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STABLECOINS: HOW DO THEY WORK, HOW ARE THEY USED, AND WHAT ARE THEIR RISKS?

HEARING

BEFORE THE

COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS UNITED STATES SENATE

ONE HUNDRED SEVENTEENTH CONGRESS

FIRST SESSION

ON

EXAMINING THE PURPOSES AND RISKS OF STABLECOINS

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C O N T E N T S

TUESDAY, DECEMBER 14, 2021

WITNESSES

ADDITIONAL MATERIAL SUPPLIED FOR THE RECORD

STABLECOINS: HOW DO THEY WORK, HOW ARE THEY USED, AND WHAT ARE THEIR RISKS?

TUESDAY, DECEMBER 14, 2021

U.S. SENATE,
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS,
Washington, DC.

The Committee met at 10:15 a.m., via Webex and in room 538, Dirksen Senate Office Building, Hon. Sherrod Brown, Chairman of the Committee, presiding.

OPENING STATEMENT OF CHAIRMAN SHERROD BROWN

Chairman BROWN. The Senate Committee on Banking, Housing, and Urban Affairs will come to order.

I welcome our witnesses. Today's hearing is in a hybrid format. Our witnesses, one is virtual; three are in person. Members have the option to appear either in person or virtually.

For those joining remotely, a few reminders: Members already know how to do this after many times. For our remote witness, just please try to minimize background noise, click the mute button until it is your turn to speak. You will have one box on your screen labeled "clock" that will show how much time of your 5 minutes is remaining, or the questioner's 5 minutes. You will hear a bell ring when you have 30 seconds remaining. If there is a technology problem, we will move on to the next witness or Senator.

The speaking order is as usual, determined by seniority of the Members who have checked in before the gavel, either in person or remote. And then we go back and forth, Republican, Democrat, Republican, Democrat.

A few years ago, most people had never heard of cryptocurrency. Most people still did not know what all these terms mean, from stablecoins to nonfungible tokens. But they have become a hot topic in Washington, on Wall Street, online, among millions of Americans who, understandably, just do not trust big banks and are looking always for an opportunity to make money.

Over the last several years, the number of cryptocurrencies has exploded from the hundreds to the thousands. The supposed value of these digital assets in circulation recently passed $3 trillion, which is about the size of JPMorgan Chase's balance sheet, our Nation's largest bank. With that much money tied up, that is pretty much the definition of a systemic issue in our economy.

Those big numbers have come with big promises. We have been told that blockchain, the technology these coins are built upon, will

democratize money or build a more inclusive economy, but none of these promises has materialized, likely never will. Instead, we have gotten wild financial speculation. As we have heard before in this Committee, the wild price swings and high transaction fees from any cryptocurrencies make them useless for payments, the one thing they claim to be designed for.

Stablecoins were supposed to solve this problem. Unlike other cryptocurrencies, their value is not just based on market enthusiasm; a stablecoin's value is supposed to be backed by real assets held by the company that issues the stablecoin. In other words, stablecoins are a particular type of cryptocurrency whose value is managed by a single company. These include, as you know, Tether, Circle, and Abracadabra, a fast growing scheme that makes "Magic Internet Money". That is their words, not mine. What could possibly go wrong with something that claims to make "magic" money?

Cryptocurrency advocates argue that crypto assets are superior to real dollars because they are decentralized and transparent, but stablecoins are neither of those. Most of them, certainly the largest ones, rely on a single, centralized company to manage the reserve assets and their supply of coins. That sounds a lot like what traditional financial institutions do. It is not decentralized when one company controls when people can access their own money. It is certainly not transparent when critical information about stablecoins and the companies that issue them are not available to people who have their money tied up in those assets.

Last month I wrote to some of the biggest stablecoin issuers to get more information on how they manage their funds that back their coins and to ask what rights that their users have. Their responses were not particularly enlightening. They should lead us to—and should lead us to assume most ordinary customers do not have much in the way of rights at all.

So let us be clear about one thing. If you put your money in stablecoins, there is no guarantee you are going to get it back. They call it a currency, implying it is the same as having dollars in the bank and you can draw the money at any time. But many of these companies hide their terms and conditions, allowing them—in the fine print, allowing them to trap customers' money. There is no guarantee you will get your money back. That is not a currency with a fixed value; it is gambling.

And with this money tied up, it sure looks to me like a potential asset bubble. Stablecoins make it easier than ever to risk real dollars on cryptocurrencies that are, at best, volatile, at worst, outright fraudulent. Just a few weeks ago, we saw how quickly these tokens can crash with cryptomarkets diving by almost 30 percent in 1 day.

History tells us we should be concerned when any investment becomes so untethered from reality. Look at the 1929 stock market crash. Securities started out as a way for regular Americans to invest in new companies that wanted to bring new products to market to expand their operations. By the end of the decade, companies were invented out of thin air to create more stocks to satisfy wild demand. Banks allowed customers to borrow against one stock to buy another until the whole market collapsed.

And of course, many of us are old enough to remember, most of us are, the 2008 crash. Subprime mortgages were supposed to create—to give more families access to the American dream while derivatives were created to help financial companies reduce their risks. In reality, predatory mortgages were used to strip homeowners of their equity they had in their homes in order to create complex mortgage-backed securities and derivatives that ended up increasing risks at banks and financial companies. We know how that turned out for our country.

We cannot deny that betting on cryptocurrency has made a few people rich. That kind of action always does, just like some people became fabulously wealthy trading stocks in the 1920s or buying and selling derivatives 20 years ago. And we heard the stories about mortgage brokers and house flippers becoming millionaires more recently. But for most people, this kind of wild speculation ends in disaster. The only ones who tend to walk away unscathed are the big guys—it is always the big guys—the ones who call it innovation and then line their own pockets.

So far, what happens in the cryptomarkets has stayed in the cryptomarkets, so far, but stablecoins create a very real link between the real economy and this new fantasy economy. We saw this with Dogecoins, a satirical cryptocurrency that was all of a sudden worth billions when a tech billionaire tweeted about it. Think about that.

It is understandable a lot of people are looking for an alternative to our current financial system. Wall Street banks dominate this economy. They make record profits no matter what happens to workers and small businesses in Nevada, in South Dakota, in Ohio and Rhode Island. To a whole lot of people, that seems like a fantasy economy, too. But a big tech scheme that makes it easy for hardworking Americans to put their money at risk is not the answer. Stablecoins, cryptomarkets are not actually an alternative to our banking system; they are a mirror of the same broken system with even less accountability and no rules at all.

We will hear the same arguments today from this industry against regulation, the same arguments we hear from the financial industry, lobbyists so many times before: It harms innovation. The free market will solve all our problems. America needs to be globally competitive.

Of course, we do. What makes America, though, the strongest economy in the world is not wild betting in the financial sector. It is our workers. It is the dignity of work. It is their talent. It is their ingenuity, their dedication. That is what our economy is built on. You cannot fake that, but as we have seen so many times before you can put it all at risk. The rest of the world trusts the U.S. dollar when we have orderly, sane markets.

The real threat to our global competitiveness is regulators who ignore clear warning signs. We have reason to be encouraged this time around, though. The Biden administration is putting strong watchdogs in place, quite a change, strong watchdogs in place at the banking and market regulators. We are empowering workers. Wages are rising. Infrastructure investment is about to spur more job growth. We are fighting to bring down costs for families, for

seniors, with prescription drugs, for the middle class with the Build Back Better plan.

We cannot put that potential at risk. I will continue to work with the financial watchdogs to ensure they have the tools they need to protect people's hard-earned money and our economic recovery from another bubble and another crash.

Senator Toomey.

OPENING STATEMENT OF SENATOR PATRICK J. TOOMEY

Senator TOOMEY. Thank you, Mr. Chairman. Stablecoins are a central component of the cryptocurrency ecosystem, which is itself at the vanguard of the tokenization of assets. Stablecoins can speed up payments, especially cross-border transfers. They can reduce costs, including remittances. And, they can help combat money laundering and terrorist financing through an immutable and transparent transaction record. Stablecoins can also be programmed and made interoperable with other currencies, creating efficiencies to improve access to financial services for more Americans.

But unlike volatile cryptocurrencies like Bitcoin, stablecoins do not fluctuate in their dollar price. In today's hearing, we will focus on stablecoins designed to maintain a one-to-one value relative to the U.S. dollar, meaning one stablecoin is meant to always equal one dollar.

Over the past year, the stablecoin market has exploded. As one of our witnesses, Dante Disparte, will explain, stablecoins are beginning to be used for small business payments and international remittances. While traditional payment systems can be expensive and take several days to settle, transferring funds via stablecoins is low cost and nearly instantaneous.

Given that stablecoins disrupt the status quo, they have naturally drawn skepticism from incumbent industries and regulators. Last month the President's Working Group on Financial Markets, or PWG, issued a report recommending that Congress pass legislation to establish a Federal regulatory framework for stablecoins. In their report, the Treasury Department and others expressed their worries about consumer protection and financial stability with stablecoins.

Although the report did little to highlight the potential benefits of stablecoins, I was encouraged that the report acknowledged that responsibility for clarifying whether, and to what extent, Federal agencies have jurisdictions over stablecoins is a question that rests with Congress. I am open to working with the Administration and my Democratic colleagues on this front. But whatever Congress does, let us be sure that we do not stifle innovation in an evolving digital economy or undermine our own country's competitiveness. Let us have the humility to recognize that many of our views about how financial services are delivered and how investments work are quickly becoming outdated.

This morning I am releasing a set of guiding principles that I think should influence our work on a stablecoin legislative framework. These principles recognize that stablecoins are a very important innovation and they introduce new capabilities into money that did not previously exist. In addition to their ease of use and

reduced fees associated with their transfer, stablecoins can improve the privacy and the security of our transactions. They also introduce the concept of money programmability or smart contracts, which allow automated transactions based on a sequence of verifiable events. In recognition of the potential of these new capabilities, any regulation should be narrowly tailored and designed to do no harm. At the same time, sensible regulatory standards may help to protect against key risks such as redemption or run risk.

These principles take a different approach than the PWG report. For example, the PWG report recommends that all stablecoin issuers must be insured depository institutions. Well, there are three reasons that I disagree with that recommendation.

First, stablecoin issuers have different business models than banks. They do not provide the same services as banks and do not present the same risks. As one of today's witnesses, Ms. Massari, has observed, stablecoin providers do not engage in taking deposits and making loans in the manner that banks do. Because of these and other important differences, subjecting all stablecoin providers to the full suite of bank regulations and rules meant to address maturity transformation is not appropriately tailored to the potential risks.

Second, requiring all stablecoin issuers to become banks would stifle innovation. We know that a tremendous amount of innovation occurs outside of the banking system, including by technology companies. It is unlikely that much of this development could happen within the banking system because of the onerous regulations which create a difficult environment for innovation. Allowing entrepreneurs to innovate with digital assets like stablecoins will promote greater competition and deliver better results for consumers.

