS will have limited impact on SLR headroom — the bottleneck is structural, not procedural.

For Regulators and Policymakers

From a policy perspective, I believe the most urgent issue is the regulatory asymmetry created by GENIUS: stablecoin issuers face bank-like run dynamics without bank-like safety nets. The 'singleness of money' principle — that a dollar should be worth a dollar regardless of form — is at genuine risk if stablecoins trade at variable discounts and retail holders cannot directly redeem at par. The interoperability gaps across blockchains also risk a fragmented 'wildcat banking' scenario; the historical precedent from the pre-Federal Reserve era of state-chartered banks is uncomfortably relevant. What I think is ultimately needed is an integrated cross-agency approach spanning financial stability, payment system oversight, and technology governance — something the GENIUS Act does not currently mandate.

For Corporate Treasurers and Institutional Investors

I would advise corporate treasurers and institutional investors to treat stablecoins as a treasury instrument with tail risks that do not exist in bank deposits or MMFs: no deposit insurance, no Fed backstop, thin capital buffers, and genuine technology failure risk. Par value during stress is not guaranteed for holders outside the small circle of direct-redemption participants. The SVB crisis in 2023 made this concrete: USDC briefly lost its peg, and retail holders outside the direct-redemption circle absorbed losses while institutional partners did not. I do not believe this is widely understood by corporate cash managers who are now being marketed stablecoin-based payment and treasury products.

Part V: My Bottom Line Assessment

The GENIUS Act is a meaningful step forward. It establishes reserve quality standards, transparency requirements, and a supervisory structure where none previously existed. But I find the paper's central argument convincing: the Act solves the easy problem — balance-sheet composition — while leaving the hard problems largely unaddressed. Three structural vulnerabilities remain that I believe require urgent policy attention:

- **Capital adequacy** — Most GENIUS-aligned issuers are critically undercapitalized by any conventional standard, with no corrective-action regime to compel remediation

- **Market intermediation capacity** — Even a modest redemption surge could overwhelm Treasury market infrastructure given SLR-constrained dealer balance sheets, and the SRF does not reliably resolve this
- **Technology governance** — Public blockchain infrastructure carries risks of a kind that incumbent financial systems do not face, and GENIUS mandates no technical standards whatsoever

The authors conclude — and I agree — that durable stablecoin stability will require an **integrated regulatory approach** spanning financial market structure, prudential oversight, and software governance. Stablecoins should be treated not just as a balance-sheet entity to be regulated, but as a new layer of monetary infrastructure with dependencies that run deep into both traditional markets and novel technology systems simultaneously.

As a professional operating at the intersection of payments, banking, and digital assets, I believe the institutions that engage seriously with these dynamics now — rather than waiting for the next crisis to force the issue — will be best positioned to shape the regulatory outcome and protect their stakeholders.

Sources: Aronoff, D.J., Calabia, F.C., Brownworth, A., Samuel, A., Narula, N. "The Hidden Plumbing of Stablecoins: Financial and Technological Risks in the GENIUS Act Era." MIT / Bank of England, 2025–2026. All data points, ratios, and regulatory citations drawn directly from the source paper.