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Remarks Before the

Institute of International Economic Law at Georgetown University Law Center

“Thoughts on the Architecture of Stablecoins”

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Today I would like to add to the discourse on stablecoins, which has become a hot topic here in Washington recently. In my conversations with policymakers and other stakeholders, the desire to learn, explore issues, and drill down into the details is encouraging.

For my remarks this morning, though, I want to take a step back and discuss *why* stablecoins matter and pose three policy questions that speak to the architecture of stablecoins.

Why do stablecoins matter?

Getting stablecoins right from a regulatory policy perspective is important because getting them wrong could result in ordinary people getting hurt. Policy errors could also impede the potential for the dollar to serve as the base currency in a future digital economy.

Protecting people

According to some surveys, nearly one in five Americans has exposure to crypto today. Those Americans are disproportionately young, diverse, and underbanked. By one count, 70 percent of crypto owners were born after 1980 and 56 percent earn under \$50,000.¹ Black, Hispanic, and Asian adults are significantly more likely than White adults to say they have ever

¹ See Morning Consult, “[Banking the Unbanked Requires Raising Trust and Awareness. For the Underbanked, Better Service Means Payments Innovation](#),” (August 17, 2021).

invested in, traded, or used a cryptocurrency.² And of the underbanked, 37 percent say they own crypto, compared with just 10 percent of the fully banked.³

Scams, hacks, and fraud in the crypto space are a problem. As I highlighted at a recent event hosted by the Financial Literacy Education Commission, in 2021 crypto theft hit \$3.2 billion, a 516 percent increase over 2020.⁴

That is a big number. But it pales in comparison to the overall size of the cryptocurrency market, which is around \$2 trillion. Stablecoins support that entire market. As noted recently by SEC Chairman Gensler, roughly 80 percent to 85 percent of trading and lending on crypto platforms involves stablecoins.⁵ The relationship can be depicted as an upside-down pyramid, with \$2 trillion worth of crypto resting on roughly \$180 billion of stablecoins.

Conceptually, this is not too dissimilar from the United States' \$23 trillion economy being supported by \$2.4 trillion of capital in the banking system. Instability at the bottom of the pyramid is likely to cause the entire pyramid to become unstable. If there were to be a run on stablecoins, the entire crypto economy would likely be impacted, causing outsized losses for ordinary people owning crypto and potentially leading to a host of other knock-on effects.

Protecting the dollar

At the most recent Congressional hearings on stablecoins, members from both sides of the aisle highlighted the importance of maintaining the dollar as the world's reserve currency.⁶ This is a broad concept, and it may be helpful to be more precise. In the context of crypto and

² See Pew Research, "[16% of Americans say they have ever invested in, traded or used cryptocurrency.](#)" (November 11, 2021).

³ See Morning Consult, "[Banking the Unbanked Requires Raising Trust and Awareness. For the Underbanked, Better Service Means Payments Innovation.](#)" (August 17, 2021).

⁴ See "The 2022 Crypto Crime Report," Chainalysis, February 2022. See, also, OCC News Release 2022-2, "[Acting Comptroller Discusses Crypto-Assets and Regulation](#)" (January 13, 2022).

⁵ See [Prepared Remarks of Gary Gensler On Crypto Markets, Penn Law Capital Markets Association Annual Conference](#), (April 4, 2022).

⁶ See House Financial Services Committee, "[Virtual Hearing – Digital Assets and the Future of Finance: The President's Working Group on Financial Markets' Report on Stablecoins](#)" (February 8, 2022), and Senate Banking Committee, "[Examining the President's Working Group on Financial Markets Report on Stablecoins](#)" (February 15, 2022).

digital assets, the central issue is: What will serve as the *base currency* for trade and finance in a blockchain-based digital economy?

Note, this is not about central bank reserves per se. This is about transactions, payments, and lending. And the concern is mostly prospective. It is premised on the digital economy transitioning to being blockchain-based, what many now refer to as Web3.⁷

To be clear, the rise of Web3 and a blockchain-based digital economy are not inevitable. Several observers have made thoughtful and credible arguments questioning the value proposition and long-term sustainability of cryptocurrencies and Web3.⁸ I find many of their arguments to be compelling. At the same time, however, it is hard to ignore the rapid growth of the developer community, market signals about blockchain firms' long-term potential, and pronouncements and actions from a range of policymakers and governments.⁹

Regardless of which path materializes, it is important to bear in mind that fiat currencies, like the dollar, cannot be put “on chain.” By contrast, stablecoins, by design, only exist on chain—i.e., they are “blockchain native”—which gives them a significant advantage over fiat currencies in terms of functioning as money in blockchain-based ecosystems.