Finally, the regulation of payments activity should create an equal playing field. Great innovators like PayPal, Venmo, and Apple Pay are already subject to a State-by-State licensing regime as well as registration with a Federal regulator.

Recognizing the range of different business models, there should be at least three options available for a stablecoin provider. One would be to operate under a conventional bank charter if they chose. But, two, they could comply with, or acquire, a special purpose banking charter designed for stablecoin providers, which would be designed in accordance with legislation. Or, they could register as a money transmitter under the existing State regime and as a money service business with FinCEN at the Federal level. This optionality would match each stablecoin provider with the regulatory framework most appropriate to the business model.

Regardless of the charter or license they pursue, all stablecoin providers should meet certain minimum requirements. For example, they should clearly disclose what assets back the stablecoin as well as give clear redemption policies and subject themselves to periodic audits. These requirements would ensure that consumers have sufficient information about which stablecoins they use. It might also be appropriate to set minimum reserve requirements and attestations as well.

In addition, legislation should stipulate that non-interest bearing stablecoins are not necessarily securities and therefore should not automatically be regulated as such. This framework should protect

the privacy, security, and confidentiality of individuals using stablecoins, allowing customers to opt out of sharing personal information with third parties.

Finally, anti-money laundering and other requirements regarding financial surveillance under the Bank Secrecy Act should really be modernized for all financial institutions subject to them, given the emergence of stablecoins, cryptocurrencies, and other new technologies, including artificial intelligence.

The emergence of stablecoins represents, to me, the latest development in the ongoing evolution of money. I stand ready to work on this issue and do so in a manner that does not discourage innovation or competition moving forward.

I look forward to hearing from our witnesses, and I yield back my time.

Chairman BROWN. Thank you, Senator Toomey.

I will now introduce the four witnesses today. First, we will hear from Alexis Goldstein, Director of Financial Policy at the Open Markets Institute; welcome. Jai Massari, a partner at Davis Polk & Wardwell, welcome. And, Chief Strategy Officer and Head of Global Policy at Circle and Professor Hilary Allen from the American—I am sorry. Dante Disparte I left out, I am sorry, Chief Strategy Officer and Head of Global Policy at Circle. And, Professor Hilary Allen, who is joining us from her home or office, from the American University Washington College of Law.

Ms. Goldstein, you begin. Five minutes, please. Thank you.

STATEMENT OF ALEXIS GOLDSTEIN, DIRECTOR OF FINANCIAL POLICY, OPEN MARKETS INSTITUTE

Ms. GOLDSTEIN. Chairman Brown, Ranking Member Toomey, and Members of the Committee, thank you for inviting me to testify today. I am the Director of Financial Policy at the Open Markets Institute, where my work focuses on financial regulation and consumer and investor protection. My degree is in computer science, and I previously worked as a programmer for Morgan Stanley, building electronic trading systems, and as a business analyst at Merrill Lynch and Deutsche Bank, working with the over-the-counter equity derivatives trading desks.

I am a researcher, but I am also an investor. I invest in the equity markets, and I invest in the crypto asset markets. I have used large crypto exchanges. I have used DeFi to lend, to borrow, and to trade crypto. And I have bridged from one blockchain to another. In doing so, I have seen how stablecoins are used across the crypto ecosystem, and I agree with the Presidential working group's assessment that stablecoins are used today for speculation. Stablecoins essentially act as a waystation in between other speculative trades and as a way to avoid losses.

Stablecoins are often heralded for their potential. Maybe they are not used widely today to pay for goods and services, but they could be in the future. But the reality is that today U.S. retail investors across—sorry. Retail investors access stablecoins by trading them, not by using them to buy groceries at the corner store.

U.S. retail investors can neither purchase nor redeem the top two stablecoins directly from the issuer. Instead, they are reliant on exchanges to trade a stablecoin for a dollar. It is an awkward

scenario and sort of a second step that we are not used to seeing with other kinds of digital payments. You do not need to also set up a stock brokerage account in order to send somebody money electronically.

There are a number of ways to earn interest and rewards on stablecoins. Many cryptolending platforms pay far higher rates for locking stablecoins into their platforms than they do for locking in non-stablecoins, and Coinbase pays its users a 1 percent reward for buying and holding the U.S. dollar coin by default without any action from the user other than purchasing USDC. Coinbase does not offer any rate of return for other stablecoins likely because the more USDC that Coinbase holds for its customers' accounts the more money they will make in a revenue sharing agreement that they have with Circle.

There are claims in the cryptocurrency industry and among some stablecoin issuers that they are fighting Wall Street or disrupting Wall Street, but they use the same forced arbitration agreements and class actions bans that Wall Street does, preventing their users from suing in a court of law should things go wrong.

There are also claims that regulations and Government oversight are not needed because the code is up there publicly available for anybody to read. But the moment a platform is hacked because an attacker has read the smart contract, found a bug, and exploited the bug, platforms tend to call for law enforcement to help chase down the stolen funds.

There are also promises that stablecoins could help drive financial inclusion outcomes, an admirable goal I think we can all agree is critical. A recent report from the World Economic Forum found that stablecoins have no benefit for financial inclusion as they are subject to the same or higher barriers as preexisting financial options, including the need for internet and for smartphones. I have also found this to be true as I have used stablecoins as fees begin to add up fast, especially when you want to send your stablecoin to your friend or to a different wallet off of the exchange.

The slice of the cryptocurrency markets with the least compliance with regulations, including checks for illicit finance, is what is called DeFi or decentralized finance. Put simply, DeFi does not work without stablecoins. Stablecoins help to facilitate trading on decentralized exchanges and access collateral in lending and borrowing protocols. The largest decentralized exchange is Uniswap, and as of yesterday eight out of nine of the top liquidity pools in Uniswap had at least one leg in a stablecoin. With only a few exceptions, the platforms on DeFi are not in compliance with Know Your Customer, anti- money laundering, and countering the financing of terrorism, nor does it seem that many of them are conducting a simple check to ensure that the cryptocurrency address making calls to the protocol are not on the sanctions list.

Today, the cryptocurrency market is not that entangled with the mainstream financial system, but if Wall Street and the cryptocurrency industry have their way it will be. I think the Committee is right to pay attention to stablecoins and crypto asset markets more broadly because absent your attention I do think that there is potential for crises, especially in the least regulated pieces of the ecosystem.

Thank you very much, and I look forward to your questions.
Chairman BROWN. Thank you, Ms. Goldstein.
Ms. Massari.

STATEMENT OF JAI MASSARI, PARTNER, DAVIS POLK & WARDWELL, L.L.P.

Ms. MASSARI. Chairman Brown, Ranking Member Toomey, and Members of the Committee, thank you for inviting me here today to talk about this complex and interesting topic. I am Jai Massari, a partner in the Financial Institutions Group at Davis Polk. For the past several years, I have been advising stablecoin issuers, digital wallet providers, and financial institutions on the regulatory—the financial regulatory considerations for stablecoin activities. Today, I am presenting my own views, not those of any client or my firm. My remarks will focus on three key points.

First, stablecoins are an innovation in our understanding of money. This is particularly the case for true or payment stablecoins. These are non-interest bearing financial instruments designed to maintain a stable value against a reference fiat currency, say, one dollar. Today's stablecoins are used primarily for payments in connection with cryptocurrency transactions and decentralized finance, that is, DeFi applications. Stablecoin payments, though, could have broader uses, complementing existing payments such as cash, checks, credit and debit cards, and wire transfers, each of which has benefits and drawbacks.

Second, as stablecoins begin to find use in retail payments, we must seek to understand the risks they present along with the benefits. Like the innovations in money that preceded them, stablecoins squarely present the core regulatory concerns of consumer protection, systemic stability, safety and soundness, and combating illicit finance. And as described in the President's working group report, stablecoins give rise to more specific kinds of risks such as those related to the operation of blockchain platforms and risks arising from regulatory gaps.

And third, the regulation of stablecoins should address these risks while supporting their potential benefits.

My written statement goes into these points in more detail, but for now I will summarize my view of what regulation of stablecoins should look like. Stablecoins issuers should have restrictions on permissible types of reserve assets to ensure short-term liquid backing of those reserves. They should have auditing and transparency standards so regulators and the public can evaluate reserve composition. There should be restrictions that preclude maturity and liquidity transformation to shield reserve assets. They should have obligations to address illicit finance and sanctions considerations. And, there should be requirements to address operational risks from conducting transfers on blockchain networks.

But, requiring stablecoin issuers to be insured depository institutions, that is, insured banks, as suggested in the PWG report, is not necessary and, unless certain adjustments are made, is not workable. First, FDIC insurance is not necessary to address run risk where a stablecoin issuer, properly regulated, holds reserves of short-term liquid assets of at least 100 percent of the par value of outstanding stablecoins. Second, banks are subject to leverage ra-

tios and risk-based capital ratios that assume relatively illiquid and riskier assets than cash and genuine cash equivalents. Unless Congress recalibrates these ratios, the stablecoin business model would be uneconomic.

Congress should instead consider an optional Federal charter for stablecoin issuers. At this time, U.S. stablecoin issuers and digital wallet providers are largely regulated by the States under money transmission regulators and State trust company authorities, but an expanded Federal law may well be appropriate and useful.

I would like to close by thanking the Committee for its focus on these important issues. While I do not believe that stablecoin issuers should be required to be insured banks, I strongly support commonsense regulation for stablecoins in a way that takes into account their risks and benefits. And I am optimistic that there is much common ground that can pave the way for a regulatory approach that safeguards consumers, the banking system, and the broader economy while continuing to promote innovation. I will be happy to answer any questions.

Chairman BROWN. Thank you, Ms. Massari.

Mr. Disparte, welcome.

STATEMENT OF DANTE DISPARTE, CHIEF STRATEGY OFFICER AND HEAD OF GLOBAL POLICY, CIRCLE

Mr. DISPARTE. Chairman Brown, Ranking Member Toomey, Members of the Senate Committee on Banking, Housing, and Urban Affairs, thank you for the opportunity to share my testimony with you today. My name is Dante Disparte, and I am the Chief Strategy Officer and Head of Global Policy for Circle, a leading digital financial services firm and the sole issuer of the U.S.D. Coin or USDC, a dollar digital currency supporting the extensibility of the U.S. dollar in a competitive, always-on global economy.

Having recently completed my 3-year term on the Federal Emergency Management Agency's National Advisory Council and being no stranger to disaster displacement and hardship, I want to acknowledge the communities affected by last week's devastating storms. Indeed, as this disaster and others have shown, with the movement of financial aid and disaster relief when speed matters most, friction stands in the way.

As a country, we have faced a Great Depression, a Great Deleveraging, and in 2020 with the onset of the COVID–19 pandemic, we faced nothing short of a Great Correction. In this correction, the centrality of technology for any semblance of political, business, economic, and household continuity was laid bare. What was also clear is that access to the internet and other digital public goods was unequal. How we engage with money and payments in digital form was clearly an area of prepandemic vulnerability in the U.S. and around the world.

