A Conceptual Framework for Systemic Risk and Regulatory Asymmetry in the Global Stablecoin Ecosystem

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Abstract

The rapid ascent of stablecoins presents a paradox: they offer transformative digital payments while introducing profound, interconnected risks to global financial stability. This paper moves beyond a descriptive account of stablecoin failures to construct a conceptual framework for analyzing their systemic vulnerabilities. Stablecoins are conceptualized not as isolated instruments but as complex, hybrid entities that sit at the nexus of traditional finance (TradFi) and decentralized finance (DeFi), inheriting risks from both domains. Employing a mixed-methodology of qualitative case study analysis and comparative regulatory policy assessment, the paper dissects incidents like TerraUSD's collapse, USDC's de-pegging and the recent black Friday collapse to illustrate the channels of contagion. The original contribution made by the paper is the identification of a critical regulatory asymmetry: while major jurisdictions are developing oversight frameworks, their effectiveness is undermined by the extraterritorial nature of dominant stablecoins (e.g., Tether), gaps in coverage (e.g., algorithmic coins), and the lagging integration of DeFi-specific risks like governance centralization. The paper concludes that without coordinated international action that addresses this asymmetry, stablecoins will remain a potent vector for systemic disruption, especially in developing economies.

Keywords: Global stablecoins, Systemic risk, Crypto-native risks, TradFi risks, Stablecoin run, algorithmic blind spot, governance concentration, Regulatory Asymmetry

JEL: G20, G21, G23, F40, E40, E58, E60

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1. Introduction

The stablecoin[2], a digital blockchain-based currency, was initially conceived to mitigate the extreme price volatility inherent in cryptocurrencies like Bitcoin, thereby facilitating their trading on crypto exchanges. The Financial Stability Board (2023) delineates a 'Global Stablecoin (GSC) by three distinguishing characteristics: (i) the existence of a stabilization mechanism, (ii) its usability as a means of payment and/or store of value, and (iii) its potential for widespread adoption across multiple jurisdictions.' This innovation is revolutionizing digital payment and financial systems globally by providing an opportunity to directly access digital currencies, potentially bypassing traditional financial institutions operating within sovereign boundaries. The market significance of stablecoins is substantial and growing rapidly. According to DeFiLlama (2025), the total stablecoin market capitalization exceeds $253 billion, dominated by dollar-collateralized variants. Tether (USDT), with a market capitalization of $158.5 billion, commands a 62.5% share, followed by USD Coin (USDC) with $61.4 billion and a 24.2% share. Other prominent stablecoins are Ethena USDe which is a crypto backed synthetic dollar stablecoin with a market capitalization of $5.298bn and algorithmic stablecoins, DAI ($4.292bn market cap) and Sky Dollar USDS ($4.247bn market cap).There is not much choice but to rely on these figures due to the absence of public blockchain data and related off-chain data (Financial Stability Board, 2024). This growth underscores their entrenched role as a foundational pillar of the crypto asset ecosystem.

Despite their rapid adoption and promised stability, the stablecoin ecosystem is characterized by a paradox: significant growth coexists with a remarkably high failure rate and profound systemic vulnerabilities. Since 2016, more than 60% of stablecoins have failed (Mizrach, 2023). This fragility has manifested in catastrophic failures, such as the collapse of the algorithmic stablecoin TerraUSD (UST) in 2022, which erased a $50 billion market capitalization in a few days and acute stress events, such as the transient decline in USDC's market price in 2023 notwithstanding its full collateralization. These incidents are not isolated but symptomatic of deeper, interconnected risks. The functioning of stablecoins on crypto trading platforms has the potential of compounding

[2] Price stability is achieved through mechanisms of collateralization (against fiat, commodities like gold or other crypto assets) or algorithmic stabilization. Popular stablecoins are Tether, USDC, Ethena, DAI. Tether (USDT) is the largest stablecoin presently operated by Tether International from El Salvador

risks in event of a disruption of the trading platform.These risks are multifaceted, stemming from the stablecoin's unique position at the intersection of traditional finance, crypto-native challenges, and structural governance issues that are discussed in detail in the subsequent sections. The complexity of distributed ledger technology and the global, borderless nature of stablecoins have further allowed regulation to lag behind innovation, resulting in significant financial losses and escalating concerns over consumer protection, monetary sovereignty, and broader financial stability.

This paper seeks to move beyond a descriptive account of stablecoin failures to address a critical analytical question: What are the multifaceted risks inherent in the stablecoin ecosystem, and to what extent do emerging regulatory frameworks address the critical challenge of cross-jurisdictional regulatory asymmetry? This research question probes whether the current fragmented regulatory response, led by jurisdictions like the EU and the U.S. is sufficient to mitigate the complex web of risks or if it creates dangerous gaps due to the extra-territorial operation of dominant stablecoins and the exclusion of certain risk categories.

The paper is structured to answer this question, as follows: Section 2 establishes a conceptual framework, categorizing stablecoin risks into three interconnected layers. Section 3 outlines the methodology, combining qualitative case study analysis with comparative policy assessment. Section 4 applies this framework to analyze key risk events, that include the collapse of TerraUSD, the Futures Exchange (FTX) trading platform and the USDC de-pegging. Section 5 discusses the findings, evaluating major regulatory responses like the EU's MiCA and the U.S. GENIUS Act against the identified risks to argue that a significant regulatory asymmetry persists. Finally, Section 6 concludes by summarizing the findings, stating the paper's original contribution, and offering policy recommendations for a more coherent and effective global regulatory approach.