Currently, there are no central bank-issued, blockchain-native coins or tokens operating on permissionless public blockchains. This may seem like a gap, but consider for a moment our traditional banking system. A dollar bill is a liability of the Federal Reserve, as are banks' deposits at Federal Reserve Banks. They are deemed “central bank money.” By contrast, my deposit at ABC Bank and your deposit at XYZ Bank are not central bank deposits. They are commercial liabilities of ABC Bank and XYZ Bank, respectively. Yet, we use those deposits just as we use physical cash—as a store of value, a unit of account, and a medium of exchange to pay for things. Our bank deposits and the physical money in our wallets are all treated as *fully*

⁷ See, e.g., Ethereum Foundation, “[Introduction to Web3](#)” (April 2, 2022).

⁸ See, Fortune, “[Signal’s Moxie Marlinspike blasts Web3--- and Ethereum founder Vitalik Buterin comes to its defense](#)” (January 10, 2022); see also Value Hive, “[Stephen Diehl: The Dark Side of Web3, Crypto & NFTs](#)” (January 21, 2022); see also Dan Olson, “[Line Goes Up – The Problem with NFTs](#)” (January 21, 2022).

⁹ White House, “[Executive Order on Ensuring Responsible Development of Digital Assets](#)” (March 9, 2022); NPR, “[With federal rules unclear, some states carve out their own path on cryptocurrencies](#)” (March 10, 2022); Brookings, “[Mayors: Cryptocurrency won’t solve your cities’ problems](#)” (March 22, 2022); see also CoinDesk, “[BIS Innovation Hub to Focus on CBDC, DeFi Experimentation This Year](#)” (January 25, 2022).

fungible.¹⁰ This is not an accident. It is the result of a carefully architected monetary and banking system.¹¹ The robustness and reliability of this architecture, combined with the strength of the rule of law in America and the dynamism of our economy, has supported the role of the U.S. dollar as the world’s reserve currency.

It is this issue of the *architecture* of a USD stablecoin system that I would now like to turn to.

Architectural policy considerations

Bearing in mind the objectives just discussed, the architecture for a stablecoin system can be viewed through the lens of three key policy issues: stability, interoperability, and separability.

How stable should stablecoins be?

The President’s Working Group report on stablecoins cited run risk as a leading risk for stablecoins.¹² Under existing financial regulatory authorities, there are broadly two approaches to mitigating run risk and promoting stability. One is based on money market fund regulation, which is grounded in disclosure and high-level requirements regarding asset holdings. The other is based on bank regulation and supervision, which is grounded in prudential standards to protect depositors.

If stablecoins were just an investment product, a money market fund approach based on public disclosure could, in theory, serve as a starting point. There are notable limits to disclosure’s effectiveness in preventing runs, however. The need for money market fund emergency lending facilities in the 2008 financial crisis and in the spring of 2020 as part of the pandemic response stand out.¹³

¹⁰ Notably, money market fund investments and other ‘cash equivalents’ are not fungible with central bank or commercial bank money.

¹¹ See Jess Cheng and Joseph Torregrossa, [“A Lawyer’s Perspective on U.S. Payment System Evolution and Money in the Digital Age”](#) (February 4, 2022).

¹² The President’s Working Group on Financial Markets, [Report on Stablecoins](#) (PWG Stablecoin Report) at 12 (November 1, 2021).

¹³ See, e.g., Paul Kiernan, Andrew Ackerman, and Dave Michaels, [“Why the Fed Had to Backstop Money Market Funds, Again.”](#) Wall Street Journal (March 21, 2020).

A banking approach would be more effective. Some have expressed concerns, however, about undue burden and inefficiency. If a stablecoin entity were tightly limited to just issuing stablecoins and holding reserves to meet redemptions, I would agree that the full application of all bank regulatory and supervisory requirements would be overly burdensome. Provided that the activities and risk profile of a stablecoin issuing bank could be narrowly prescribed, a tailored set of bank regulatory and supervisory requirements could balance stability with efficiency.

A subsidiary question that is embedded in the stability debate also warrants discussion: How much variability across stablecoin issuers can be tolerated? A quick look at history may provide some clues.