The advent of stablecoins, or what we like to refer to as dollar digital currencies, like USDC, are an important innovation, enabling greater control over how we send, spend, save, and secure our money. To define a stablecoin, noting that like money itself not all of these innovations are created equal, is tantamount to the moment we converted our compact discs into MP3s. The CD and music is still yours but now enjoys the powers of programmability,

user control, and a digitally native form factor that works anywhere, on any device, across the planet.

Stablecoins, in effect, are designed to reference and import the economic properties of an underlying asset, by circulation, the most successful of which all reference the dollar, with the economic aim of combating the buyer's and spender's remorse that plagued early cryptocurrencies. USDC is a now 3-year-old dollar digital currency standing at more than 40 billion in circulation and cumulatively supporting more than $1.4 trillion in on-chain transactions in a manner that enhances financial inclusion, responsible innovation, and integrity. Critically, the dollar-denominated assets backing USDC, which are strictly cash and short-duration treasuries of 90 days or less, are all held in the care, custody, and control of U.S. regulated financial institutions.

Indeed, as this internet native financial infrastructure continues to grow, we aim to do our part ensuring the future of payments and money is more inclusive than the past. Our recently announced Circle Impact Initiative has four core components, each of which are close to home for me, having growing up in poverty and being the first-generation high school and college graduate. These include:

Allocating a share of USDC dollar reserves to minority depository institutions and community banks across the country. We hope this will accrue to billions of dollars over time, strengthening the balance sheets of these banks and thereby strengthening their communities.

Embarking on digital financial literacy initiatives together with Historically Black Colleges and Universities and other partners supporting the development of essential learning and hands-on approaches to entrepreneurialism.

Leveraging our SeedInvest platform, which is one of the Nation's leading equity crowdfunding businesses, to catalyze targeted campaigns for women and minority entrepreneurs across the country.

And finally, assisting humanitarian interventions and coordinating public–private partnerships to mobilize blockchain based payments and USDC to deliver corruption resistant, real-time aid and relief.

Because nothing worth doing is worth doing alone, our hope is to catalyze uncommon coalitions on these initiatives, which are deeply connected to our mission of raising global economic prosperity through the frictionless exchange of financial value.

While some argue that the U.S. may lose the digital currency space race if it fails to issue a central bank digital currency, I argue that we are winning this race because of the sum of free market activity taking place inside the U.S. regulatory perimeter with digital currencies and blockchain based financial services. The sum of these activities are advancing broad U.S. economic competitiveness and national security interest.

Thank you, Chairman Brown and Ranking Member Toomey, for the opportunity to speak with you today. I look forward to addressing the Committee's questions.

Chairman BROWN. Thank you very much, Mr. Disparte.

We will now hear from Professor Hilary J. Allen from American University Washington College of Law, and she is joining us from a remote location.

Professor Allen, welcome.

STATEMENT OF HILARY J. ALLEN, PROFESSOR, AMERICAN UNIVERSITY WASHINGTON COLLEGE OF LAW

Ms. ALLEN. Thank you, Chairman Brown, Ranking Member Toomey, and the Members of the Committee. Thank you for inviting me to testify at today's hearing. My name is Hilary Allen, and I am a professor of law at the American University Washington College of Law and the author of the book, *Driverless Finance: Fintech's Impact on Financial Stability*.

My area of expertise is financial stability regulation, and so I will focus my remarks today on risks relating to crypto, particularly stablecoins, and financial crises. I would also like to point out that, while not the primary focus of my testimony, stablecoins pose a threat to monetary policy as well, and I would be happy to take questions on that point.

Proponents of crypto often claim that it creates jobs and that it improves financial inclusion. But financial crises destroy jobs, and they disproportionately affect the most vulnerable members of our community, and so we should be extremely wary of the fragilities that crypto could create for our financial system.

Cryptotechnology introduces a number of new fragilities, including the ability for anyone with programming ability to create financial assets out of thin air, and more assets mean bigger bubbles and bigger busts. The distributed ledgers that crypto run on often have very complicated governance mechanisms, which make fixing problems caused by glitches and hacks extremely challenging. Fragilities also arise because the computer programs that operate on distributed ledgers, known as smart contracts, execute automatically even when the parties agree that forbearance is in their best interest and the interest of financial stability. Other fragilities include the possibility of runs on stablecoins if holders lose confidence in their ability to exchange stablecoins for fiat currency at the expected rate.

An important point to note about stablecoins, though, is that although it is hard to obtain concrete data on the cryptomarkets my understanding is that stablecoins are almost exclusively being used in DeFi apps rather than for everyday payments. DeFi stands for "decentralized finance," but DeFi is not particularly decentralized. Centralized governance and concentrated ownership proliferate in the DeFi ecosystem. Instead, what distinguishes DeFi from the established financial system is the technology that it relies upon, which I have already discussed, and what it is used for.

Our established financial system performs the important functions of channeling capital to people and businesses so that our economy can grow. That is why we have safety nets for the financial industry, like deposit insurance and finance—Federal Reserve emergency loans, that ensure that credit can keep flowing to the real economy. It becomes problematic, though, when the financial services being bailed out do not serve the real economy but exist primarily to make profits for industry leaders. This is already an

issue in the established financial system, and DeFi has the potential to take this to the extreme.

DeFi has been described as an incorporeal casino, and that is why it is critical that DeFi not grow into something that the Government does feel compelled to bail out. A recent report from the Bank for International Settlements concluded that, given its self-contained nature, the potential for DeFi-driven disruptions in the broader financial system and the real economy seems limited for now, but allowing the integration of DeFi with the traditional banking system could change that. Congress or banking regulators should therefore prohibit insured depository institutions and their affiliates from participating in DeFi.

Insuring the issuers of the stablecoins that fuel DeFi would also encourage its growth in systemic importance, and so I disagree with the President's working group recommendation that Congress adopt legislation regulating stablecoin issuers as insured depository institutions. The run risk associated with stablecoins can be dealt with in other ways. One possibility is to ban stablecoins or to introduce a licensing regime that would only authorize the issuance of stablecoins if they can demonstrate a purpose outside of the DeFi ecosystem and that they do not pose any obvious threats to financial stability or monetary policy.

A ban or licensing regime would create some barriers to innovation, to be sure, but not all financial innovation is created equal. A recent World Economic Forum white paper concluded that stablecoins, as currently deployed, would not provide compelling new benefits for financial inclusion beyond those offered by pre-existing options. Simpler mobile payments innovations may be a better and less risky way to promote financial inclusion than a system built on runnable stablecoins that operate on the distributed ledger with a convoluted governance structure that entails significant environmental cost to operate.

An alternative approach would be for stablecoins to remain regulated as they are currently, with the SEC and CFTC monitoring them from an investor protection perspective. The system risks associated with stablecoins and runs could be addressed by, first, prohibiting insured deposit-taking institutions from accepting any deposits from stablecoin issuers or from issuing their own stablecoins; second, the FSOC and the OFR monitoring the stablecoins for changes in usage; third, if necessary, the FSOC using its designation powers to designate a stablecoin as systemically important; and fourth, using antitrust regulation as well as the FSOC's designation power to prevent a large tech firm, like Meta or Facebook, from launching a stablecoin.

Thank you, and I look forward to your questions.

Chairman BROWN. Thank you, Professor Allen.

I will begin with Ms. Goldstein. I first just thought there were three votes beginning around 11, we think, and so meaning no disrespect to the four of you, but we will all be moving in and out but keeping the hearing going and asking questions.

Ms. Goldstein, even though—and please be brief on these because there is a lot of material to cover, of course. Stablecoins are mostly used for speculative betting. Some crypto advocates argue they have the potential to make the payment system faster and

more efficient. Are they a better way to settle payments nationally or internationally than the traditional finance system?

Ms. GOLDSTEIN. Senator, thank you for the question. I think for that to be true you need four things. You need low fees. You need predictability. You need to be able to exchange them for goods and services. And, it needs to be consistently fast. And I do not think stablecoins meet all of those needed objectives.

As someone who has played around with sending them, both personally and sort of in my work, it often makes Western Union look cheap when you rack up all of the fees that you need in order to send it from one person to another, especially when the Ethereum blockchain gets congested. It can be very unpredictable. Fees can be very high.

And I think as you know, Senator, you know, people with low incomes cannot afford surprises, and unfortunately, transferring assets especially on the dominant Ethereum blockchain can be full of a lot of surprises and very high fees.

Chairman BROWN. Thank you, Ms. Goldstein.

Professor Allen, do you agree with her that stablecoins do not really show much promise as a payment system?

Ms. ALLEN. Yes, I think that is right. I think it is also important to think about the structure of the distributed ledgers. If there were problems, there is not someone you can go to if there is a problem, if it is run on a decentralized ledger with a lot of nodes managing its governance.

Chairman BROWN. And if stablecoins did in fact hold promise to provide faster, more inclusive payments, do you think it would make sense, Professor Allen, to bring them in the traditional finance system?

Ms. ALLEN. I think there are real concerns about bringing them into the traditional finance system primarily because of their relationship with DeFi. There is also the issue of their run risk, of course. So if they were to be brought—if they were to be used as payments and to be brought within the proper financial system, we would have to be very careful about monitoring their systemic risk, and I think that is a place where the FSOC and the OFR can play an important role.

Chairman BROWN. Thank you.

Speaking of, Mr. Disparte, bringing them into the financial system, at last week's hearing in the House your CEO agreed that stablecoins are still mostly used for trading in speculation, but your company is currently seeking a bank charter based on what you call USDC. Just be clear, interesting name to be sure, U.S. Dollar Coin is what it stands for, being a payment product. If Circle does become a bank, would you limit USDC, Mr. Disparte, to internet payments platforms, or would you allow—still allow USDC to be used to facilitate cryptocurrency speculation?

Mr. DISPARTE. Thank you for the question, Senator. The advent of a whole host of internet native capital market payments in an always-on economy that is built around these innovations in public blockchains is important. It is also important that the dollar fundamentally and dollar-referenced stablecoins ultimately win what that innovation represents.

And so Circle's counterparties, as a company, are other institutions and companies. We do not face the retail market as a retail payment system. And a lot of what that is supporting ultimately are payments, cryptocapital market trading, and other activities.

And we are also seeing—and I think this is a critical point we would like to highlight in this hearing. We are also seeing this increasingly becoming embedded as a mechanism of payment and settlement, including amongst traditional firms. Credit card companies, banks, and many others are increasingly using USDC as a settlement option on their networks, which makes the medium of exchange and payment argument quite strong.

Chairman BROWN. So if you are regulated, if you are inside the—if you have become—if you become bank, it would still be used for cryptocurrency speculation? Is that a "yes" or a "no"?

Mr. DISPARTE. Well, again, USDC and the end users of USDC have no expectation of a profit. It is ultimately a medium of exchange. A dollar goes in; a dollar comes out. And we have maintained price parity to the dollar with cash in short duration treasuries, Senator, inside the care, custody, and control of the U.S. regulated banking system.

