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Crypto-Assets and Decentralized Finance through a Financial Stability Lens

Remarks by

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Recent volatility has exposed serious vulnerabilities in the crypto financial system.<sup>1</sup> While touted as a fundamental break from traditional finance, the crypto financial system turns out to be susceptible to the same risks that are all too familiar from traditional finance, such as leverage, settlement, opacity, and maturity and liquidity transformation. As we work to future-proof our financial stability agenda, it is important to ensure the regulatory perimeter encompasses crypto finance.

### **Distinguishing Responsible Innovation from Regulatory Evasion**

New technology often holds the promise of increasing competition in the financial system, reducing transaction costs and settlement times, and channeling investment to productive new uses. But early on, new products and platforms are often fraught with risks, including fraud and manipulation, and it is important and sometimes difficult to distinguish between hype and value. If past innovation cycles are any guide, in order for distributed ledgers, smart contracts, programmability, and digital assets to fulfill their potential to bring competition, efficiency, and speed, it will be essential to address the basic risks that beset all forms of finance. These risks include runs, fire sales, deleveraging, interconnectedness, and contagion, along with fraud, manipulation, and evasion. In addition, it is important to be on the lookout for the possibility of new forms of risks, since many of the technological innovations underpinning the crypto ecosystem are relatively novel.

Far from stifling innovation, strong regulatory guardrails will help enable investors and developers to build a resilient digital native financial infrastructure. Strong

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<sup>1</sup> I am grateful to Joseph Cox and Molly Mahar of the Federal Reserve Board for their assistance in preparing this text. The views expressed here address broad principles from a financial stability perspective across the financial system and not specific regulations. These views are my own and do not necessarily reflect those of the Federal Reserve Board or the Federal Open Market Committee.

regulatory guardrails will help banks, payments providers, and financial technology companies (FinTechs) improve the customer experience, make settlement faster, reduce costs, and allow for rapid product improvement and customization.

We are closely monitoring recent events where risks in the system have crystallized and many crypto investors have suffered losses. Despite significant investor losses, the crypto financial system does not yet appear to be so large or so interconnected with the traditional financial system as to pose a systemic risk. So this is the right time to ensure that like risks are subject to like regulatory outcomes and like disclosure so as to help investors distinguish between genuine, responsible innovation and the false allure of seemingly easy returns that obscures significant risk. This is the right time to establish which crypto activities are permissible for regulated entities and under what constraints so that spillovers to the core financial system remain well contained.

### **Insights from Recent Turbulence**

Several important insights have emerged from the recent turbulence in the crypto-finance ecosystem. First, volatility in financial markets has provided important information about crypto's performance as an asset class. It was already clear that crypto-assets are volatile, and we continue to see wild swings in crypto-asset values. The price of Bitcoin has dropped by as much as 75 percent from its all-time high over the past seven months, and it has declined almost 60 percent in the three months from April through June. Most other prominent crypto-assets have experienced even steeper declines over the same period. Contrary to claims that crypto-assets are a hedge to inflation or an uncorrelated asset class, crypto-assets have plummeted in value and have

proven to be highly correlated with riskier equities and with risk appetite more generally.<sup>2</sup>

Second, the Terra crash reminds us how quickly an asset that purports to maintain a stable value relative to fiat currency can become subject to a run. The collapse of Terra and the previous failures of several other unbacked algorithmic stablecoins are reminiscent of classic runs throughout history. New technology and financial engineering cannot by themselves convert risky assets into safe ones.

Third, crypto platforms are highly vulnerable to deleveraging, fire sales, and contagion—risks that are well known from traditional finance—as illustrated by the freeze on withdrawals at some crypto lending platforms and exchanges and the bankruptcy of a prominent crypto hedge fund. Some retail investors have found their accounts frozen and suffered large losses. Large crypto players that used leverage to boost returns are scrambling to monetize their holdings, missing margin calls, and facing possible insolvency. As their distress intensifies, it has become clear that the crypto ecosystem is tightly interconnected, as many smaller traders, lenders, and DeFi (decentralized finance) protocols have concentrated exposures to these big players.

Finally, we have seen how decentralized lending, which relies on overcollateralization to substitute for intermediation, can serve as a stress amplifier by creating waves of liquidations as prices fall.<sup>3</sup>

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<sup>2</sup> See, for example, the discussion in section 2 of Financial Stability Board (2022), *Assessment of Risks to Financial Stability from Crypto-assets* (Basel, Switzerland: FSB, February), <https://www.fsb.org/wp-content/uploads/P160222.pdf>.