2. Literature Review & Conceptual Framework

2.1. Existing Scholarship:

The academic and policy discourse on stablecoins has rapidly evolved, identifying a spectrum of risks that threaten their stability and the broader financial system. Existing scholarship is grouped into several key themes.

Risks akin to traditional finance (TradFi): A significant body of literature draws parallels between stablecoins and traditional financial instruments. Scholars like Gorton and Zhang (2021) frame stablecoins as a modern form of "wildcat banking," highlighting their susceptibility to runs due to the fundamental mismatch between their short-term liabilities (instant redemptions) and their long-term assets. This vulnerability is frequently compared to Money Market Funds (MMFs), which are also prone to breaking the buck during periods of stress (Wang, 2025). Research on the USDC de-pegging event (Catalini and Wu, 2024) underscores the counterparty risk inherent when stablecoin reserves are held within the traditional banking system, demonstrating how a bank run can directly trigger a stablecoin run.

Market Integrity and Crypto-Native Risks: Another strand of research focuses on risks endemic to the crypto ecosystem. Griffin and Shams (2020) provided seminal evidence that stablecoins, particularly Tether, could be used as a vehicle for price manipulation in Bitcoin markets. Furthermore, news reports and scholarly works capture the extreme fragility of centralized exchanges and custodians (as seen with FTX and Coin DCX), which act as critical, yet vulnerable, on- and off-ramps for the entire ecosystem (Mishra, 2025; Prentice et al., 2022; Lee et al. 2023). The mechanics of de-pegging and the factors driving investor flight have also been quantitatively analyzed, showing that even minor deviations from the peg can trigger significant outflows (Anadu et al., 2023).

Governance and Structural Illusions: A more recent area of inquiry critiques the foundational governance models of stablecoins and decentralized financial applications. Aramonte et al. (2021) coined the concept of the "decentralisation illusion", arguing that despite the rhetoric, most protocols are controlled by a small number of large holders of governance tokens, creating risks of collusion and centralized decision-making. The catastrophic failure of TerraUSD (Briola et al., 2022; Liu et al., 2023) serves as a prime

case study in the inherent risks of algorithmic design, where stability mechanisms reliant purely on market incentives and speculation can fail spectacularly.

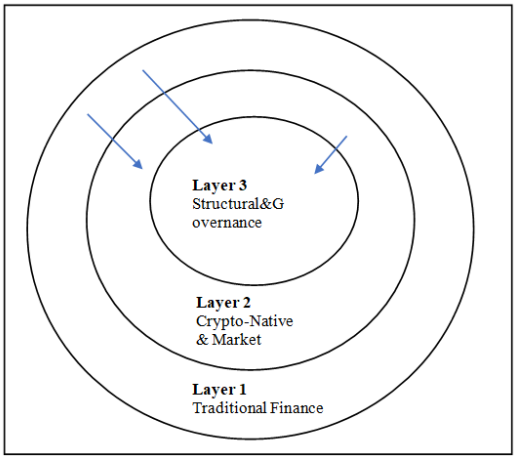
While this existing scholarship provides a robust, albeit a developing understanding of individual risk categories, a critical gap remains. The prevailing approach tends to analyze these risks in isolation - examining collateralization separately from exchange risk, or governance separately from TradFi linkages. This siloed perspective fails to capture the interconnected and synergistic nature of these vulnerabilities. For instance, the literature does not fully model how a TradFi shock such as a bank failure can be instantly transmitted and amplified by crypto-native dynamics causing panic on social media, leading to mass electronic redemptions, exacerbated by structural flaws arising out of opaque governance that delays an effective response. A holistic framework is needed to analyze how these risks interact to create systemic tipping points.

2.2. Proposed Conceptual Framework: A Three-Layer Taxonomy of Risk

To address this gap, this paper proposes a novel conceptual framework that categorizes stablecoin risks into three interconnected layers. This proposed taxonomy presents a more sophisticated analysis of how vulnerabilities in one layer can cascade into others, providing a comprehensive map for regulators and researchers. Figure 1 below explains this taxonomy.

Layer 1 comprises of the traditional finance (TradFi) risks that are inherited from the conventional financial system where stablecoins are ultimately anchored. This includes counterparty risk such as the risk of failure of a bank or institution where the reserve assets of the stablecoin are held as was seen in SVB's collapse that threatened USDC's reserves. There is liquidity and maturity mismatch risk that involves the inherent conflict between instantly redeemable stablecoins and the potentially less-liquid assets backing them such as commercial paper, or treasuries. The collateral quality and transparency risk can arise when reserve assets are not of high quality, are overvalued, or stablecoins are not fully backed. This risk can be exacerbated by a lack of real-time, audited disclosure that is seen in the ongoing concerns over Tether's reserves.

Figure 1: Three-Layer Taxonomy of Risk



Source: Compiled by the Author

Layer 2 comprises crypto-native risks that are risks inherent to the cryptocurrency and blockchain ecosystem itself. The exchange and custodial risks arise from the vulnerability of centralized platforms (that keep custody of user assets) stemming from poor governance, operational failures, or cybersecurity breaches (e.g., FTX, Mt. Gox, Coin DCX hacks). There is price manipulation and market integrity risk when stablecoins are used to artificially inflate trading volumes or manipulate the prices of other crypto assets. There is risk of de-peg that can hit specific blockchain-accelerated dynamics - of how a loss of confidence triggers mass redemption events, often facilitated by smart contracts and transparent on-chain panic.