Chairman BROWN. Let me ask a different way. If Circle were a traditional finance company, it would be a financial company. You understand it would be illegal for you to sell metal coins that said "U.S. Dollar Coin" on them, right?

Mr. DISPARTE. Senator, I think the question ultimately is as Circle has——

Chairman BROWN. Well, that is a pretty simple question. If you were a traditional finance company, could you sell metal, do you think you could sell metal coins that say "U.S. Dollar Coin" on them?

Mr. DISPARTE. No, Senator.

Chairman BROWN. OK. That is the answer. I mean, that is the law.

Do you think the name of your stablecoin, U.S. Dollar Coin, do you think it could mislead users to believe it is backed by the U.S. Government? I noticed you said throughout this hearing, USDC. You may have once at the beginning—I am not sure you ever did—said "U.S. Dollar Coin." I am sure you market it that way to some who may be less sophisticated than we pretend to be up here. But do you think that is misleading in any way, to call it "U.S. Dollar Coin?"

Mr. DISPARTE. No, Senator. The stablecoin innovation that we support is regulated consistently across the country according to electronic money and electronic money transfer and statutes as a payment innovation. We are on a level playing field with companies like PayPal and other major payments companies inside the U.S.

Chairman BROWN. OK. Fair enough. Let me ask a last question. So if the Fed moves forward the central bank digital currency, are you going to let them call theirs "U.S. Dollar Coin" or "U.S. Dollar?" Now that is meant with some irony.

Mr. DISPARTE. I appreciate the irony.

Chairman BROWN. I do not know if you have a copyright or a patent on "U.S. Dollar Coin," but I assume if there is, if we do a

central bank digital currency, that they may have rights regardless of the Supreme Court or any financial regulators to "U.S. Dollar Coin," but just putting that out there. Last comment?

Mr. DISPARTE. Quickly, quickly, Senator. Thank you for that. Indeed, sovereign-issued currencies have three currency prefixes. So I am certain one day if a central bank digital currency is issued by the Fed they would enjoy total autonomy over that name choice. They would also, I think, enjoy the experience of stablecoins in circulation that all reference the dollar as important prototypes for what may one day be an opportunity in which we could upgrade this infrastructure to support a publicly issued digital currency as well.

Chairman BROWN. You are a good representative for USDC.

Mr. DISPARTE. Thank you, Senator.

Senator TOOMEY. Thank you, Mr. Chairman.

Mr. Disparte, some of our witnesses today seem to think that stablecoins are unlikely to ever serve any purpose other than facilitating cryptospeculation. They have cited the cost of transactions and various things although it seems to me this technology is moving very rapidly in the direction of facilitating and lowering the cost and increasing the volume and the throughput. Could you tell us what else is actually happening already with stablecoins outside of the facilitation of cryptotrading and what you think is imminent?

Mr. DISPARTE. Thank you, Senator. The blend of these types of innovations within the traditional payments and banking system, I think, is exactly where we are right now, that while we can, of course, acknowledge the original use case was to support cryptocapital markets and a host of activities in the trading domain, what we are seeing emerging however is integration of stablecoin-based settlements and payments across third-generation blockchains that are increasingly better, cheaper, faster than a lot of the analog alternatives for how we move money.

They increasingly also benefit from the immutable, permanent ledgering of financial transactions, which have enormous gains in terms of accounting and enormous gains in financial integrity.

Senator TOOMEY. So would it be—I am sorry to cut you off, but with the limited time, would it be fair to say that there are large, sophisticated, traditional financial institutions that are increasingly pursuing the use of these platforms for—as an alternative mechanism for settling payments, for instance?

Mr. DISPARTE. Indeed. And just to name a few of what would be traditional household name payments and money transmission companies and settlement networks, the Visa network has enabled USDC as a native settlement option across a network of 70 million merchants. Traditional companies in the remittance domain, like MoneyGram, have just announced a partnership with enabling USDC on the Stellar blockchain for remittances and solving for cash-in and cash-out across the world.

Senator TOOMEY. Visa probably knows something about settling payments. Let me ask you, it seemed to be suggested that one possible alternative we might consider would be to ban stablecoins. If Congress banned stablecoins, do you think that maybe people in other countries would develop stablecoins, and then if anybody who has access to a computer and the internet, wouldn't they be able

to access those coins? In other words, wouldn't that be very unlikely to actually work at prohibiting the use of stablecoins?

Mr. DISPARTE. No question. I think it borrows then perhaps from early experiences with the advent of the internet, in which people creating websites was once upon a time considered a precluded activity or an activity that might warrant authorization. I think the same holds true here today with how the so-called internet of value is beginning to emerge.

I think it is profoundly in the American national interest and in our public interest that we have options for how people can move money in an always-on economy. Our financial needs do not take bank holidays, and our money should not either.

Senator TOOMEY. Let me move on to Ms. Massari. I think you have made it clear that you think that there should be a regulatory regime regarding stablecoins, but you point out that requiring them to be insured depository institutions does not make a lot of sense because their fundamental purpose is different from that of insured depository institutions. Could you just briefly elaborate on that a little bit, and then I have got one last question.

Ms. MASSARI. Sure, happy to. Thank you for the question, Senator Toomey. So I think the fundamental idea is that the business models and the risks raised by what I think of as well regulated stablecoins is quite different from that of traditional banks. Traditional banks take in deposits, and they make long-term loans and investments with those deposit proceeds. And so that activity, the maturity transformation and the liquidity transformation, that gives rise to run risks and is sort of the core of what traditional bank regulation is designed to address. This includes, for example, leverage ratios designed to address those core banking activities.

And so in my view, imposing regulation for insured depository institutions on stablecoins, which hold 100 percent short-term liquid reserves and are designed for payments, not lending, is the wrong approach.

Senator TOOMEY. Mr. Disparte, as Congress hopefully wrestles with the question of what should an appropriate regulatory regime look like, what are some of the principles that you think we should keep in mind?

Mr. DISPARTE. Well, first, if we—you know, I would argue do no harm and allow these innovations to continue thriving inside the U.S. regulatory perimeter. As a company, the State money transmission regulations have been the appropriate starting point. Again, if companies like PayPal and many of the other major American payments companies can exist and safely transmit trillions of dollars of transactions on their platforms under State money transmission statutes, I think that is a powerful starting point.

The concept of then having bank-like risks, managing bank like structures and supervision I think is similarly important. But it should be risk-adjusted, and it should be based on the type of activity. Technology neutrality and the type of activity should be what drives our policy.

Senator TOOMEY. Thank you. And then let me just say, Ms. Goldstein, I am going to submit to you a written question because we are out of time here. But I do think that the examples that you

provide in the case where Western Union provides a lower-cost transfer is an unusually expensive transaction and that people who were interested in such a transaction and were concerned about lowering the cost could easily construct the transaction in alternative ways that would be much lower cost. But I will submit a question for the record to clarify that.

And with that, Mr. Chairman, I yield back.

Chairman BROWN. Thank you, Senator Toomey.

Senator Reed is recognized, from Rhode Island.

Senator REED. Thank you very much, Mr. Chairman.

Professor Allen, you, I believe, invited us to ask you about the monetary policy aspects of the stablecoin. We all understand that a critical part of our economy is the ability of the Federal Reserve to control money supply. So could you comment in whatever detail is appropriate about the impact of these stablecoins on monetary policy?

Ms. ALLEN. Thank you for the question, Senator. If you are dealing with a situation when there is high inflation or if you are dealing with a situation with deflation, the central—sorry, the central bank needs the ability to match the amount of money in the system to the needs in the economy. That is how monetary policy is carried out. If, however, the central bank loses control over some of the monetary supply, they lose their ability to put their hands on those levers. So this is something that central banks are extremely concerned about, and in fact, that is the impetus for a lot of interest in central bank digital currencies.

Interestingly, the same central banks that are worried about these issues are also worried about the financial stability issues that come with the introduction of a central bank digital currency, not to mention the privacy issues. So it is an interesting question that they feel the need to compete with stablecoins. Perhaps more interventionist policy is justified.

Senator REED. Well, thank you very much. And one other aspect is that this is a novel, or at least a fairly recent, phenomenon and it requires a great deal of thought, analysis, and projecting as to what we should do. And after the crisis in 2008–2009, we created the Office of Financial Research. Professor Allen, do you see a role for the Office of Financial Research here in terms of analyzing, structuring, and making recommendations to Congress with respect to the stablecoins?

Ms. ALLEN. Thank you, Senator. I very much do see a role for the Office of Financial Research here. The Office of Financial Research, as you know, was created to respond to the data gaps that we saw following the financial crisis of 2008. As finance has become more technologically informed, as finance, sorry, faces risks from climate change and things like that, we are now needing an interdisciplinary approach to financial regulation that includes computer scientists, data scientists, climate scientists. I think the OFR right now is underutilized and could really be built up with that interdisciplinary expertise, which would give regulators a more informed foundation to engage on issues of stablecoins amongst other things.

Senator REED. Well, thank you. I concur.

Ms. Goldstein, there are data gaps in the cryptocurrency markets. Could you highlight what you think are the most significant data gaps that we have?

Ms. GOLDSTEIN. Sure. Thank you for the question, Senator Reed. Unlike the stock market, where we can rely on things like the consolidated audit trail, where we know that all the quotes that go through every exchange are going to be reported back to a regulator at the end of the day, we are sort of at the mercy of what the cryptocurrency wants to self-report. And so we may get information about particular prices throughout the day, or trades, but we may not get quote information.

You also will see sort of arbitrage opportunities crop up, right? The price of Bitcoin on one exchange may be different than it is on another exchange, and I do not know that regulators currently have all of the data to truly understand why that might be.

And so there is a real sort of, I think, potential for Congress to look at is there a way to make sure that we do have standardized data reporting and a way that we make sure that all of the different exchanges are giving regulators all the information they need.

Senator REED. And, Ms. Goldstein, I presume that you would have some questions about the existing transparency, auditing, and disclosure requirements that are imposed on these entities. Is that correct?

Ms. GOLDSTEIN. Yes, Senator, that is correct.

Senator REED [presiding]. Thank you very much.

Senator Brown, Chairman Brown, asked me to recognize Senator Rounds at the conclusion of my questions. Senator Rounds, you are recognized.

Senator ROUNDS. Thank you, Mr. Chairman.

First of all, thank you to all of you for appearing before us today. As a consumer, I look at these and I say, OK, there has got to be an opportunity here or there is a reason why we have millions of people that are currently participating in these transactions, using the products and services that you provide. At the same time, it seems to me that we have a regulatory responsibility to make sure that the illicit uses of these types of services are limited. We are challenged because in the United States, as we regulate, certain organizations may very well simply move outside of the United States, move elsewhere.

If I am a consumer, why would I want—and I will direct this first of all to Mr. Disparte. If I am a consumer, why would I want to use your service as opposed to that of a Visa using dollars as the currency?

