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Subcommittee on National Security, International Development and Monetary Policy
“The Promises and Perils of Central Bank Digital Currencies”
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Robert M. Baldwin
Head of Policy
The Association for Digital Asset Markets (ADAM)

Chairman Himes, Ranking Member Barr, Members of the Subcommittee, thank you for the opportunity to testify today. My name is Robert Baldwin, and I am the Head of Policy at the Association for Digital Asset Markets, or “ADAM.” In this capacity, I oversee the policy and standards-setting process for the self-governing association and work to develop industry best practices that facilitate fair and orderly digital asset markets. Prior to ADAM, I served at the U.S. Department of the Treasury and the Central Intelligence Agency.

My testimony today seeks to advance the conversation of the future of U.S. payments. I will focus on the current status of payments in the U.S., goals for an advanced payments system, and discuss two leading solutions, including the development of a central bank digital currency (CBDC) and the use of a responsibly managed private-sector stablecoin.

International Payments System Overview

Greater global connectivity spurred by rapid advancements in telecommunications technology has changed the pace at which businesses can operate and people around the globe can connect. Commercial products such as Zoom allow business meetings to be conducted around the world, without the need for time-consuming flights around the globe. As a result, the pace of business has accelerated and efficiencies have improved. However, at the same time, the payment systems have failed to keep pace with other advances in telecommunications. While online banking and instant payments through private payment rails such as PayPal have improved the consumer experience with financial services, the domestic back-end settlement mechanisms through the Federal Reserve Automated Clearing House (ACH) or The Clearing House Electronic Payments Network (EPN), The Clearing House Interbank Payments System (CHIPS), or Fedwire have not kept up to pace, with downsides including high costs, difficulty in scaling, bias towards larger payments, or slow settlement times.

The settlement process is only compounded on international cross-border payments, which rely on networks of correspondent banking relationships, facilitated by the Society for Worldwide Interbank Financial Telecommunications (SWIFT) international payment mechanism. These



complex, decades-old networks are costly, slow, and susceptible to cyberattacks.¹ Although SWIFT has taken steps in recent years to decrease settlement times, greater efficiency improvements can be made, particularly in cybersecurity and in the payment processes before and after SWIFT settlement.²

U.S. Goals and Global Payments

The current correspondent banking system has served the United States well. The U.S. economy's deep and liquid capital markets, strong rule of law, and dynamism have enabled the dollar to become the preeminent global reserve and transaction currency, accounting for over sixty percent of global transactions despite the U.S. making up about a fifth of global GDP. Reserve and transaction currency status has given the United States significant fiscal space, with foreigners having a voracious appetite for dollar-denominated safe assets. Moreover, the network effects provided by a dollar-based global payments system allows the United States to execute an advanced sanctions program and create American jobs in front- and back-end functioning of the correspondent banking system infrastructure. However, this system of payments is facing pressure on two fronts, first from international competition and second from innovations stemming from the development of blockchain technologies.

International competition is decreasing the U.S. role in international finance both as a means for economic competition and as a tool to avoid U.S. sanctions. The challenges have been twofold, first, and more likely a challenge moving forward, through the creation of Central Bank Digital Currencies (CBDCs) and second through new payment infrastructure to set up non-USD, non-SWIFT financial vehicles such as EU's Instrument in Support of Trade Exchanges (INSTEX), China's Cross-Border Interbank Payment System (CIPS), Russia's System for Transfer of Financial Messages (SPFS), and Venezuela's design of a petrodollar digital currency.

The most prominent example of a CBDC is the Chinese Digital Yuan, primarily because it is from the second largest GDP economy and that it is currently in pilot mode, while CBDCs from other advanced economic nations are still largely in the research phase. For the time being, the Digital Yuan is focused on small domestic payments, although it could be expanded to facilitate international payments in the future.³ Initial potential international use cases of the Digital Yuan could be concentrated in areas such as Belt and Road projects, the funding of direct projects or investment in China, or the avoidance of the U.S. centric system for system for purposes such as sanctions or tax evasion. If China's recent crackdown on its private sector tech giants is any indication, it is likely that the Chinese State will further incentivize domestic adoption of the

¹ Fortune, [SWIFT Banking System Was Hacked at Least Three times This Summer](#) (September 26, 2016).

² SWIFT, [SWIFT Enables Payments to be Executed in Seconds](#) (September 23, 2019).

³ Carnegie Endowment for International Peace, [What Will Be the Impact of China's State-Sponsored Digital Currency?](#) (July 01, 2021).

Digital Yuan through integration or takeover of Alipay and TenPay (the parent of WeChat Pay), the current leading payment rails in China.