Layer 3 comprises governance and structural risks arising from the architectural and governance design of the stablecoin arrangement itself. There is risk of failure from centralization of infrastructure that places reliance on centralized, single points for critical services like node hosting (e.g., the Infura outage that crippled Binance and MetaMask). The algorithmic design risk that was considered infallible but the fundamental fragility of stabilization mechanisms relies on code and market incentives and is not backed by off-chain assets (e.g., the death spiral of Terra-Luna).The "Illusion of Decentralization" refers to the centralization of power and control over decision-making among a few- be it developers, venture capital firms, or governance token holders, undermining the purported resilience of decentralization (Aramonte, et al, 2021).

This three-layer framework will be applied in subsequent sections to analyze major stablecoin failures and evaluate the scope and limitations of the current regulatory landscape.

3. Methodology

This research employs a mixed-methods approach to comprehensively analyze the risks of the stablecoin ecosystem and the regulatory response. This design allows for a deep, qualitative understanding of failure mechanisms and a systematic evaluation of policy frameworks.

3.1. Qualitative Case Study Analysis

To move from abstract risk categories to concrete understanding, this paper employs a qualitative multiple case study method. Three critical failure/stress events were selected for their paradigmatic value in illustrating distinct yet interconnected vulnerabilities.

The TerraUSD (UST) collapse (May 2022) was selected as the quintessential example of a Layer 3 (Governance and Structural) risk materializing. It serves to analyze the inherent fragility of algorithmic design and the dynamics of a pure crypto-native bank run. The second event is the FTX collapse in November 2022. This case is analyzed as a prime manifestation of Layer 2 (Crypto-Native) risk. It demonstrates the profound systemic risk posed by the failure of a centralized, correlated node within the ecosystem, encompassing custodial, operational, and governance failures. The third event is the USDC de-pegging that took place in March 2023. This case was chosen since it exemplifies the Layer 1 (TradFi) risk contagion. It provides a clear study of how a traditional bank run (Silicon Valley Bank) directly triggered a crisis for a fully-collateralized stablecoin, highlighting the critical linkage between the crypto and traditional financial systems. Each case is dissected to reconstruct the timeline of the event, identify the primary risk triggers, and analyze how vulnerabilities potentially cascaded across the proposed three-layer framework.

3.2. Comparative Policy Analysis

Regulation aligned with the Financial Stability Board (FSB) guidance is emerging across jurisdictions depending on sovereign openness to stablecoins. To evaluate the regulatory response, this paper conducts a comparative analysis of the foremost regulatory frameworks enacted post these crises.

Japan passed stablecoin regulation in 2022 subsequent to the collapse of the then most capitalized stablecoin Terra USD (The Strait Times, 2022). The European Union in 2023 legislated Markets in Crypto-Assets Regulation (MiCA) that was rolled out in stages and is fully effective from 2025 (Reuters, 2023). Singapore issued a stablecoin regulatory framework on 15August2023, South Korea enacted the Virtual Asset User Protection Act (VAUPA) in 2023 that was implemented in July 2024 (Jon et al, 2025) and Hongkong passed a stablecoin bill on 21 May2025 (Hong Kong monetary Authority, 2025). Most recently, in July 2025, 'the Guiding and Establishing National Innovation for U.S. Stablecoins Act' (Genius Act 2025) by USA has brought stablecoins into global limelight (Watson, 2025). China has banned private stablecoins (Reuters, 2025) and India treats them similar to gambling chargeable to 30% tax as a deterrent. United Kingdom and Canada are the G7 countries that have not yet come out with stablecoin regulatory oversight. The European Union, America and other countries in the Asia pacific where stablecoin legislation has been enacted have additional stakes with domestic currency denominated stablecoins inducted into the crypto eco-system.

The analysis evaluates each regime against the three-layer risk taxonomy. This comparison aims to identify strengths, overlaps, and, most importantly, critical gaps and asymmetries in the global regulatory landscape.

3.3. Data Sources

The analysis draws upon a convergence of diverse data sources to ensure robustness. The paper relies on academic literature such as peer-reviewed journals and working papers from economics, finance, and law that provide theoretical and empirical analysis. A rich source of information and conceptual clarity are primary regulatory documents that

include official texts of legislation, consultation papers, and final reports from regulators (e.g., FSB, Financial Action Task Force (FATF), EU, U.S. Congress). The primary source of industry and market information comes from analytics platforms (DeFiLlama) and other data application programming interfaces that continuously measure market capitalization, trading volumes, and on-chain flows. Document analysis of news reports from major financial publications (e.g., Reuters, The Economist, Financial Times) which were triangulated with primary regulatory documents and market data to ensure accuracy.

4. Analysis: A Taxonomy of Risks in the Stablecoin Ecosystem

This section applies the three-layer conceptual framework to the evidence, using the selected case studies to illustrate the manifestation and interaction of risks.