Mr. DISPARTE. Thank you, Senator for the question. So part of what Circle's innovations are providing—bearing in mind that our direct customers are typically businesses and we do not work with retail consumers. But nonetheless, part of the infrastructure that we are supporting today is enjoyed by more than 20 million people in the United States and 200 million people worldwide, for whom the price of access of the cost of access to things like international remittances, payments, money transfers both domestic and foreign, and then, candidly, access to the capital markets have been prohibited, right? On the one hand, if to be banked hinges on brick and

mortar infrastructure, then there will be hundreds of millions of people around the world, if not billions, who will consistently be left in the margins.

Senator ROUNDS. So let me cut to the chase on this then. So what you are suggesting is that there is an economic benefit to someone because the costs of actually executing the transaction are less, I am going to say on average, for yours than what it would be for someone through the traditional brick and mortar processors. Is that the marketing that is being done?

Mr. DISPARTE. That is part of what the ultimate opportunity is. For example, in the remittance use cases, of which we can describe a number, there is companies like Tala, which is a woman-founded startup that is partnered with Visa to use USDC for remittances. The proposition ultimately is that sending digital currency payments is no different than sending data, of course subject to financial crime compliance and subject to the appropriate, you know, guardrails around protecting the financial system. But nonetheless, the value proposition is a fundamentally lower cost transfer of value on the internet.

Senator ROUNDS. Thank you.

Ms. Goldstein, I am curious. You indicated that the cost, the actual cost per transaction, was probably greater in this particular case. There seems to be a discrepancy here between your opinion on it and Mr. Disparte. Can you share with us why you think it is more expensive in this particular case?

Ms. GOLDSTEIN. Sure, Senator Rounds. I think it has to do with whether or not you are going to use the USDC coin to purchase other crypto. Are you going to keep it in this closed crypto ecosystem and just use it to buy something else?

My point is if you are using it for remittances, if you are sending it to another country, chances are you cannot go to your local grocery and use USDC to buy some milk. You are going to need to convert it to your local currency.

There is also a fee. When say I want to send something overseas, I need to send it to somebody else's wallet to do that. The USDC coin, it runs on lots of blockchains, but the predominant blockchain is the Ethereum one. There is an ERC–20 token standard that they use to do that. The Ethereum network fees are incredibly high. It can cost $10; it can cost $20; I have seen it as high as $40, just to send it from my wallet to somebody else's wallet.

And then once it gets to their wallet, if they are not going to use USDC to buy milk from the local grocery store, they need to convert it to the local currency. That involves putting it on an exchange. There may be a fee to trade it back to their local currency. And then they need to get it into their bank so they can pay for the milk at the grocery, and that may also include a fee.

So it has to do with do you need to bring it back to fiat or can you keep it within this closed crypto ecosystem. I think that is where you see the disparity.

Senator ROUNDS. Thank you.

Mr. Disparte, I am going to give you a chance to respond. What is your analysis of what you just heard?

Mr. DISPARTE. Yeah, so thank you for the opportunity, Senator. The quick version of this is early blockchains are a little bit akin

to dial-up internet, and the argument to ban the stablecoin innovation because the current experience on certain early blockchains may be a little slower, a little cost prohibitive ignores the fact that the innovation is not standing still. There are late-generation blockchains, third generation blockchains that are approaching transaction throughput akin to major credit card networks and approaching cost structures on pennies on the dollar for value transfer.

Senator ROUNDS. Thank you.

My time is expired. Thank you, Mr. Chairman.

Senator REED. Thank you, Senator Rounds.

On behalf of Chairman Brown, let me recognize Senator Daines.

Senator DAINES. Senator Reed, thank you. Stablecoin policy is an area where I think there should be, and hopefully there will be, broad bipartisan agreement as well as compromise. Stablecoins are distinct from cryptocurrency in that there is a central entity that issues, and is responsible for, any individual token.

Personally, I believe that we should pursue a lighter touch approach to regulating the innovation taking place with cryptocurrencies and with stablecoins, but I do believe a bipartisan legislative framework that I hope this Committee would agree on is both possible for stablecoins and, frankly, necessary. I would urge my colleagues to avoid hyperpartisan solutions and instead seek consensus on something that is truly bipartisan that will provide certainty needed for the private industry to grow as well as to prosper. This, I believe, will help provide the best pathway forward for this technology to grow in a way that will benefit Montanans, the American people, as well as the global financial system.

Mr. Disparte, can you describe the current regulatory environment facing stablecoin users such as Circle?

Mr. DISPARTE. Thank you for the question, Senator Daines. And we agree with the spirit of appealing to a nonpartisan approach to how to regulate these innovations inside the United States.

Arguably, when I look at the experience of a company like Circle, we are licensed from sea to shining sea under State money transmission regulations and answerable through the examination process to the bank supervisors and the State money transmission supervisors across the country. We have also, as a company, helped contribute to creating a model law to try to make a more uniform operating environment. We are also a registered money transmission company with FinCEN and have worked over the years with law enforcement and other actors on protecting the integrity of the financial system, which is an important pillar.

When you think about this innovation outside of the United States, however, and what it means to compete on a global environment, this is where I think the U.S. faces a gap. At the Bank for International Settlements, at the Financial Action Task Force, the Financial Stability Board, State regulators are not represented; it is the Federal and national regulators that are. And I think that is where the U.S. potentially faces a competitiveness gap at the moment, but broadly speaking, I think our current regimes for money transmission provide for a degree of sufficiency around the use of an electronic form of payment and a medium of exchange like a stablecoin.

Senator DAINES. Thank you. You touched on the issue, certainly on the global situation, and that really leads me to the question I have for Ms. Massari.

Can you describe how a U.S.D.-pegged stablecoin could advance the role of the U.S. dollar from an international viewpoint and how that might help preserve the dollar status as the world's foremost reserve currency?

Ms. MASSARI. Thank you for the question, Senator. To me, this is a very interesting line of thinking, about how stablecoins could affect monetary policy. To me, it is not entirely clear that they would be harmful to monetary policy where regulated in the manner that I described in my testimony, backed 100 percent, at least 100 percent by bank deposits, U.S. treasuries.

As some of my fellow witnesses have spoken about, you know, these stablecoins can be available for remittance transfers, for use outside the United States, just as other dollar-type accounts and payment instruments. And to my mind, just as those instruments help to bolster the standing of the U.S. dollar as the world's reserve currency, the argument should be the same for stablecoins.

Senator DAINES. So what do you think the future of stablecoin regulation would be if Congress does not act in a bipartisan fashion to foster safe and stable growth?

Ms. MASSARI. It is a great question, Senator. Thank you. My own view is that it would be useful for Congress to think about a Federal charter, an optional Federal charter for stablecoin issuers. I think this is a really important aspect of ensuring appropriate regulation at the Federal level to achieve all of the policy goals that I think we care about in a nonpartisan and bipartisan way. To my mind, the State regulatory regime that exists today has gone a long way to serve the interests of consumers in different States. I think a Federal framework would provide additional clarity if it is available.

Senator DAINES. Speaking of benefits perhaps, back to Mr. Disparte, what are some of the ways in which stablecoins lower costs within, and increase access to, financial systems?

Mr. DISPARTE. Indeed. Thank you for the question, Senator. On the one front, I get back to the question of if to be banked hinges on traditional brick and mortar infrastructure then many, many people will be unbanked or underbanked. And we saw that happening with the advent of the COVID–19 pandemic, and the inability to move money at scale across the internet was a vulnerability for the country and the world.

Stablecoins begin to solve for that by having a trusted medium of exchange that are dollar-referenced on the internet itself, and that allows for lower-cost transactions. It allows for a whole host of other financial services to blossom, where the fundamental trust in the dollar is protected and preserved.

Senator DAINES. Senator Reed—oh, Chairman Brown.

Chairman BROWN [presiding]. Thank you, Senator Daines.

Senator DAINES. All right.

Chairman BROWN. I just voted quickly. The senior Senator from Montana is recognized.

Senator TESTER. Yeah, thank you, Mr. Chairman. I want to thank you and the Ranking Member for having this meeting, this hearing, and I want to thank everybody for testifying.

So I have heard from a lot of folks in the cryptocurrency space. Their descriptions of their product reminds me of something, and it is not necessarily a good thing. It reminds me of the synthetic products that we saw leading up to the financial crisis of '08 because not in all cases, but in some, there is not anything real behind them.

Now I know stablecoin is backed by real assets, but that does not mean they cannot be manipulated, and it does not mean when you combine all these products together that there is not opportunity for some foul play. Let us put it that way.

So for you, Professor Allen, do you think that is a fair comparison I just made between cryptocurrency and the synthetic financial instruments?

Ms. ALLEN. Yes, I do. Thank you for that analogy, Senator. When we heard about the synthetic products in the lead-up to the financial crisis of 2008, we heard things like these will promote home ownership. And so you have to be wary, I think, of claims of financial inclusion because sometimes they are overblown, and you particularly have to be wary of them in circumstances where the means to providing that goal is unnecessarily complex. Complexity is a problem for financial stability. If we do not understand why things are the way they are, if they are too complicated, that primes the system for confusion, opacity, and then panics.

So when we have a product like the stablecoin that has been composed to solve financial inclusion, we have to ask ourselves: Why does it need to be so complex? Why does it need to run on a distributed ledger with decentralized governance mechanisms? You know, why do we need the environmental costs of that kind of process? Are there not innovations that are simpler, that could achieve the goal in a simpler way?

Senator TESTER. Ms. Goldstein, do you have anything you would like to add to that?

Ms. GOLDSTEIN. Senator, I would just add that I agree. I mean, I worked on Wall Street before, during, and after the financial crisis, and I do think that there are some important comparisons to the products that you raise. I do think that the secondary market where stablecoins participate, DeFi in particular, in some ways reminds me of the over-the-counter derivatives markets, but that was aimed at institutions. DeFi is very much retail and institutions.

Senator TESTER. Professor Allen, I want to go back to you for a second. I believe you were the one that stated that if you have problems there is no one to go to. Was that correct? That would have been in your opening statement?

Ms. ALLEN. Yes, that is correct.

Senator TESTER. So I have got to ask you. If I had a problem, if I was using these products, who would I go to?

Ms. ALLEN. Well, it depends——

Senator TESTER. Or, am I just out in the cold?

Ms. ALLEN. Thank you, Senator. I think it depends. If in fact the stablecoin has an issuer behind it that manages the reserve and there is a problem, you could go to that stablecoin issuer. But then

that sort of highlights that these things are not as decentralized as anticipated. We are having new intermediaries coming into the system, and those intermediaries have profit motives like any established financial intermediary. And so the sense of democratizing finance, I think, falls apart.

If we are talking about a stablecoin that is being operated in a truly decentralized fashion, where it is operating on a ledger, where you need multiple nodes to agree to any change in how it operates, then that is something that could cause incredible problems. I mean, who would you go to? Which of those people would you be able to reach out to if you needed a transaction undone, for example, because there was a mistake made?

Senator TESTER. All right. Thank you.