China has publicly stated in its 14th five-year plan its desire to expand the Renminbi (RMB) internationally through leading standard-setting in digital currency and is forming partnerships with international bodies including SWIFT to provide vehicles for the internationalization of the Digital Yuan.⁴⁵ The Digital Yuan lays forward lofty goals that U.S. policymakers should closely track, but the U.S. should also consider the structural issues surrounding the Digital Yuan such as China's strict capital controls, its history of deceptive business practices such as data manipulation, its spotty record on property rights and the rule of law, the potential for data harvesting, and the potential for unwanted surveillance over payments. All of these factors combine to make the Digital Yuan an unappealing standard international option if Western nations innovate in a responsible manner and provide consumers with a viable alternative.

Non-CBDC, non-USD alternatives are yet to reach a level to rival SWIFT. China's SIPS is the largest system, facilitating approximately \$20 billion a day in transactions (compared to SWIFT's \$6 trillion); however, it still largely relies on SWIFT for cross-border payments facilitation (something that could change given proper motivations). SIPS has been used primarily for regional relationships with Russia, Japan, and Belt and Road initiative countries in Africa.⁶ Other systems set up primarily to avoid U.S. sanctions have been largely unsuccessful as governments fail to live up to initial commitments and private sector appetite for the mechanisms decrease, such as the case with the EU's INSTEX for trade with Iran and Venezuela's creation of an oil-backed digital currency.⁷⁸ Despite mixed results from the current alternative systems, digitization and technology are increasingly making it easier for motivated international actors to shift payments away from a U.S.-centric approach.

The other challenge to the current payment system is innovation stemming from blockchain technologies, which have made relatively low-cost, high-speed, secure payments a reality. These systems allow users to confidently transact on a peer-to-peer basis, without processing through traditional intermediaries, such as correspondent banks or central banks. There is a clear need in the marketplace for such payments, and as an example, the total market capitalization for dollar-backed stablecoins has grown by over \$100 billion in the past year.⁹

Blockchain systems allow users to make both large and small payments in a fast and affordable manner with superb cybersecurity. Such a system enables faster movement of funds and will create new facets of the economy utilizing cheap micropayments. Blockchain technology can

⁴ Id.

⁵ Voice of America, [China and SWIFT Partner to Take Digital Currency Global](#) (February 12, 2021).

⁶ Reuters, [Factbox China's Onshore Yuan Clearing and Settlement System](#) CIPS (July 30, 2020).

⁷ Tehran Times, [Iran Blames EU on INSTEX Ineffectiveness](#) (January 18, 2021).

⁸ Bitcoin.com, [Nicolas Maduro States Venezuela Pioneered Crypto Adoption in South America as Petro Use Flounders](#) (June 22, 2021).

⁹ The Block Crypto, [Stablecoin Supply Charts](#) (July 2021).



enable functions such as paying hourly workers in real-time or directly paying artists for access to their art, both of which were previously impractical due to the costs associated with processing small payments. Cutting out traditional layers of the system reduces unnecessary costs and risks, providing additional benefits to creators and consumers. However, cost-cutting is not without consequence. Our current systems have benefited from decades of regulatory oversight and have layers of compliance built in to ensure a safe and orderly financial system. It is important that developers of software utilizing blockchain for payments respect the traditional areas of oversight by financial and bank regulators, such as anti-money laundering and sanctions compliance, risk management, and market integrity.

Established commercial banks have begun implementing private blockchain solutions to improve product quality. J.P. Morgan has created its own blockchain payments network, Liink, which is transacting in billions of dollars on a daily basis with 400 banks (for reference, SWIFT has 11,000 banks).¹⁰ Others have been working to improve other areas of banks, such as Paxos, Credit Suisse, and Instinet's use of blockchain to execute same-day stock settlements.¹¹

Once initial breakthroughs have occurred, it is difficult to impossible to constrain technological development and market forces will guide consumers to the best products. To date, the U.S. has maintained the world's leading payment system due to positive characteristics that make it easy and safe to transact in USD. As alternative payment mechanisms advance and other international actors seek to provide alternative solutions, the traditional U.S. global payments system is at a crossroads. It is imperative that the U.S. looks to the future at this critical juncture, and that future is likely based on the use of blockchain technology. When modernizing our payment systems, the U.S. should seek to establish a consumer-friendly system that benefits domestic consumers, while also making itself attractive for use in international business. Such a system prioritizes low-cost and fast payments, individual privacy, transaction transparency and data control, and ultimately ensures the USD maintains its prominence in international markets.