<sup>3</sup> Most decentralized lending protocols require loans to remain overcollateralized, with loans that fall below specific thresholds subject to automatic liquidations. These liquidations can have a persistent effect on asset prices, which often triggers further liquidations. See preliminary research in Alfred Lehar and Christine A. Parlour (2022), “Systemic Fragility in Decentralized Markets,” unpublished paper, June 13, [https://econ.hkbu.edu.hk/eng/Doc/20220616\\_LEHAR.pdf](https://econ.hkbu.edu.hk/eng/Doc/20220616_LEHAR.pdf).

### **Same Risk, Same Regulatory Outcome**

The recent turbulence and losses among retail investors in crypto highlight the urgent need to ensure compliance with existing regulations and to fill any gaps where regulations or enforcement may need to be tailored—for instance, for decentralized protocols and platforms. As we consider how to address the potential future financial stability risks of the evolving crypto financial system, it is important to start with strong basic regulatory foundations. A good macroprudential framework builds on a solid foundation of microprudential regulation. Future financial resilience will be greatly enhanced if we ensure the regulatory perimeter encompasses the crypto financial system and reflects the principle of same risk, same disclosure, same regulatory outcome. By extending the perimeter and applying like regulatory outcomes and like transparency to like risks, it will enable regulators to more effectively address risks within crypto markets and potential risks posed by crypto markets to the broader financial system. Strong guardrails for safety and soundness, market integrity, and investor and consumer protection will help ensure that new digital finance products, platforms, and activities are based on genuine economic value and not on regulatory evasion, which ultimately leaves investors more exposed than they may appreciate.

Due to the cross-sectoral and cross-border scope of crypto platforms, exchanges, and activities, it is important that regulators work together domestically and internationally to maintain a stable financial system and address regulatory evasion. The same-risk-same-regulatory-outcome principle guides the Financial Stability Board's work on stablecoins, crypto-assets, and DeFi; the Basel consultation on the prudential treatment of crypto-assets; the work by the International Organization of Securities

Commissions' FinTech network; the work by federal bank regulatory agencies on the appropriate treatment of crypto activities at U.S. banks; and a host of other international and domestic work.<sup>4</sup>

In implementing a same-risk-same-regulatory-outcome principle, we should start by ensuring basic protections are in place for consumers and investors. Retail users should be protected against exploitation, undisclosed conflicts of interest, and market manipulation—risks to which they are particularly vulnerable, according to a host of research.<sup>5</sup> If investors lack these basic protections, these markets will be vulnerable to runs.

Second, since trading platforms play a critical role in crypto-asset markets, it is important to address noncompliance and any gaps that may exist. We have seen crypto-trading platforms and crypto-lending firms not only engage in activities similar to those in traditional finance without comparable regulatory compliance, but also combine

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<sup>4</sup> See, for example, Financial Stability Board (2022), *Assessment of Risks to Financial Stability from Crypto-assets* (Basel, Switzerland: FSB, February), <https://www.fsb.org/2022/02/assessment-of-risks-to-financial-stability-from-crypto-assets>; Financial Stability Board (2020), *Regulation, Supervision and Oversight of "Global Stablecoin" Arrangements: Final Report and High-Level Recommendations* (Basel, Switzerland: FSB, October), <https://www.fsb.org/wp-content/uploads/P131020-3.pdf>; Basel Committee on Banking Supervision (2022), "Consultative Document: Second Consultation on the Prudential Treatment of Cryptoasset Exposures" (Basel, Switzerland: Bank for International Settlements, June), <https://www.bis.org/bcbs/publ/d533.pdf>; and Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, and Office of the Comptroller of the Currency (2021), "Joint Statement on Crypto-Asset Policy Sprint Initiative and Next Steps," joint press release, November 23, <https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20211123a1.pdf>.

<sup>5</sup> See, for example, Philip Daian, Steven Goldfeder, Tyler Kell, Yunqi Li, Xueyuan Zhao, Iddo Bentov, Lorenz Breidenbach, and Ari Juels (2019), "Flash Boys 2.0: Frontrunning, Transaction Reordering, and Consensus Instability in Decentralized Exchanges," unpublished paper, Cornell University, arXiv, April, <https://arxiv.org/pdf/1904.05234.pdf>; Raphael Auer, Jon Frost, and Jose María Vidal Pastor (2022), "Miners as Intermediaries: Extractable Value and Market Manipulation in Crypto and DeFi," BIS Bulletin 58 (Basel, Switzerland: Bank for International Settlements, June), <https://www.bis.org/publ/bisbull58.pdf>; Paul Barnes (2018), "Crypto Currency and Its Susceptibility to Speculative Bubbles Manipulation, Scams and Fraud," *Journal of Advanced Studies in Finance*, vol. 9 (Winter), pp. 60–77; and Felix Eigelshoven, André Ullrich, and Douglas Parry (2021), "Cryptocurrency Market Manipulation—A Systematic Literature Review," in *ICIS 2021 Proceedings on "Building Sustainability and Resilience with IS: A Call for Action"* (Austin, Tex.: International Conference on Information Systems, Dec. 12–15).

activities that are required to be separated in traditional financial markets. For example, some platforms combine market infrastructure and client facilitation with risk-taking businesses like asset creation, proprietary trading, venture capital, and lending.