Ms. Goldstein, you talked about that these—they have to meet four objectives. One of them was fees. What were the other three?

Ms. GOLDSTEIN. It needs to be predictable. You need to be able to exchange it for goods and services. And you mentioned fees. I forget what the third——

Senator TESTER. That is OK. That is all right.

Ms. GOLDSTEIN. My fourth.

Senator TESTER. You said it does not meet fees because fees are high.

Ms. GOLDSTEIN. Correct.

Senator TESTER. Does it meet the other three?

Ms. GOLDSTEIN. I think when you stay within the cryptocurrency ecosystem, it does meet the speed requirement. I do not think it meets the predictability requirement, and I do not think it meets the exchanging it for goods and services requirement, broadly.

Senator TESTER. Very quickly, because my time is slim, what kind of fees are we talking about compared to what we see in the industry today?

Ms. GOLDSTEIN. It depends on the exchange. It depends if you are moving back to fiat. But let us say you start at fiat. You move into stablecoins. You buy one on—by buying one on an exchange, right, because, as Mr. Disparte said, they do not service retail customers. You have got to go to an exchange. You send it to someone else. They put it on an exchange. You bring it back to fiat. It can be as high as $80 front to back or as low as $6. Western Union is about four or five.

Senator TESTER. OK. And what kind of amount? That is a flat fee regardless of how much money you are exchanging?

Ms. GOLDSTEIN. It is an accumulation of fees because you have to take several steps——

Senator TESTER. Gotcha.

Ms. GOLDSTEIN. ——throughout the whole system.

Senator TESTER. Thank you very much. Thank you all.

Chairman BROWN. Thank you, Senator Tester.

Senator Warner from Virginia is on from his office.

Senator WARNER. Well, thank you, Mr. Chairman. I appreciate you holding this hearing, and I am very concerned. I agree with the Ranking Member that there is a lot of innovation going on and we should not get rid of that.

I am very concerned, sitting from the intel standpoint, that a lot of this is being used for illegal and illicit purposes. We just had a

major break-in to our State legislative system in Virginia. Everything is frozen. A ransomware effort has been—threat has been issued, and my fear is it will be paid off in some level of Bitcoin and potentially using a stablecoin as the ability to transfer it back to a fiat currency.

But let me ask the question that—and I will start with Ms. Goldstein, but I probably will take everybody. I think I understand some on distributed ledger, DeFi, and the notion of creating a different currency. Gold has no inherent value, so the idea if we as a society made Bitcoin or some other entity to have a value has some logic to me.

But the idea of a private-sector stablecoin, where you have a literally dollar-for-dollar or totally liquid security and no leverage at all, how do you make any money off this? I get it if you are Facebook and you have got a whole network effect and you become the default cryptowallet, then that means you are collecting a whole lot more information.

But, Ms. Goldstein, I will start with you. I get it now if they are making all these fees. But if Mr. Disparte is right and they are going to ultimately get down to a frictionless transaction, how do you make enough money just off the flow to have this kind of stablecoin become a viable financial investment?

Ms. GOLDSTEIN. I mean, Senator, I think that is a good question. I think that is why you see, for example, on Circle and some of the SEC filings have said they want to move potentially into a Circle DeFi and offer additional services that allow, you know, customers to access DeFi platforms like Aave and Compound with APIs that Circle talks in their investor presentation about building.

I also think, you know, they have a revenue sharing agreement with Coinbase. Perhaps they are making some profits from Coinbase.

I mean, I would direct the question to Mr. Disparte, but I imagine that it is not—if it is just treasuries and it is just cash, I think I understand why I see in the SEC investor materials that they do want to provide other services like Circle DeFi in the future.

Senator WARNER. I am going to get to Mr. Disparte, but I would like to hear from Ms. Massari first because, again, help me out here. One of the big name firms, they have got to be paying folks a lot of fees. If you have literally got no leverage at all and you have got a one-for-one exchange and you are going to bring down the transaction cost, how do you—and you do not have a network effect the way Facebook would from Libra or Diem or whatever they are calling it this week, how do you make money?

Ms. MASSARI. Thank you, Senator. It is a great question. And of course, I cannot speak about any of my clients or particular projects, but I think your observation is right. If we appropriately regulate stablecoin issuers, they should only be holding short-term liquid assets to back their stablecoin obligations. That likely is not the main source of revenues for them. They can provide payment services and other services adjacent to the issuance of the stablecoin, you know, the same kinds of payment services that I think we see today, whether it is remittances or peer-to-peer transfers or other kinds of services, and perhaps charge fees for those services.

Senator WARNER. But isn't it again—and I am going to get to Mr. Disparte. But just, you know, these other—PayPal I do not believe argues that it literally has a dollar backing every dollar that goes through the PayPal transaction system. I am going to let Ms. Allen answer as well, but I want to hear from Mr. Disparte. How are you going to make any money if we get to this frictionless system you claim to be heading toward?

Mr. DISPARTE. Thank you for the question, Senator. And for just a general matter, as a company, we are in the process of going public. So there is quite a lot of customer and market face and disclosure around the business' revenue model, but akin to a PayPal. PayPal holds an omnibus account that is held in the interest of customers to execute transactions. So we have a very similar business model and a very similar U.S. licensing platform.

And our current reserve structure is cash and short-term treasuries of 90 days or less. So there is a nominal degree of interest rate sensitivity on that reserve composition. That is part of our revenue model.

There is also a revenue model implied in terms of de minimis transaction fees for using Circle accounts and other services.

We also operate——

Senator WARNER. Let me get to Ms.—my time is running out. Let me get to Ms. Allen. I mean, again, stablecoins brags about the fact that you have a dollar-for-dollar exchange. Ms. Allen, my time is up, but if you want to add a comment I would appreciate it.

Ms. ALLEN. I will just say very briefly no one is going to offer this service if there is not a way for them to make money. If we are trying to promote financial inclusion, we want it to be a win-win. There are reasons to be skeptical when the actual money-making nature of the innovation is not fully disclosed.

Senator WARNER. Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Warner.

Senator Warren from Massachusetts is recognized for 5 minutes.

Senator WARREN. Thank you, Mr. Chairman. So unlike other cryptocurrencies like Bitcoin, stablecoins like Tether and USDC are supposedly pegged to the dollar, and the reason for this is to reassure people that stablecoins are as stable as using the dollars you have in your wallet or in your checking account. A stablecoin dollar, in other words, will supposedly be worth a real dollar. Now that would make it a lot easier and a lot safer to trade among different tokens, to put up collateral for a risky bet, or even to pay for a cup of coffee at your local bodega. But I want to examine whether or not the stablecoin talk matches the stablecoin reality.

Ms. Goldstein, let us say that I own $10 worth of Tether or USDC, if I want to trade my $10 worth of these tokens, am I guaranteed to get $10 back?

Ms. GOLDSTEIN. No, Senator. You are sort of dependent on the exchange where you are trading it because as a U.S. retail customer I cannot go to Circle and say, please redeem my USDC, and Tether explicitly says no U.S. customer can redeem Tether. So I have to trade it on an exchange. Sometimes it fluctuates. Sometimes it is a little above the dollar; sometimes it is a little below. But if there were a run, the peg could collapse.

And we also do not really know necessarily what is backing all of these stablecoins, right? Tether is——

Senator WARREN. Hold on a sec. I want to get into that, OK? I promise. Because I want to just underscore this point, that if Tether's tokens were actually backed one to one it would be one of the 50 largest banks in the country, but we know that it is not. And that is because according to Tether's own report only about 10 percent of the assets backing its stablecoin are real dollars in the bank; 90 percent is something else, not real dollars.

And if that worries you—there is a little more news on this one—the report that 10 percent of Tether's stablecoins are backed up by dollars is not actually verified by a comprehensive, audited financial statement or verified by any Government regulator.

So, Professor Allen, let me ask you. Let us say I am not the only one who wants to redeem my $10 worth of Tether or USDC for dollars, and maybe there is bad news in the market and people rush to cash in their stablecoins. What would a run on the stablecoin market look like? Could it endanger our financial system?

Ms. ALLEN. Thank you for that question, Senator. So a number of the witnesses today have said that stablecoins do not engage in maturity transformation and therefore do not suffer the same fragilities as bank deposits and runs, and that is probably true to some degree. But a run on a stablecoin would look a lot like the runs that we have seen on money market mutual funds in 2008 and again in 2020, and it could also share dynamics with the foreign exchange crisis we have seen in the past, like the Mexican peso crisis.

So if holders of the stablecoins suddenly lose confidence in either the ability of the issuer of the stablecoin or the reserve of assets backing it to maintain a stable value, they could seek to redeem or exchange their stablecoin en masse. And if they have direct redemption rights, that would force the issuer to liquidate its reserve of assets.

So right now I do not think that would have systemic consequences. If stablecoin holders are only using them to speculate, they are not really going to expect stability, and so a run will be less likely. But if a run did occur right now, I think the impact would probably be felt in the DeFi ecosystem, and that is why it is critical that we not provide this Government support to the DeFi ecosystem and expect——

Senator WARREN. OK. So let me go there. Sorry to interrupt, but let me go there. We know that stablecoins are not always stable. In fact, it is worse than that. In troubled economic times, people are most likely to cash out of risky financial products and move into real dollars. Stablecoins will take a nosedive precisely when people most need stability, and that run on the bank mentality could ultimately crash our whole economy.

But there is another piece of the risk here, and you have headed in that direction, Professor Allen. DeFi is the most dangerous part of the cryptoworld. This is where the regulation is effectively absent and, no surprise, it is where the scammers and the cheats and the swindlers mix among part time investors and first-time cryptotraders. In DeFi, someone cannot even tell if they are dealing with a terrorist.

Stablecoins provide the lifeblood of the DeFi ecosystem. In DeFi, people need stablecoins to trade between different coins, to trade derivatives, to lend and borrow money, all outside the regulated banking system. Without stablecoins, DeFi comes to a halt.

So, Professor Allen, does DeFi threaten our financial stability, and can DeFi continue to grow without stablecoins?

Ms. ALLEN. I do not think DeFi can grow without stablecoins. I think it would struggle. Right now I think DeFi is contained to the point where it will not impact financial stability, but if it grows I think there is a real threat there, particularly if it becomes intertwined with our traditional financial system. And there is industry interest in pursuing this integration on both the traditional finance and the crypto side. So I think it is critical that stablecoins not be allowed to fuel that growth.

Senator WARREN. Well, I appreciate it. You know, this is risk to traders, risk to our economy. The time to act is before it all blows up. Stablecoins have no regulators, no independent auditors, no guarantors, nothing, and they are propping up one of the shadiest parts of the cryptoworld, the place where consumers are least protected from getting scammed. Our regulators need to get serious about clamping down on these risks before it is too late.

Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Warren.

Senator Smith from Minnesota is recognized.