4.1. Layer 1: Linkage to Traditional Finance (TradFi) Risks

Counterparty Risk and Bank Run Contagion-The USDC-SVB Case Study: The fully reserved stablecoin USDC (issued by Circle) lost its peg in the face of the Silicon Valley bank run. This was the result of its Layer 1 TradFi linkage. It is naïve to assume that fully backed and duly audited reserves consisting of high-quality liquid assets (HQLA) are a sufficient cover for the riskiness of stablecoins when the traditional financial system has suffered many instances of bank failures. For an insured depository institution, a part of the liability is insured but a substantial part may be unsecured liabilities particularly towards large retail or corporate depositors of the bank (who deposit more than the insured amounts).

In March 2023, the failure of the Silicon Valley Bank (SVB) triggered a bank run on the Signature Bank and simultaneously exerted selling pressure on the USD Coin (USDC), the second-largest stablecoin at the time because of the likelihood of loss of its backing reserve deposits ($3.3 billion) held at SVB. Circle's USDC had about 8% of its reserve at risk, it rapidly de pegged and withdrew $3 billion from the struggling bank (Catalini and Wu 2024).Similarly, the collapse of Signature Bank and Silvergate Bank (owned by Silvergate Capital Corporation) resulted in losses to their crypto clients. These banks

were intricately connected to the Signet platform and the Silvergate Exchange Network (SEN) respectively and were among the pioneers in converting dollars to crypto currencies and vice versa (Larsen, 2023). However, the crisis was halted by the extraordinary, discretionary layer1 government intervention that compelled the Federal Deposit Insurance (FDIC) to offer protection to depositors in addition to the usual insured funds and the contagion was stopped (Egan, 2023). This event proves that the stability of a "fully-backed" stablecoin is only as sound as the soundness of the traditional financial institutions where its reserves are held.

Liquidity Mismatch and the Money Market Fund Parallel: Like a Money Market Fund, a stablecoin promises immediate liquidity at par value. However, its reserves, even if composed of High-Quality Liquid Assets (HQLA) like treasury bonds may not be instantly saleable without incurring losses in a stressed market. A mass redemption event could force a fire sale of these assets, potentially causing the stablecoin to "break the buck" and triggering a wider contagion within the traditional financial system from which the assets are drawn (Gorton and Zhang, 2021).

*Safety of Collateral:*Any de-pegging of the price of stablecoins can trigger a fire sale of collateral reserves by the stablecoin issuer to deliver on their commitment of redemption at par. The stress on collateral comprising of high-quality liquid assets and government treasuries being an essential part of the traditional financial system exponentially increases the risk to systemic banking. Stablecoin issuers can also be motivated by higher profits to engage in riskier behavior, to the extent of lending out the very assets backing the stablecoin (Frost et al., 2020).

The Opacity of Collateral - The Tether case study: Tether (USDT) has long faced scrutiny over the transparency and quality of its reserves.Tether reserves composed of Bitcoin, gold and other HQLA beyond cash and treasuries are not fully disclosed but it continues to be the largest stablecoin by trading volume (Bains, et al 2022). While it claims to be fully backed, its disclosures are periodic and not real-time. This opacity creates a persistent systemic risk; the entire ecosystem's reliance on USDT is based on public perception of stability that cannot be continuously and independently verified. A revelation of a significant collateral shortfall could trigger a catastrophic run with no traditional lender of last resort springing to its protection.

4.2. Layer 2: Crypto-Native and Market Integrity Risks

The Fragility of Centralized Exchanges: The FTX platform collapse is the archetypal Layer 2 risk event. Holders on this cryptocurrency exchange panicked after hearing unfavorable news reportage and the selling pressure created a liquidity crisis. As the information about the founders' relationship with a market maker hedge fund became public, it raised concerns about poor ethics and management practices at FTX, eventually leading to its demise. FTX proclaimed itself to be the 'most regulated' exchange and always open to scrutiny from the government authorities but was actually blatantly misusing its powers (Prentice 2022). It was not a stablecoin failure per se, but FTX exemplified custodial risk (misuse of customer funds),operational risk(poor governance), and counterparty risk(exposure for its users and partnered entities).

The largest centralized crypto exchange, Binance, with $149.616bn assets (DefiLlama. 2025 June30) was also subject to scrutiny. The US SEC served lawsuits on the Binance crypto exchange and founder Changpeng Zhao for manipulating trading on the exchange, siphoning off funds and deceiving its customers that were dismissed in May, 2025 (Stempel, 2025). The Indian exchange, Coin DCX reported a theft of $44 million on 19 July2025. The forensic expert, Ciccomascolo attributed the theft to disproportionate use of hot wallets that compromised back-end servers (Mishra 2025). These incidents reveal that the promised disintermediation of finance has often been replaced by re-intermediation through less-regulated, opaque, and correlated centralized entities, creating massive single points of failure.

Price variation: Theoretically, the fully collateralized stablecoin should be able to maintain real time price parity with the underlying currency but in practice intra-day variation is commonly observed. Doubts have been expressed about the maintenance of price stability and sustainability of fully collateralized stablecoins (Eichengreen, 2019). Stablecoins command a premium for offering safe haven protection to the crypto economy as observed during the crashes in 2018 and 2019, while discounts derive from liquidity effects and collateral concerns (Lyons and Natraj, 2020). An examination of intraday price changes suggests that stablecoins act as a secure refuge in crypto currency markets as they support increased trading of volatile crypto currencies. It is seen that high

fluctuation in the price of Bitcoins is accompanied by higher volume turnover that matches the gains for stablecoin holders (Baur and Hoang, 2020).