In the pre-Civil War period known as “free banking,” bank regulatory standards were determined exclusively at the state level. Variability and inconsistency were features, not bugs. While this allowed for significant innovation and growth in the number of bank charters, it also resulted in frequent bank runs and panics—a far cry from the system we have today, where variability across banks is maintained within a range of “safety and soundness” determined at the federal level. In addition, before the 2008 financial crisis, money market funds were also highly variable, which contributed to their fragility and led to reforms that imposed some safety-and-soundness-like requirements, thus narrowing their variability as well.

With stablecoins, one question is whether to require all stablecoin issuers to comply with a fixed set of safety and soundness-like requirements (as is the case with banks), or to let them pick from a wider set of licensing options, each with distinct risk-reward tradeoffs. While there are pros and cons to consider, in my experience, the wider the variability the more likely a risky issuer blows itself up sparking contagion across peers.

How interoperable should stablecoins be?

In most debates about stablecoins, the question of interoperability is generally ignored or put on the back burner.¹⁴ This may be because current use cases are centered on trading. If

¹⁴ There have been exceptions. See, e.g., Neha Narula, “[The Technology of Stablecoins](#)” (September 23, 2021) and Sergey Gorbunov and Tai Panich, “[The stablecoin boom won’t continue without decentralized interoperability](#)” Cointelegraph (November 13, 2021).

needed, users can simply trade one stablecoin for another, just as they would with any other cryptocurrency. No big deal.

To the extent stablecoins get used for payments and to support other Web3 activities, however, interoperability is likely to become a bigger issue. There are two levels of interoperability to consider.

First is interoperability *within* a stablecoin across blockchains. The largest stablecoins exist on multiple blockchains, e.g., Ethereum, Solana, Tron, Algorand, etc. These blockchains are *not* interoperable. Each blockchain has its own rail gauge so to speak, because different blockchains are written in different coding languages and have different dependencies and cryptography, among other things.¹⁵ This lack of full interoperability means that for any given stablecoin issuer, like Tether, its tokens are not fungible across blockchains. Take, for instance, a USDT token that is native to the Ethereum blockchain and a USDT token that is native to the Tron blockchain. Although the two stablecoins are issued by the same company (Tether), have the same value (one dollar), and are called the same thing (USDT), they are not strictly speaking interoperable. A user cannot use the Tron native USDT token to pay for something on the Ethereum blockchain, at least not without a cross-chain solution of some kind. And as many have come to learn the hard way, cross-chain solutions have proven to be highly vulnerable to hacks.¹⁶

Second is interoperability *across* stablecoins. One way to think about this is to compare the monetary and banking system of today against that of the pre-Civil War period. Modern-day commercial bank deposit liabilities are fully interoperable with each other, as well as with physical money. The world treats them as fully fungible, which enables an enormous amount of economic activity to take place efficiently.

By contrast, pre-Civil War bank issued notes were not fully fungible. Each bank printed its own note, so users had to handle notes of different sizes and colors, each purporting to represent the same thing: a dollar. Users had to rely on “paper money men” to make the money

¹⁵ See Neha Narula, “[The Technology of Stablecoins](#)” (September 23, 2021).

¹⁶ See, e.g., Shubham Pandey, “[Ronin’s \\$612m hack exposes vulnerabilities of cross-chain bridges](#)” Ambcrypto (March 30, 2022), and Vitalik Buterin’s [Reddit post on the fundamental security limits of bridges](#) (January 2022).

system work, circulating state bank notes throughout the economy and facilitating trading of them at various discounts to enable everyday transactions.¹⁷

In today’s crypto ecosystem, stablecoins are not interoperable with each other or with the dollar. In this way, stablecoin issuers are like the pre-Civil War state banks and crypto exchanges are like the “paper money men.”¹⁸

If or when stablecoins expand from trading to payments, this lack of interoperability will become more apparent. Facebook’s stablecoin journey is worth noting here. Its attempt to launch the Libra stablecoin, later changed to Diem, raised significant concerns.¹⁹ Among them was a fear of the concentration of economic power that Facebook would be able to exert should it have its own stablecoin. Notably, these concerns assumed (rightly) that the Diem stablecoin would lack interoperability with other stablecoins. After all, if Facebook users could use any stablecoin to buy and sell things on Facebook, why would they use Diem? Or, more tellingly, why would Facebook bother developing it?

Without interoperability amongst USD-based stablecoins, the risk of digital ecosystems being fragmented and exclusive (with walled gardens) is heightened. In the long-run, interoperability between stablecoins and with the dollar—including a CBDC—would help ensure openness and inclusion. It would also help facilitate broader use of the *U.S. dollar*—not a particular corporate-backed stablecoin—as the base currency for trade and finance in a blockchain-based digital future.