The U.S.' size and economic strength afford it the time to study various approaches. At the same time, purely academic studying, without technical development, poses a risk that a Chinese-led approach might gain traction relative to the U.S. Some forms of advancement are already on the way. FedNow's scheduled arrival in 2023 will be a welcome start to advancing payments efficiency domestically and must be taken into any policy discussions examining the pros and cons of various mechanisms.¹²

I will use the remainder of my testimony to discuss the role a U.S. CBDC or responsibly reserved and regulated private stablecoins could play in modernizing the U.S. payments infrastructure. In my opinion, these are two of the most promising approaches that will advance the U.S. payments infrastructure and ensure that the U.S. maintains its leading economic position.

¹⁰ Forkast, [How JPMorgan's Onyx is Redefining Payments in Banking with Blockchain](#) (March 19, 2021).

¹¹ Coindesk, [Paxos Trumpets Same-Day Shares Settlement Using Blockchain](#) (April 6, 2021).

¹² JD Supra, [FedNow Service Pilot Program Gaining Traction and Support](#) (June 16, 2021).

U.S. Central Bank Digital Currency

As governments across the world study CBDCs, it is imperative that this Committee deliberates on a U.S. CBDC and consider the pros and cons through careful analysis of the technology. The U.S. role in the international system affords it standard-setting ability in this area. A potential CBDC should be careful not to disrupt the positive characteristics that make the U.S. such an appealing economic system. As mentioned earlier, other nations such as China, have structural issues which to date have inhibited further internationalization of their currencies.

To ensure the previously described macro goals are achieved, a U.S. CBDC would need to appropriately address several key design features including the structure of the CBDC, the CBDC's intended audience, privacy considerations, the effect on traditional financial services, the role it would play internationally, and the process by which a CBDC is developed and administered.

As Dr. Neha Narula previously testified, a CBDC could take a number of forms.¹³ The first decision that must be made is whether the CBDC will be token-based or account-based. A token-based system would provide the CBDC via a decentralized ledger validated by the Federal Reserve or a designee, such as commercial bank. The CBDC would then be transferable between users and institutions in ways similar to cash. An account-based approach would function similar to traditional deposits and the debit card process, where funds are drawn from one account and credited to another account.

A second important decision to make is whether the CBDC would allow consumer-to-consumer transactions and, if so, how consumers would react, and what impact this format would have on establishing the legal frameworks and infrastructure to facilitate the CBDC. If the CBDC is declared to be legal tender, would every merchant be required to accept the CBDC? If so, what steps would need to be taken to set up the system for every business in the U.S.? A token-based approach would leverage distributed ledger technology and “digital wallets,” while an account-based approach would require account formation and verification to ensure the system is free of false accounts and fraud. Policymakers should consider how the benefits the CBDC is attempting to achieve would be conveyed to those without internet access or proper identification, or those lacking the necessary technical sophistication. Additionally, it is important to consider how an account-based or token-based approach would be rolled out to the general public. How would government skeptics or bank skeptics react to new CBDC options? Would the CBDC potentially be subject to misinformation surrounding government surveillance of citizens' day-to-day activities? Such a rollout would require careful planning, as the U.S. federal government is unable to force adoption in a way that the Chinese Communist Party could. If the U.S. were to pursue a CBDC path, an effective coordinated messaging campaign must be produced in advance. Similarly, public-private partnerships with the financial services industry and app store providers such as Apple and Google would be extremely beneficial to advancing the product rollout.

¹³ Neha Narula, [Building a Strong Financial System: Opportunities of a Central Bank Digital Currency](#) (June 9, 2021).

A Federal Reserve CBDC system would almost certainly build in guardrails for anti-money laundering (AML) compliance and macroprudential safeguards. A CBDC system could improve insights to both of these areas, but the system should be thoughtfully designed to ease concerns about domestic surveillance. Users should be largely anonymous in these systems so that the federal government is not monitoring and scrutinizing citizen's consumption habits. Additionally, a well-designed CBDC system would need to have clear procedures in place for warrant-based law enforcement investigations. Finally, a CBDC system should have guardrails in place to ensure that financial services remain politically neutral so that businesses and citizens operating in politically sensitive areas have assurances that they will not be cut off from financial services due to the nature of business activities.

Policymakers should also consider the effect a CBDC would have on the traditional commercial banking system. With faster payments capabilities, it is essential to ensure that controls are in place to prevent disintermediating deposits from the traditional banking system, which could pose a financial stability risk. A drawdown in deposits could affect the ability to provide loans, the backbone that drives economic growth in the U.S. Potential solutions for this could be to place limits on the size of CBDC accounts or ensure that commercial banks are able to provide loans utilizing CBDCs.