Third, all financial institutions, whether in traditional finance or crypto finance, must comply with the rules designed to combat money laundering and financing of terrorism and to support economic sanctions. Platforms and exchanges should be designed in a manner that facilitates and supports compliance with these laws. The permissionless exchange of assets and tools that obscure the source of funds not only facilitate evasion, but also increase the risk of theft, hacks, and ransom attacks. These risks are particularly prominent in decentralized exchanges that are designed to avoid the use of intermediaries responsible for know-your-customer identification and that may require adaptations to ensure compliance at this most foundational layer.<sup>6</sup>

Finally, it is important to address any regulatory gaps and to adapt existing approaches to novel technologies. While regulatory frameworks clearly apply to DeFi activities no less than to centralized crypto activities and traditional finance, DeFi protocols may present novel challenges that may require adapting existing approaches.<sup>7</sup> The peer-to-peer nature of these activities, their automated nature, the immutability of code once deployed to the blockchain, the exercise of governance functions through tokens in decentralized autonomous organizations, the absence of validated identities, and

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<sup>6</sup> The Russian invasion of Ukraine has raised questions about the use of crypto-asset markets for sanctions evasion. See, for example, comments by Carol House, the director of cybersecurity for the National Security Council: “The scale that the Russian state would need to successfully circumvent all U.S. and partners’ financial sanctions would almost certainly render cryptocurrency as an ineffective primary tool for the state” (as quoted in Hannah Lang (2022), “U.S. Lawmakers Push Treasury to Ensure Russia Cannot Use Cryptocurrency to Avoid Sanctions,” Reuters, March 2, para. 7).

<sup>7</sup> See Board of the International Organization of Securities Commissions (2022), *IOSCO Decentralized Finance Report: Public Report* (Madrid: OICV-IOSCO, March), <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD699.pdf>.

the dispersion or obfuscation of control may make it challenging to hold intermediaries accountable. It is not yet clear that digital native approaches, such as building in automated incentives for undertaking governance responsibilities, are adequate alternatives.

### **Connections to the Core Financial Institutions**

There are two specific areas that merit heightened attention because of heightened risks of spillovers to the core financial system: bank involvement in crypto activities and stablecoins. To date, crypto has not become sufficiently interconnected with the core financial system to pose broad systemic risk. But it is likely regulators will continue to face calls for supervised banking institutions to play a role in these markets.

Bank regulators will need to weigh competing considerations in assessing bank involvement in crypto activities ranging from custody to issuance to customer facilitation. Bank involvement provides an interface where regulators have strong sightlines and can help ensure strong protections. Similarly, regulators are drawn to approaches that effectively subject the crypto intermediaries that resemble complex bank organizations to bank-like regulation. But bringing risks from crypto into the heart of the financial system without the appropriate guardrails could increase the potential for spillovers and has uncertain implications for the stability of the system. It is important for banks to engage with beneficial innovation and upgrade capabilities in digital finance, but until there is a strong regulatory framework for crypto finance, bank involvement might further entrench a riskier and less compliant ecosystem.



## Private Digital Currencies and Central Bank Digital Currencies

Stablecoins represent a second area with a heightened risk of spillovers. Currently, stablecoins are positioned as the digital native asset that bridges from the crypto financial system to fiat. This role is important because fiat currency is referenced as the unit of account for the crypto financial system.<sup>8</sup> Stablecoins are currently the settlement asset of choice on and across crypto platforms, often serving as collateral for lending and trading activity. As highlighted by large recent outflows from the largest stablecoin, stablecoins pegged to fiat currency are highly vulnerable to runs. For these reasons, it is vital that stablecoins that purport to be redeemable at par in fiat currency on demand are subject to the types of prudential regulation that limit the risk of runs and payment system vulnerabilities that such private monies have exhibited historically.