Senator SMITH. Thank you, Chair Brown, and thank you to our panelists for being here today. I want to ask about this: So as businesses transition to cashless models, some businesses could adopt stablecoin or even crypto as an alternative or as the only method for a payment, and I am trying to figure out what impact that this could have on people, especially people of color who are so often left out of the financial system.

According to a report by the FDIC, approximately 7.1 million households are unbanked. That was in 2019. And so as we move to a cashless economy, what happens to people who are low-income or homeless or undocumented, and how do they pay for things that they would need in a stablecoins world? Does stablecoins actually give them more freedom and access, or does it become another barrier?

So, Ms. Goldstein and Professor Allen, could you help me answer this question? Advocates for stablecoin argue that they provide access for small businesses and unbanked people. What do you think about that argument, and how exactly does stablecoin work for someone who does not have a checking or a savings account?

Ms. GOLDSTEIN. If I may briefly and then give Professor Allen a chance to respond, again, because stablecoins are not widely accepted for goods and services, you need a bank. And not only do you need a bank, you need an account at a cryptocurrency exchange in order to buy stablecoins in the first place, at least the top two ones. And so I think this is why we saw the World Economic Forum find that there are not many financial inclusion benefits to stablecoins because it is essentially using the rails of the existing banking system.

So until, you know, and if—I think it is a big "if"—we see mass adoption of stablecoins as a way to accept things at the grocery

store, to buy your groceries, I do not really see how this helps the unbanked because you need a bank and you need a cryptocurrency exchange.

Senator SMITH. Yeah. OK. Thank you.

Professor Allen.

Ms. ALLEN. So I agree with Ms. Goldstein's comments. I just want to add something further, which is financial literacy is already a huge problem for a lot of people. We expect a lot of consumers in terms of their ability to read complex financial documents and understand them. With the move to cryptorelated financial services, we are asking them as well often to understand computer code because disclosures do not always match the computer code, and so investors in these areas tend to go to the code themselves. So I think that it is just entirely unreasonable to expect people to be able to sense the risks in these types of products on their own by looking at the code.

Senator SMITH. Yeah. I mean, it is difficult enough for—you know. I mean, it is extremely difficult for anybody to understand. So I really agree with you.

Let me ask you another question about this. We, of course, need to make sure that workers can rely on their pensions, the pensions that they have earned. This is something that Chair Brown and I have worked on, focused on, since I first came to the Senate. So as stablecoins and cryptocurrencies become more prominent in the financial system, it seems like it is worth looking at what this could mean for retirement plan assets and figuring out whether it is a good idea for them to be offered as an investment options for pension plans or 401(k) plans.

So, Professor Allen, let me stay with you. For workers or teachers who are thinking about their retirement accounts or pensions, what do you think is the right role, or is there a role, for stablecoins in those plans?

Ms. ALLEN. I do not think that there is a role for them there. I appreciate that people are going through a really hard time right now. The search for yield in this environment, you know, is a very real pressure. But I feel it is very dangerous for people to gravitate toward highly volatile assets in that search for yield, and particularly when we are talking about long-term investments like retirement I think that is a recipe for disaster.

Senator SMITH. Ms. Goldstein, would you like to comment on that?

Ms. GOLDSTEIN. Yes. I will just add that I agree with Professor Allen. I do not really know that there is a retirement, you know, investor that wants the volatility and insolvency risk of Bitcoin that gives you, you know, very little yield if any at all.

Senator SMITH. Mm-hmm. Thank you. So we know that the stablecoin market is worth about $130 billion and a lot of this growth has happened really fast, in the last couple of years. And I personally do not think that regulators have kept up with this transition. The President's Working Group on Financial Markets recently released a report on stablecoins with suggestions for Congress as well as banking regulatory agencies on recommendations for what we should think about as we regulate stablecoin.

I just have a couple seconds left, but what—Ms. Goldstein, I will stay with you. What do you think we should be considering as policymakers as we think about a regulatory framework for stablecoins?

Ms. GOLDSTEIN. Senator Smith, I think we need to think about the secondary market and how stablecoins drive DeFi and make sure that there is not a gap between the protections that you receive as an investor in the equity markets and the protections that you may receive as an investor in the crypto asset markets. Whether it is best execution or making sure that the trades are not manipulated or being spoofed, wash tradings, you name it, I think we need to make sure that we are narrowing that gap as much as possible so that we can all enjoy the protections that we are used to seeing in the equity markets.

Senator SMITH. Thank you so much.

I know I am out of time, so I will yield back. Thank you, Mr. Chair.

Chairman BROWN. Thank you, Senator Smith.

Senator Sinema from Arizona is recognized from her office.

[No audible response.]

Chairman BROWN. I believe she is still getting on. She may be on the floor voting, but I would like to hold for a moment. And I will ask one question, if Senator Toomey wants to ask one, too.

Ms. Goldstein, is it true that cryptocurrency speculation on decentralized finance platforms would not work without stablecoins?

Ms. GOLDSTEIN. Yes, Senator, I think that is right or at least they would be a lot smaller.

Chairman BROWN. So could a company like Circle create a stablecoin that can be used for electronic payments but could not be used to gamble in cryptocurrencies like Dogecoins?

Ms. GOLDSTEIN. Yes, Chairman, I think you could. You could design the system however you would like, and there is nothing—yes, they absolutely could do that.

Chairman BROWN. So, Professor Allen, what are the risks of allowing stablecoins to be used both as a payment system and as a tool to allow gambling in DeFi markets?

Ms. ALLEN. In terms of allowing them to be used as a payment system, I think the biggest financial stability risk is if that is offered by a tech company like Meta, Facebook, or Amazon because then you have the potential for these to scale up really quickly to be used for everyday goods and services, and then we do potentially have both monetary policy and financial stability issues in the sense that the tech company would become too big to fail and essentially part of the Government safety net.

Unless one of those tech companies moves into this space, though, I do not see stablecoins becoming used for everyday goods and services payments absent some kind of Government support in the form of deposit insurance or the equivalent. So if that does happen, these could then be used potentially for payments, but also they would be used to a large extent in the DeFi ecosystem. And that is essentially, in my view, going to be Shadow Banking 2.0 in terms of the Government essentially having to bail out this entirely self-referential financial system that operates outside the boundaries of what we normally regulate.

Chairman BROWN. Thank you, Professor Allen.

So, Mr. Disparte, since the name of your company was invoked during this little discussion, when testifying in front of Congress, Circle—and in the President's working group, Circle—emphasized it is a payment platform that can help small businesses or enable cheap international payments, a concern also about which Senator Warner from Virginia was concerned, as you heard. But on their website, Circle highlights the DeFi protocols it is designed to work with. And your CEO recently bragged on Twitter that your U.S. Dollar Coin is the most used stablecoin for making bets in these unregulated markets.

So, Mr. Disparte, if Circle is a safe, stable banking product to facilitate payments to small businesses, why is your company also promoting its use to gamble on cryptocurrencies? How does that actually help small businesses or the economy?

Mr. DISPARTE. There—Senator, thank you for the question. There is, of course, a wide range of use cases for any payment infrastructure, any payment innovation. In the software intermediated capital markets, also known as DeFi, the use of stablecoins is an important innovation. But its fundamental function is exactly the same, and the expectation of the end user is that they only get a dollar out from the economic use of the stablecoin for any of these activities.

Chairman BROWN. Thank you.

Senator Toomey and then we will—after Senator Toomey, we will call on Senator Sinema if she is on. Otherwise, I think we will likely adjourn. So, go ahead.

Senator TOOMEY. Thank you, Mr. Chairman.

Ms. Massari, I have had a little back and forth with the SEC Chairman. Mr. Gensler has, I think, at times indicated that stablecoins, at least some stablecoins, may actually be securities even if they lack an inherent expectation of profits. But he has not explained to me exactly what the criteria he is using, what legal tests, what makes a stablecoin that has no expectation of profit a security. And it seems to me that some expectation of a gain on the part of an investor is fundamentally at the heart of what we consider to be securities.

So I want to ask you, if there is a non-interest bearing stablecoins—and most are not intrinsically bearing interest. And there is no explicit expectation of profits, and really the value proposition is there is a utility that is the reason people are interested in the stablecoin. But in such an example, do you think that it meets our definition of what is security and should be regulated as a security?

Ms. MASSARI. Senator Toomey, thank you for that question. As you might imagine, every practitioner in this area is extremely well versed in the Howey Test and the Reves Test, and I will not bore you with the technical details. But in short, in my view, a non-interest bearing stablecoin, fully reserved and regulated as many stablecoin issuers are today, as money transmitters, those stablecoins should not be viewed as securities. They are appropriately not viewed as securities under existing law.

Senator TOOMEY. Thank you.

And, Mr. Disparte, I was wondering if you could give us—you made a really interesting and I think important observation about how rapidly this space is evolving, how the capabilities are expanding, how speed and throughput are accelerating, and you made the analogy to back when the internet relied on dial-up modems. It is a little bit faster today.

And I suspect that the capabilities of these platforms to handle large volumes of transaction is also going to grow. And as it does, it seems to me there is very interesting potential for smart contracts. Could you give us an idea of how we should think about smart contracts and maybe even an example of a smart contract that would have a use case for an ordinary small business or consumer?

Mr. DISPARTE. Absolutely. Thank you for the question, Senator. Indeed, I would argue that the public infrastructure and this open-source technology wave that is happening—what many are likening to a Web 3, where Web 1 was read, Web 2 was read and write, and Web 3 is read, write, own—is an important innovation and has a lot of implications broadly for financial resilience and competitiveness.

An example of a smart contract innovation could be something really important and close to home for me, coming from the insurance world, for example. One of the most elusive aspects of the insurance world is this concept of a parametric claim. A homeowner's policy that could liquidate a claim based on a georeference where the disaster took place and there is no equivocation that it in fact was a total loss would be a game changer. The absence of being able to do that at scale and quickly and in real time is partly solved for by a trusted dollar digital currency, like USDC, but also partly solved for what the capability is of a smart contract.

So you have started to see some blockchain-based innovations taking place in that domain, in the insurance domain, but an open internet dollar functionally becomes one of the only missing links to enable that at scale.

Other examples, you know, are opportunities around zero default loans. Effectively, programmable money enables you to execute even micropayments, where by today's standards sending even small amounts of money, it often costs more than the sum of money sent. And so the ability to execute micropayments, I use an example in my written testimony about a journalist being able to accrue a penny for every like. By today's payment standards, it is not possible to execute that penny to the journalist, so the freelancer is effectively a starving artist or a starving writer or a starving journalist.

And then there is a whole host of other use cases that are enabled by this: cross-border payments, being able to have sanctions-compliant money movement, for example, corruption, bribery, and fraud internationally in a humanitarian context. Money is the honeypot, especially physical money because of its opacity. Stablecoin-based payments and blockchain-based payments, because of their transparency, their speed, and their auditability, can enable a whole host of applications. USDC was used, for example, to support doctors in Venezuela as one use case of moving humanitarian funds using these innovations.

So I think we are in the opening innings. And when people say we have failed the financial inclusion test, the presumption is the stablecoin has agency just as the dollar, and both are patently wrong.