In the cross-border payments space, works remains to establish rules for how an international system of CBDCs would work together. The Bank for International Settlements (BIS) recently laid out a number of questions relating to macro-financial concerns in cross-border payments such as currency substitution risk, capital flow volatility, and contagion risk, which must be solved thoughtfully in a manner that preserves country-specific characteristics.¹⁴ In addition to leading on these questions, the U.S. must lead in thought leadership and standard-setting across all international bodies such as the G7, G20, BIS, and the Financial Stability Board, so that the future of global digital payments reflects American values.¹⁵

A final consideration must be how the Federal Reserve would develop and administer the CBDC. It is currently unclear if the Federal Reserve has the authority to develop a CBDC without Congressional approval. CBDC development is a large undertaking that will take a number of years. If considering authorization of an approach, Congress should outline a timeline for a CBDC theoretical development and consider steps such as whether the CBDC will be designed through private sector contracting or developed from within the U.S. government. In addition to the development side, policymakers should consider the costs and steps necessary to administer a CBDC system. Would the CBDC be managed by the Federal Reserve Board of Governors or by an operational office akin to Treasury's Fiscal Service? If it is the Federal Reserve Board of Governors, would operational oversight of the system distract from the Federal Reserve's core mission of monetary policy and financial stability?

¹⁴ Banks for International Settlements, [Central Bank Digital Currencies for Cross-Border Payments](#) (July 2021).

¹⁵ Bank for International Settlements, [Central Bank Payments in the Digital Age](#) (2020).

Despite the numerous questions to be answered, a CBDC system offers the potential for speed and cost benefits and potential promise in areas such as financial inclusion and improved cross-border transactions. A well-designed CBDC is a considerable undertaking and many important design choices must be made. The U.S. should expedite the capacity-building process so that policymakers have a full range of options to advance U.S. digital payments infrastructure.

USD Stablecoin System

In lieu of (or in advance of) introduction of a CBDC as discussed above, a comprehensively regulated private sector-led stablecoin approach, endorsed by and coordinated with the federal government, could answer many of the stated goals, including offering low-cost and fast payments, individual privacy, transaction transparency and data control, and expand access to USD in international markets. Consumer demand and market adoption of existing stablecoins are growing at a rapid rate. Largely used in digital asset trading, over the last year the market capitalization for stablecoins grew by 1,000% from approximately \$10 billion in July of 2020 to \$110 billion in July of 2021.¹⁶ Stablecoins' ease of use makes dollar-based transactions easier, and what started as an innovation in the digital asset trading world has shown real-world utility, which can fairly easily be converted to other sectors of the economy to work with our existing financial structures.¹⁷

To date, stablecoins have served as a catch-all term, but many different types of stablecoins exist and many more are possible depending on the underlying asset backing and the stablecoins governance structure. Much media and regulatory attention in this space has focused on either ambitious projects that have the potential to undermine monetary policy or on other projects where a lack of regulatory requirements has raised questions regarding the quantity and quality of reserves backing certain stablecoins, as well as questions regarding whether certain stablecoins are, in fact, investment contracts. However, well-designed and managed stablecoins, with prudent regulations on reserve backing and auditing standards, have the potential to significantly improve the speed of payments without necessitating a complete reworking of the financial system or large project engineering from the federal government.

One way to achieve the benefits of blockchain-based stablecoins and address the regulatory concerns that have been raised to date would be to establish standards for federal regulatory approval under a “lead overseer approach” towards dollar-denominated stablecoins.¹⁸ These stablecoins would be fully (or nearly fully) reserved by cash, cash equivalents, or short-term treasury instruments, similar to how the New York State Department of Financial Services provides oversight of stablecoins.¹⁹ This system would build on top of the current infrastructure to provide a faster payment layer and would be purely opt-in for business or consumers seeking

¹⁶ The Block Crypto, [Stablecoin Supply Charts](#) (July 2021).

¹⁷ Finextra, [PayU Partners Celo to Bring Stablecoin Payments to Merchants](#) (July 21, 2021).

¹⁸ Financial Stability Board, [Regulation, Supervision and Oversight of “Global Stablecoin” Arrangements](#) (October 13, 2020).