Price Manipulation and Market Dominance: Research by Griffin and Shams (2020) suggests Tether was used to manipulate Bitcoin prices during the 2017-18 Bull Run. This market integrity risk stems from the concentration of stablecoin supply and the lack of surveillance that characterizes traditional exchanges. The dominance of a few stablecoins creates a vector through which bad actors can influence the entire digital asset market, undermining its credibility and stability.

Mechanics of a Stablecoin Run: Unlike traditional bank runs, stablecoin runs occur at blockchain speed. When the stablecoin price drops below $1, redemption by holders begins preferably on the same blockchain and to safer stablecoins similar to a money market fund 'breaking the buck'. If price de-pegs to $99.1 cents, the stablecoin experiences 3.4% greater daily outflow (Anadu, et al 2023). Information impacts the perception of safety and a natural 'herd' response to the uncertainty created by the event may precipitate the mass redemption of the stablecoin, causing it to de-peg further towards decline. The digital nature of redemptions allows fear to spread globally in minutes via social media and on-chain analytics, enabling a "flash run" that can drain reserves before an issuer can react, as seen in the death spiral of TerraUSD stablecoin.

Redemption risks: Stablecoins are promoted as crypto currency that is price-stable and convenient to 'on and off ramp'. Stablecoin issuers promise redemption but this is often subject to certain conditions, such as issuers may allow redemption only on business days or once a week, full value in cash may not be guaranteed, there may be limits on redemptions, making them impractical for everyday users. Further, there is also risk of loss on account of online fraud or stealing of stablecoins.

A combination of risks: A crypto shock was experienced on 10–11 October 2025 when over US$19 billion in open positions were squared off within 24 hours, triggering a cascade of sell-offs across major exchanges. The likely trigger was the dumping of USDe (stablecoin not backed by real assets) in the Binance centralized exchange. Major coins such as Bitcoin and Ethereum prices fell substantially as users experienced difficulty in liquidating their assets and covering positions (Reuters, 2025). The event exposed the

fragility in leverage-driven systems (defi) in terms of transparency, resilience, risk controls of exchanges and have fuelled debate over whether the crash was purely market panic or a coordinated attack.

4.3. Layer 3: Structural and Governance Risks

The Algorithmic Illusion is evidenced by the Terra-Luna collapse case study and is the purest expression of Layer 3 risk. In May 2022 the debacle of the TerraUSD (UST) dollar denominated stablecoin, the tenth-largest cryptocurrency at the time (John, et al, 2022) focused attention on the risks associated with the algorithmic stablecoins. TerraUSD (UST) was a complex lending and borrowing framework that offered high yields to stablecoin depositors. 'It had a combined market capitalization of $50 billion, with an average daily trading volume of $1 billion', that was destroyed within three days, with smaller losses for sophisticated investors (Liu, 2023). Its stability mechanism was purely algorithmic, relying on a mint-and-burn arbitrage mechanism with its sister token, LUNA also used for governance. This design was critically flawed, as it was reflexive, its stability depended on perpetual market growth and confidence to mint. The price of UST declined from 98 cents to around 15 cents within a span of a week on panic selling as UST disappeared from multiple platforms similar to a run on money market funds (Ledbetter, 2022). It was unable to maintain its value against the US dollar despite the Luna token as the counterweight. When a large withdrawal overwhelmed the mechanism, the ensuing death spiral destroyed its full value in days, demonstrating that code-based incentives are no substitute for real-world asset backing in a crisis (Briola et al., 2022).

The "Illusion of Decentralization" is in practice a concentration of power. Many DeFi protocols and stablecoin arrangements assert that they do not depend on any outside control. The decisions taken by governance tokens are without human intervention. As noted by Aramonte et al. (2021), governance tokens are often highly concentrated, allowing a small cohort of "whales" to control protocol decisions. For instance, Mizrach (2023) notes the high Herfindahl indices for stablecoins like Binance USD that indicate concentrated holdings. This creates a governance risk where the interests of a few can override those of the many, and decisions can be made that jeopardize the system's

stability for private gain. Allen (2023) argues about the absence of information in the public domain about the powers of the core developers, compensation received by them and the identity of the payer, the possibility of native digital assets becoming stranded on loss of interest by the developer.

Centralization of Infrastructure: In the November 2022 incident, when Ethereum blockchain was in the process of splitting its chain to a faster more efficient Ethereum2.0, an outage at the centralized infrastructure provider Infura crippled access to the Ethereum blockchain is an example of the critical Layer 3 risk. Infura was unable to provide accurate price data for Ethereum and ERC20 tokens such that crypto exchanges like Binance and wallets like MetaMask were forced to temporarily suspend operations much to the distress of the ETH and ERC20 token holders. On the other hand, the Bitfinex exchange that runs its own Ethereum nodes did not face this crisis (Vermaak, 2022). The stablecoin eco-system requires firms such as Infura[3], BlockCypher and Alchemy (crypto service providers) that allow developers with quick and easy access to nodes of blockchains such as Ethereum to live test their application instead of building and maintaining their own independent nodes, similar to Netflix using the Amazon Web services. Events like this bring to fore the reality of the supposedly decentralized ecosystem that relies on a handful of centralized service providers for core functions like node hosting. This creates a critical single point of failure, undermining the resilience promised by blockchain technology and defeating the core premise of decentralization**.**

Dis-intermediation of traditional finance: The technology enables the transfer of money sidestepping banking systems and government controls. Stablecoins can fuel money laundering and finance terrorist activities because of bank disintermediation. The fears of unregulated stablecoins like Tether fueling a global shadow economy are not exaggerated (Bullough Economist 2025).