How separable should stablecoin issuing entities be?

¹⁷ See Joshua R. Greenberg, *Bank Notes and Shinplasters: The Rage for Paper Money in the Early Republic*, University of Pennsylvania Press, 2020.

¹⁸ Notably, stablecoin issuers and crypto exchanges seem to have paired off, as each of the three largest centralized exchanges has a partnership or relationship with each of the largest stablecoin issuers – Coinbase with Circle, which issues the USDC stablecoin, FTX with Tether, which issues the USDT stablecoin, and Binance with Paxos, which issues the BUSD and USDP stablecoins.

¹⁹ See Written Testimony of Chris Brummer, Professor of Law, Georgetown University Law Center, “[99 Problems](#)” United States House Committee on Financial Services (July 17, 2018).

Blockchain-based money holds the promise of being ‘always on,’ irreversible, programmable, and settling in real-time. With these benefits, however, come risks, especially if commingled with traditional banking and finance.

So-called “intraday liquidity risk” is a particular concern. In the context of traditional banking, intraday liquidity risk refers to the risk associated with differently timed payments. Say a bank makes a payment for \$100 million at 9 a.m. and receives a payment of \$100 million at 3 p.m. The bank’s end of day liquidity position would be flat. On an intraday basis, however, the bank was exposed to \$100 million of intraday liquidity risk—had the 3 p.m. payment not come in, the bank would have had \$100 million less of liquidity at the end of the day. Large banks with material intraday liquidity risk profiles have controls to help manage these risks.

Now imagine a world where a bank engages in both traditional payments and blockchain-based payments. Banks’ intraday controls and risk management systems for traditional Fedwire payments may not be effective for blockchain-based payments, which are on 24/7, irreversible, and settle in real-time. The accumulation of blockchain-based payments over, say, a weekend could outstrip a bank’s available liquidity resources. Several blockchain advocates have cited this as a concern.²⁰

One way to mitigate these and other blockchain-specific risks would be to require that blockchain-based activities, such as stablecoin issuance, be conducted in a standalone bank-chartered entity, separate from any other insured depository institution (IDI) subsidiary and other regulated affiliates. Additional safeguards could be considered, including enhancements to restrictions on interaffiliate transactions applicable to IDIs.²¹

In sum, I believe that establishing an intentional architecture for stablecoins can help protect people and the dollar and reflect our values. Stability, interoperability, and separability are preliminary policy factors to consider in that architectural development. Other core values, such as privacy, security, and preventing illicit finance, may also have architectural implications and warrant discussion and consideration.

²⁰ See Fintech Beat, “[Dan Tarullo and Caitlin Long on capital rules for crypto](#)” (July 20, 2021).

²¹ For instance, under sections 23A and 23B of the Federal Reserve Act to which IDIs are subject and which were strengthened in the Dodd-Frank Act.

Conclusion

The future of digital assets is challenging to forecast. Today, cryptocurrencies are used primarily for trading on exchanges. Tomorrow, they may collapse and exist only on the shadowy peripheries of the financial system—*or* they may grow and power the next evolution of our digital lives and the digital economy. The uncertainty creates challenges for policymakers as well as for financial institutions.

Meeting these challenges requires strong collaboration across government, as noted in President Biden’s recent Executive Order calling for a coordinated and comprehensive approach to digital asset policy.²² In remarks given yesterday, Secretary Yellen reinforced the need to work together to ensure responsible innovation.²³ I have been pleased with the level of engagement and collaboration with my peers, including state banking supervisors. While there remains a wide range of perspectives on crypto’s future, there appears to be an emerging consensus that rules-of-the-road and safeguards are needed today to protect people and balance the risks and benefits of blockchain technology as it continues to evolve.²⁴

²² White House, “[Executive Order on Ensuring Responsible Development of Digital Assets](#)” (March 9, 2022).

²³ Remarks from Secretary of the Treasury Janet L. Yellen on [Digital Assets](#), U.S. Department of the Treasury (April 7, 2022).

²⁴ [Prepared Remarks of Gary Gensler on Crypto Markets](#), Penn Law Capital Markets Association Annual Conference (April 4, 2022); Testimony of Chairman Rostin Behnam regarding “[Examining Digital Assets: Risks, Regulation, and Innovation](#)” (February 9, 2022).