Well-regulated stablecoins might bring additional competition to payments, but they introduce other risks. There is a risk of fragmentation of stablecoin networks into walled gardens. Conversely, there is a risk that a single dominant stablecoin might emerge, given the winner-takes-all dynamics in such activities. Indeed, the market is currently highly concentrated among three dominant stablecoins, and it risks becoming even more concentrated in the future. The top three stablecoins account for almost 90 percent of transactions, and the top two of these account for 80 percent of market capitalization.<sup>9</sup>

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<sup>8</sup> See Bank for International Settlements (2022), “The Future Monetary System,” in *Annual Economic Report 2022* (Basel, Switzerland: BIS, June), <https://www.bis.org/publ/arpdf/ar2022e3.htm>.

<sup>9</sup> See The Block (2022), “Share of Trade Volume by Pair Denomination,” data as of June from CryptoCompare, <https://www.theblock.co/data/crypto-markets/spot/share-of-trade-volume-by-pair-denomination>; Martin Young (2022), “Circle’s USDC Stablecoin Gobbles Tether’s Market Share with 50B Milestone,” Cointelegraph, February 1, <https://cointelegraph.com/news/circle-s-usdc-stablecoin-gobbles-tether-s-market-share-with-50b-milestone>; and Brian Newar (2022), “USDC’s ‘Real Volume’ Flips Tether on Ethereum as Total Supply Hits 55.9B,” Cointelegraph, June 22, <https://cointelegraph.com/news/usdc-s-real-volume-flips-tether-on-ethereum-as-total-supply-hits-55-9b>.

Given the foundational role of fiat currency, there may be an advantage for future financial stability to having a digital native form of safe central bank money—a central bank digital currency. A digital native form of safe central bank money could enhance stability by providing the neutral trusted settlement layer in the future crypto financial system.<sup>10</sup> A settlement layer with a digital native central bank money could, for instance, facilitate interoperability among well-regulated stablecoins designed for a variety of use cases and enable private-sector provision of decentralized, customized, and automated financial products. This development would be a natural evolution of the complementarity between the public and private sectors in payments, ensuring strong public trust in the one-for-one redeemability of commercial bank money and stablecoins for safe central bank money.<sup>11</sup>

### **Building in Risk Management and Compliance**

Crypto and fintech have introduced competition and put the focus on how innovation can help increase inclusion and address other vexing problems in finance today. Slow and costly payments particularly affect lower-income households with precarious cash flows who rely on remittances or miss bills waiting on paychecks. Many hard-working individuals cannot obtain credit to start businesses or to respond to an emergency.

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<sup>10</sup> See Lael Brainard (2022), “Digital Assets and the Future of Finance: Examining the Benefits and Risks of a U.S. Central Bank Digital Currency,” statement before the Committee on Financial Services, U.S. House of Representatives, May 26, <https://www.federalreserve.gov/newsevents/testimony/brainard20220526a.htm>.

<sup>11</sup> With respect to the United States, no decision has been made about whether or not a central bank digital currency will be issued.

But while innovation and competition can reduce costs in finance, some costs are necessary to keep the system safe.<sup>12</sup> Intermediaries earn revenues in exchange for safely providing important services. Someone must bear the costs of evaluating risk, maintaining resources to support those risks through good times and bad, complying with laws that prevent crime and terrorism, and serving less sophisticated customers fairly and without exploitation. In the current crypto ecosystem, often no one is bearing these costs. So when a service appears cheaper or more efficient, it is important to understand whether this benefit is due to genuine innovation or regulatory noncompliance.

So as these activities evolve, it is worth considering whether there are new ways to achieve regulatory objectives in the context of new technology. Distributed ledgers, smart contracts, and digital identities may allow new forms of risk management that shift the distribution of costs. Perhaps in a more decentralized financial system, new approaches can be designed to make protocol developers and transaction validators accountable for ensuring financial products are safe and compliant.

## **Conclusion**

Innovation has the potential to make financial services faster, cheaper, and more inclusive and to do so in ways that are native to the digital ecosystem. Enabling responsible innovation to flourish will require that the regulatory perimeter encompass the crypto financial system according to the principle of like risk, like regulatory outcome, and that novel risks associated with the new technologies be appropriately addressed. It is important that the foundations for sound regulation of the crypto

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<sup>12</sup> See Igor Makarov and Antoinette Schoar (2022), “Cryptocurrencies and Decentralized Finance (DeFi),” *Brookings Papers on Economic Activity*, BPEA Conference Draft, March 24–25, [https://www.brookings.edu/wp-content/uploads/2022/03/SP22\\_BPEA\\_MakarovSchoar\\_conf-draft.pdf](https://www.brookings.edu/wp-content/uploads/2022/03/SP22_BPEA_MakarovSchoar_conf-draft.pdf).

financial system be established now before the crypto ecosystem becomes so large or interconnected that it might pose risks to the stability of the broader financial system.