5. Discussion: The Regulatory Response and the Challenge of Asymmetry

Stablecoins are often dismissed as possessing no inherent value since they are piggybacking on the traditional financial system in a bid to gain legitimacy. Sceptics

[3]owned by ConsenSys, founded and managed by Ethereum co-founder Joe Lubin

critique certain crypto assets as a form of gambling and demand they be subject to rigorous regulation (Panetta 2023). A stablecoin backed by liquid assets such as government bonds or bank deposits, operates more like a money market fund or a 'narrow bank' that is not engaged in credit creation. Hence, issuers of stablecoins require less oversight in comparison with commercial banks but stablecoins are required to reflect the same purchasing power as fiat currency (Bank of England, 2023). Sovereign governments are rightly concerned with price deviations in the stablecoin that create friction in transactions through discount calculations or risk premiums that challenge the interchangeability with sovereign currency, i.e. the singleness of money. Stablecoins can impact payments, settlements and trade besides threaten financial stability (Bidder, et al, 2025).

A distinction is drawn between "global stablecoins" such as Facebook's Libra and other stablecoins in terms of the challenge for financial authorities around the world (Arner, et, al. 2020). The crypto industry and its advocates argue in favor of clear-cut regulation along a continuum of stringency corresponding to the riskiness in the structure of the stablecoins and the principle of regulatory parity with traditional finance. Blockchain technology is viewed by many as a symbol of economic freedom that should have minimalistic regulation in order to promote a culture of innovation unlike the regulation of traditional finance that is premised on restricting the public from making bad decisions with their own money (Schwarcz, 2023).

International financial bodies[4] are focused on deciphering the impact of stablecoins and providing inputs for regulation of this emerging industry. The final report of the Financial Stability Board has 09 recommendations to take care of financial stability risks arising out of the implementation of the global stablecoin framework in each jurisdiction (Financial Stability Board, 2023). There are ten elements to be considered for a stablecoin to qualify as a global stablecoin (GSC) (Financial Stability Board, 2023).[5]The recommendations

[4] The Financial Stability Board (FSB), The Bank of International Settlements (BIS), Financial Action Task Force (FATF)

[5] Number and type of stablecoin users ■ Number and value of transactions ■ Size of reserve assets ■ Value of stablecoins in circulation ■ Market share in cross-border use in payments and remittances ■ Number of jurisdictions with stablecoin users ■ Market share in payments in each jurisdiction ■ Redemption linked to a foreign currency or multiple currencies ■ Interconnectedness with financial institutions and the broader economy, ■ Interconnectedness with the wider crypto-assets ecosystem, other crypto-asset services and decentralised finance ■ Integration with digital services or platforms (e.g. social networks, messaging applications)

range from scrutiny of stablecoin issuers and supporting infrastructure firms to safeguarding customer interests. The stablecoin issuer is expected to implement a risk management framework to protects its reserve assets from loss of value, and secure its data storage facilities. The stablecoin issuer is responsible for informing users about the working of the stablecoin, its associated risks and repurchase of the stablecoin at the price of the referenced currency. It is suggested that redemption costs to the user be reasonable with no conditions or restrictions imposed and the stablecoin issuer clearly disseminate rules about the same. The recommendations focus on setting up of a process for the orderly resolution of insolvency of the stablecoin issuer to minimize adverse impacts on financial stability that give primacy to the stablecoin holder in the order of claimants. Given the trans-national character of stablecoins, jurisdictions are advised to be legally empowered for collaborating with each other on sharing of information. Further, recommendation 9 excludes an algorithmic GSC on grounds of its stabilization method (Financial Stability board, 2023) and these are subsequently not regulated in the European Union and America. With rapidly growing usage in cross border payments outside of crypto exchanges, governments are starting to accept the 'stablecoin' subset of the crypto assets industry and acknowledge that stablecoin risks require oversight.

5.1. Mapping Regulatory Responses to the Risk Framework

As regulatory oversight evolves, the MiCA framework and the GENIUS Act have emerged as prominent examples representing a significant step towards mitigating stablecoin risks. However, their effectiveness is uneven across the proposed three-layer taxonomy.

Layer 1 that covers traditional finance risks has the most robust and effective regulation. Regulation on asset segregation, collateral, disclosure norms and market surveillance covers risks emanating out of improper custody or utilization and under-collateralization (Arner et al, 2020). Both MiCA and the GENIUS Act impose stringent requirements on asset-backed stablecoins issuers that include mandatory reserve backing with HQLA, strict custody rules regarding segregation, frequent independent audits, and clear low-cost

redemption rights for holders. These rules directly address the counterparty, liquidity, and transparency risks exposed by the USDC de-pegging event.