¹⁹ New York State Department of Financial Services, [DFS Continues to Foster Responsible Growth in New York's Fintech Industry with New Virtual Currency Product Approvals](#) (2021).



to leverage the benefits of the stablecoin. Such a process would create incentives for private sector stablecoin providers to innovate in their product offerings and tailor products for businesses and consumers, providing a wealth of new business options through improved back-end engineering. Stablecoin reserves would be held in U.S. regulated and insured banks, and strict audit standards would be required to ensure that the reserves equal or exceed the stablecoins outstanding. With money staying in U.S. regulated onshore banks, the stablecoin system would redistribute USD liquidity across the banking system and the Federal Reserve's balance sheet and the U.S. commercial banking balance sheet would remain unchanged in both size and composition, allowing U.S. monetary policy capacity to remain relatively unaffected.²⁰

From a cross-border payment perspective, USD-backed stablecoins would facilitate trade and commerce in USD and ensure that the USD remains readily available and act as a counterweight to changes in international trade, such as a decline in oil-backed dollarization that might occur from a global energy transition. This stablecoin system would be fairly straightforward to design and implement and would be easier to align in international forums than a CBDC, which face a number of unresolved macro-prudential questions in terms of cross-border payments.²¹ Such stablecoin offerings would be easy to use and serve as useful alternatives for businesses and consumers involved in cross-border dealings across Asia, Africa, Europe, and Latin America in comparison to a Chinese Digital Yuan and its related structural issues. If regulatory approval was expedited, a stablecoin system could be quickly rolled out across various sectors and could capitalize internationally before competing options are fully developed. A private sector-led approach to implementing such a system would create numerous jobs from sales to engineering, would be funded by investment from private sources, and wouldn't require a massive resource allocation from the U.S. Federal Government.

In addition to regulatory certainty, there remain several unanswered policy questions and roll-out requirements that must be addressed before such a system could scale to economy wide. I will briefly cover a few of these.

The first question such stablecoin system must solve is how to ensure macroprudential regulation and AML and sanctions compliance are built into the system. High velocity, liquid flows of money can threaten financial stability and have the potential to fund bad actors. U.S. regulators should require that any approved stablecoin has macroprudential monitoring tools in place and the ability to pause or place restrictions on transactions in a time of crisis to rapid drawdowns on banks or other threats to financial stability. Similarly, any system must have robust AML and sanctions compliance capabilities. Transactions occurring on a ledger are traceable and should employ blockchain monitoring solutions. Similarly, for any non-backend, consumer-facing stablecoin, basic ID and information requirements should be mandated for hosted wallets. Finally, regulators should regularly test these systems for macroprudential and AML measures to ensure that the systems remain functional to their highest capacities.

²⁰ Federal Reserve Board Division of Research & Statistics and Monetary Affairs, [Global Stablecoins: Monetary Policy Implementation Consideration from the U.S. Perspective](#) (2021).

²¹ Banks for International Settlements, [Central Bank Digital Currencies for Cross-Border Payments](#) (July 2021).



A second question a stablecoin system must address is cybersecurity and personal information. All personally identifiable information (PII) should be anonymized for on-chain transactions, but be stored for redundancy reasons with the consumer's bank or stablecoin provider. With multiple service providers, transactions information should be spread across multiple locations, lessening the chance of a crippling cybersecurity attack on the core infrastructure. However, with diversification, pools of data will remain and could be prime targets for hackers. Regulators should ensure that PII is guarded with the highest level of bank cybersecurity standards.

A final question some would ask is if a stablecoin is responsibly reserved, what incentive would a private sector firm have to apply resources for system development and maintenance. To this question, I see two different possibilities where incentives for the private sector could be established. The first approach would be to allow the stablecoins providers to have some combination of dollar reserves and U.S. Treasuries holdings. New York State allows stablecoin providers to hold reserves in a combination of cash and U.S. Treasuries.²² Such an approach is resistant to run dynamics and still allows the stablecoin provider to generate revenue on their services. A second approach would be to require full one-to-one cash backing, but allow stablecoin providers to charge a fee when reserves are brought onto or off of a system. This fee structure could scale for the amount of resources being consumed, and as such, incremental fees related to large transactions would cover the cost of smaller transactions. In either case, ensuring that the stablecoin reserves are backed by the full faith and credit of the U.S. government will provide an important degree of confidence and security to the market.

A stablecoin system would accomplish the core mission of making payments cheaper and faster. A private-sector approach could likely be developed and implemented quickly. Some questions on the functioning of the system remain, but ultimately, it is a very promising approach.

Conclusion

The U.S. strength in the international payments and financial services space is an American treasure that has tremendously benefited the country. The U.S. must continue to innovate in this space so that it does not fall behind to pressure from international competition and digitization. The payments system is a complex process, which must be handled and studied with great care. New developments in this space take time to develop because of the intricacies involved and the necessity that there are no issues. The U.S. must start to operationalize testing and design of various approaches to payment efficiency improvements, so when it is time to act, policymakers have a full suite of options. Thank you for your time, I look forward to answering any questions you may have.

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²² Paxos, [A Regulated Stablecoin Means Having a Regulator](#) (July 21, 2021).