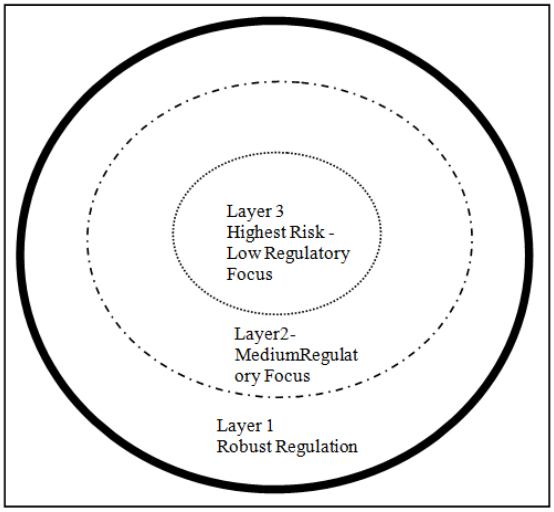
Layer 2 that covers crypto-native risks is developing but not complete. The frameworks extensively regulate Crypto-Asset Service Providers (CASPs), exchanges, wallets, custodians by targeting liquidity mismatches through prudential requirements, promptness in redeemability, transparency through white papers, and fixing accountability of service providers including custodians of reserve assets and wallets in order to ensure consumer protection. This addresses defaults such as the FTX collapse. In view of the run mechanisms, 'safe harbour' clauses that buy the issuer time to explore other options to avert or minimize financial stability risks due to insufficiency in reserve assets can be considered (Digital Pound Foundation, 2025). However, enforcement against market manipulation remains a challenge, dependent on traditional market surveillance tools applied to a 24/7 global market.

Layer 3 focused on governance and structural risks contains the most significant regulatory gaps. While governance requirements for issuers exist, they do not fully address deep protocol-level issues. The Financial Action Task Force (2025) has issued anti-money laundering and counter-terrorist financing guidance for stablecoins and crypto asset providers and recommends application of the Travel Rule that requires crypto service providers to collect and share transaction (originator and beneficiary) data above a threshold. The treatment of algorithmic stablecoins is yet to become operational.

5.2. The Emergence of Regulatory Asymmetry

Regulators are not in an enviable position when tasked with a 'moving target', a continuously evolving digital innovation that is providing stability with a reasonable degree of success. However, the challenges thrown up by stablecoins are too dangerous to ignore. The analysis reveals a critical regulatory asymmetry since the concerted effort to tame Layer 1 risks is creating a dangerous displacement of risk into less-regulated areas of Layers 2 and 3, particularly when combined with jurisdictional arbitrage.

Figure 2: Regulatory Asymmetry and the Three-Layers of Risk



Source: Compiled by the Author

The first gap: the extra-territoriality challenge: The most pressing asymmetry lies between onshore regulation and offshore operation. A prime example is Tether (USDT), espousing the principles of economic and regulatory freedom. The crypto ecosystem's dominant liquidity pair is domiciled in jurisdictions with less stringent oversight (first the British Virgin Islands, now El Salvador); it operates extra-territorially, serving global markets while potentially evading the stringent reserve and audit requirements of MiCA or the GENIUS Act. This creates a two-tier system - regulated, transparent stablecoins (USDC) for on-chain compliance, and a vast, opaque, and systemically critical shadow system (USDT) that remains a latent risk to the entire crypto and traditional financial system.

As Bains et al. (2022) noted, Tether's significant purchases of U.S. Treasuries make it a systemic entity, yet it operates outside the direct reach of U.S. regulatory oversight.There is urgency in developing surveillance and extra-territorial oversight since many entities operate from offshore centers. The public blockchain makes it possible to use fictitious identities and conceal the real jurisdictions that make detection of the actual user challenging (Financial Stability Board, 2024).

The second gap: the Algorithmic blind spot: In explicitly excluding or severely restricting non-asset-referenced tokens, both MiCA and the Genius Act create a dangerous blind spot. By declaring algorithmic stablecoins outside the scope of regulatory oversight,

despite the algorithmic stablecoins continuing to be traded on crypto exchanges, does not eliminate the risk; it is merely pushed into unregulated wilderness. The Terra-Luna collapse proved the catastrophic potential of this model. It is essential to understand and develop specific containment strategies for its unique failure modes, such that the next iteration of algorithmic experiments does not threaten financial stability.

The third gap: the DeFi Governance loophole: Current regulations focus on the legal issuer but fail to adequately address the decentralized façade and infrastructure centralization. The concentration of governance token power, identified by Aramonte et al. (2021) and Mizrach (2023) is not effectively mitigated. Furthermore, the reliance on centralized infrastructure providers like Infura, Alchemy, and BlockCypher creates a critical systemic vulnerability. These entities, essential for the ecosystem's operation, function as utilities thatrequire continuous supervision. The Infura incident demonstrated how a failure at one Tech Company can cripple access to entire blockchains, a risk that requires greater attention.

The fourth gap: lack of regulatory oversight in majority of the countries: A stablecoin pegged against the dollar or euro is being used across jurisdictions with a promise of conversion into the sovereign US dollar or Euro, operating like a synthetic foreign currency. Further, it can easily be acquired and transferred across national boundaries. This presents a problem specific to citizens of nations who are users of global stablecoins but without currency-pegged stablecoins of their own and no stablecoin regulation in their jurisdiction.

A study on the costs of networking and verification in blockchains argues that this technology has the potential to reduce the market power of intermediaries but not eliminate them since ‘last mile’ connectivity cannot be on blockchain (Catalini & Gans, 2016). If sovereign countries allow citizens to access stablecoins, the platforms offering these digital assets and firms responsible for providing last mile connectivity must be regulated.

5.3. Implications for Financial Stability

This regulatory asymmetry has profound implications. It means that the most significant and interconnected risks are precisely the ones least controlled.

For Advanced Economies: Tether was the seventh largest buyer with $33.1 billion of U.S. government debt in 2024 (Lang and Howcroft, 2025). The failure of an offshore behemoth like Tether could trigger a fire sale of its vast U.S. Treasury holdings, disrupting bond markets. Simultaneously, it would vaporize the primary trading pair for the entire crypto market, causing a liquidity crisis that would instantly transmit shockwaves to regulated onshore entities and their traditional banking partners.

For Emerging Markets and Developing Economies (EMDEs): The threat is even more acute across jurisdictions since the dollar is the world reserve currency and the dollar denominated stablecoins backed with US Treasury reserves happen to dominate the global stablecoin market. Citizens in countries with capital controls or weak currencies are increasingly using dollar-pegged GSCs like USDT. This leads to currency substitution (dollarization), which erodes the effectiveness of domestic monetary policy and threatens monetary sovereignty. The regulatory asymmetry means their citizens are exposed to the risks of an offshore, under-regulated financial instrument without any recourse to consumer protection or lender-of-last-resort functions from their own or the issuing jurisdiction's authorities.

6. Conclusion and Policy Implications

6.1. Summary of Findings

This paper argued that stablecoin risks are multifaceted and interconnected, operating across three layers: traditional finance (TradFi), crypto-native, and governance/structural. Through case studies and policy analysis, the paper demonstrated that while the nascent regulatory response is effectively targeting Layer 1 risks, it suffers from a critical regulatory asymmetry characterized by the extraterritoriality challenge, the algorithmic blind spot, and the DeFi governance loophole. This leaves the most systemic vulnerabilities in layers 2 and 3 exposed and actively displaced into regulatory shadows.

6.2. Original Contribution to Knowledge

This paper's original contribution is twofold. It provides a novel three-layer risk taxonomy conceptual framework that moves beyond siloed risk analysis to offer a holistic model for understanding how risks in the stablecoin ecosystem interact and cascade. Secondly, it identifies theregulatory asymmetry**.** It is the first to systematically argue that the current regulatory project, while well-intentioned, is creating a dangerous asymmetry by solving the easiest problems classified as Layer 1 while failing to address the more complex, cross-jurisdictional structural risks of Layers 2 and 3, thereby potentially increasing systemic fragility.

6.3. Recommendations for Policymakers

The following suggestions emerge from the findings and preceding discussion:

Enhanced Cross-Border Supervisory Cooperation: Regulators must establish formal frameworks for overseeing global stablecoin issuers, regardless of their domicile. This includes mandatory information-sharing agreements and collaborative examinations for entities of systemic size, akin to the supervision of 'Global Systemically Important Banks' (FSB, 2023; IMF, 2023).

Developing Principles for Critical Crypto Infrastructure: Policymakers must expand their scope to designate and oversee essential blockchain infrastructure providers (e.g., major node service providers, cross-chain bridges) as critical financial market utilities, imposing standards for resilience, redundancy, and cybersecurity (FSB, 2023; Aramonte et al., 2021).

Proactive Strategies for EMDEs: EMDEs require tools to manage the threat of currency substitution. MiCA demands compliance from all crypto asset service providers servicing within the EU region regardless of where they are registered. The Genius Act has a provision to allow sale of stablecoins in America that are issued elsewhere if the place of domicile is subject to similar legislation besides not being on the American sanctions list. Emerging economies that are not considering issue of domestic currency pegged stablecoins need similar regulation to protect their monetary operations and its citizens

from foreign currency stablecoins. They can additionally develop their own central bank digital currencies (CBDCs) for digital payment sovereignty, but engage with international standard-setting bodies to ensure their concerns are represented.

6.4. Limitations

The paper provides a purely conceptual framework that requires further rigorous empirical testing to confirm the likelihood and intensity of risk involved. The focus on major failure cases can also be indicative of slight selection bias. The stablecoin space is rapidly changing; hence the conclusions drawn may become less significant because of future advancements in the stablecoin structure itself.

6.5. Avenues for Future Research

Quantitative modeling of contagion: Future research should develop network models that can simulate the failure of a major offshore stablecoin and quantify the contagion effects on both crypto markets and traditional treasury markets.

Deep analysis of DeFi governance: Empirical studies are needed to map the ownership and decision-making power within major "decentralized" protocols to better understand and measure governance centralization risk.

Effectiveness of Regulatory Enforcement: As MiCA and the GENIUS Act are implemented, research should track their effectiveness in practice, particularly their ability to enforce rules against extraterritorial entities and adapt to new algorithmic designs.

6.6. Conclusion

The conclusion is stark; the stablecoin ecosystem remains a significant source of potential systemic risk. The collapse of a major stablecoin like Tether, with its vast holdings of U.S. Treasuries, could trigger contagion in both crypto and traditional markets. EMDEs

are especially vulnerable to currency substitution and monetary policy erosion from foreign-denominated GSCs. This paper provides a conceptual map and a critical lens through which to evaluate its future development, arguing that without closing the identified asymmetry, the financial system remains exposed to the peril within the promise. Risk may continue due to gaps in implementation, regulation as well as disputes with the regulator in interpretation of the nascent technology and its implications. The evolution of stablecoin regulation is indeed a work-in-progress. Legal, regulatory and technological differentials between jurisdictions make it difficult for governments to regulate stablecoin operations given the global, borderless characteristic of stablecoins.

Disclosure Statement

This is to certify that the author has no involvement in any organization or entity with respect to financial or non-financial interest in the subject matter discussed in this manuscript.

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