Senator TOOMEY. Thank you, Mr. Chairman.

Chairman BROWN. Thank you, Senator Toomey.

Senator Sinema is recognized from her office.

Senator SINEMA. Thank you, Mr. Chairman, and thank you to Senator Toomey in particular for extending the questions so I was able to join today. I also want to thank our witnesses for being here today.

As you know, Mr. Chairman, I cochair the Senate's Financial Innovation Caucus alongside my friend, Senator Lummis of Wyoming. So I am glad that we are holding this hearing on stablecoins today.

As you know, stablecoins are cryptocurrencies that are pegged to other external reference assets like a fiat currency, another virtual currency, a commodity, or a combination of these assets. As more Americans choose to invest and hold and transact with digital assets, it is important for policymakers to consider the regulatory implications of this trend and the innovations happening in this ecosystem.

Ms. Massari, it is great to meet you and to discuss this important topic. If an Arizonan is looking at holding a stablecoin, how can he or she know for sure that it is truly backed by the asset that the issuer claims?

Ms. MASSARI. Thank you for the question, Senator Sinema. So today in the United States, stablecoin issuers, U.S. stablecoin issuers, are regulated by the States in which they offer their services and where they are located. This is regulation under State money transmission licensing regimes, which exist in every State but one. In addition, they are regulated for financial crimes purposes by FinCEN, a bureau of the U.S. Treasury Department, as money services businesses.

That being said, it is primarily the State regulators that are responsible for oversight and supervision of money transmitters, including stablecoin issuers. So we would look to those State regulators to ensure that the stablecoin issuers, like other payment service providers and stored value providers, are living up to their promises.

Senator SINEMA. Thank you. And as I understand it, currently, stablecoin issuers are generally subject to State level money transmitter laws. Do these State laws require a particular standardized way of disclosing how the stablecoin is backed?

Ms. MASSARI. It is a great question, Senator. So these laws generally require stablecoin issuers, like other payment providers and stored value providers, to maintain what are called "eligible assets" to back their obligations to customers. They are also required to provide financial reports to their regulators, and of course, any disclosures that they make about how they hold assets must be accurate.

Senator SINEMA. I see. Now in the event that a stablecoin is not truly backed, is there a risk that the Arizonan could try and redeem their token for cash and the issuer may not be able to provide

it? Now that is a problem for the Arizonan in the near term, but what bigger problems could that cause in the long term?

Ms. MASSARI. It is a great question, Senator. I think the short answer is, yes, that could certainly be a problem. That is one reason why I support commonsense, strong regulation of stablecoin issuers. As I mentioned, the States are currently largely responsible for that regulation. In my view, a Federal option could also be explored to achieve the same goals.

Senator SINEMA. Thank you. Now, Ms. Massari, if the Arizonan holds $10,000 in a particular stablecoin and then there is a run on the issuer, how much of the $10,000 could the Arizonan lose if the backing on the coin is not credible?

Ms. MASSARI. That is a great question again, and I think these are really important questions to think about as we think about how to regulate stablecoins. Unfortunately, I am going to give you a lawyerly answer, which is it depends. It depends on the assets that are available in bankruptcy to redeem out the stablecoin holders, if the stablecoin goes into bankruptcy and, in general, how much money is left with the stablecoin holder that is available for the stablecoin holders to get in that kind of situation.

Senator SINEMA. Thank you. You know, this is an important issue for which consumers and investors deserve a clear answer. At the same time, though, we should not assume that simply overlaying every law and regulation we have for other issuers or depository institutions is automatically the correct issue here.

Now in the short time we have left, I would love to hear from Ms. Massari and Ms. Goldstein on my last question. Relative to banks or other issuers of digital currency, can you highlight the key differences, good and bad, that policymakers should continue when thinking about regulation of stablecoin issuers? So first, Ms. Massari.

Ms. MASSARI. Again, thank you for the question. To my mind, when thinking about stablecoin regulation, this regulation is really important. It is really important to protect consumers. It is really important to protect our financial system. But at its core, the most important thing is to make sure that the regulation fits the activity, right? Stablecoin issuance is different from traditional banking, and therefore, in my view, it does not make sense to overlay the same regulations that we have for traditional banks on top of stablecoin issuers.

Ms. GOLDSTEIN. And, Senator, I will just add very quickly that I think that stablecoin issuers, in particular when they go to raise funds or they are going to issue new tokens, we sort of have this uneven playing field. There are looser standards for fundraising for cryptotokens, including stablecoins, than say for a pharmaceutical company going in the public markets and raising money. And that is sort of like having a triathlon where you are asking—say 10 percent of the participants, they get to skip the swim, right?

And so I do not think that we should be——

Senator SINEMA. I would like to do that, personally, just to be clear.

Ms. GOLDSTEIN. Yeah, no. I think it would be a good trick, right? So I do not think we should be advantaging one industry over another when it comes to fundraising from the public markets.

Senator SINEMA. Thank you.

Thank you, Mr. Chairman and Ranking Member, for extending the hearing. I really appreciate the time today. And I thank our witnesses for appearing.

Chairman BROWN. Thank you, Senator Sinema.

This has been—and Senator Cramer is not on. OK. Thank you.

This has been an important and eye-opening discussion. In the past, this Committee and financial regulators have failed to pay attention to these issues until it is too late. They have devastated—workers and families in too many cases have been devastated in this country, in the Ranking Member's State and my State, all over the country. We will continue to keep a close eye on stablecoins and cryptocurrency as well to ensure that this economic recovery that we have worked so hard to build is not destroyed by another crisis.

Thank you to the four witnesses today.

For Senators who wish to submit questions for the record, these questions are due 1 week from today, Tuesday, December 21st. Witnesses will have 45 days to respond to any questions.

Thank you again to the four of you.

The Committee is adjourned.

[Whereupon, at 11:57 a.m., the hearing was adjourned.]

[Prepared statements, responses to written questions, and additional material supplied for the record follow:]

PREPARED STATEMENT OF CHAIRMAN SHERROD BROWN

A few years ago, most people had never heard of cryptocurrency—most people still don't know what all these terms mean, from stablecoins to nonfungible tokens.

But they've become a hot topic in Washington—and on Wall Street, and online, among millions of Americans who, understandably, don't trust big banks, and are looking for an opportunity to make money.

Over the last several years, the number of cryptocurrencies has exploded—from the hundreds to the thousands. The supposed value of all of these digital assets in circulation recently passed three trillion dollars.

That's about the size of JPMorgan Chase's balance sheet—the biggest bank in the country.

With that much money tied up, that's pretty much the definition of a systemic issue in our economy.

And those big numbers have come with big promises.

We've been told that blockchain—the technology these coins are built on—will "democratize" money, or build a more inclusive economy.

But none of those promises have materialized, and likely never will. Instead, we've gotten wild financial speculation.

As we've heard before in this Committee, the wild price swings and high transaction fees for many cryptocurrencies make them useless for payments—the one thing they claim to be designed for.

Stablecoins were supposed to solve this problem.

Unlike other cryptocurrencies, their value isn't just based on market enthusiasm—a stablecoin's value is supposed to be backed by real assets held by the company that issues the stablecoin.

In other words, stablecoins are a particular type of cryptocurrency whose value is managed by a single company. These include Tether, Circle, and Abracadabra—a fast-growing scheme that makes "Magic Internet Money". Their words, not mine—what could possibly go wrong with something that claims to be "magic money"?

Cryptocurrencies' advocates argue that crypto assets are superior to real dollars, because they are decentralized and transparent. But stablecoins are neither.

Most of them, and certainly the largest ones, rely on a single, centralized company to manage the reserve assets and their supply of coins. That sounds a lot like what traditional financial institutions do.

It's not decentralized when one company controls when people can access their own money. And it's certainly not transparent when critical information about stablecoins, and the companies that issue them, isn't available to people who have their money tied up in these assets.

Last month, I wrote to some of the biggest stablecoin issuers to get more information on how they manage the funds that back their coins, and to ask what rights their users have. Their responses were not very enlightening—and should lead us to assume most ordinary customers don't have much in the way of rights at all.

So let's be clear about one thing: if you put your money in stablecoins, there's no guarantee you're going to get it back.

They call it a currency, implying it's the same as having dollars in the bank, and you can withdraw the money at any time.

But many of these companies hide their terms and conditions in the fine print, allowing them to trap customers' money.

And if there's no guarantee you'll get your money back, that's not a currency with a fixed value—it's gambling. And with this much money tied up, it sure looks to me like a potential asset bubble.

Stablecoins make it easier than ever to risk real dollars on cryptocurrencies that are at best volatile, and at worst outright fraudulent.

Just a few weeks ago, we saw how quickly these tokens can crash, with cryptomarkets diving by almost 30 percent in one day. History tells us we should be very concerned when any investment becomes so untethered from reality.

Look at the 1929 stock market crash.

Securities started out as a way for regular Americans to invest in new companies that wanted to bring new products to market or expand their operations.

By the end of the decade, companies were invented out of thin air, to create more stocks to satisfy wild demand. Banks allowed customers to borrow against one stock to buy another, until the whole market collapsed.

And of course we should all remember the 2008 crash.

Subprime mortgages were supposedly created to give more families access to the American dream, while derivatives were created to help financial companies reduce their risks.

In reality, predatory mortgages were used to strip homeowners of the equity they had in their homes in order to create complex mortgage-backed securities and derivatives that ended up increasing risks at banks and financial companies.

We all know how that turned out.

We can't deny that betting on cryptocurrencies has made a few people rich—just like some people became fabulously wealthy trading stocks in the 1920s. And we all heard the stories about mortgage brokers and house-flippers becoming millionaires in the 2000s.

But for most people, this kind of wild speculation ends in disaster. And the only ones who tend to walk away unscathed are the big guys—it's always the big guys—the ones who call it "innovation" while lining their own pockets.

So far, what happens in the cryptomarkets has stayed in the cryptomarkets. But stablecoins create a very real link between the real economy and this new fantasy economy.

We saw this with "Dogecoins," a satirical cryptocurrency that was all of a sudden worth billions when a tech billionaire tweeted about it.

It's understandable that a lot of people are looking for an alternative to our current financial system. Wall Street banks dominate, and they make record profits no matter what's happening to workers and small businesses and the country at large.

To a whole lot of people, that seems like a fantasy economy too.

But a Big Tech scheme that makes it easy for hardworking Americans to put their money at risk isn't the answer.

Stablecoins and cryptomarkets aren't actually an alternative to our banking system. They're a mirror of the same broken system—with even less accountability, and no rules at all.

Today we'll hear the same arguments from this industry against regulation that we've heard from financial industry lobbyists so many times before—it harms innovation, the free market will solve all our problems, America needs to be globally competitive.

What makes America the strongest economy in the world isn't wild betting in the financial sector. It's our workers—their talent, their ingenuity, their dedication. That's what our economy is built on.

You can't fake that. But as we've seen so many times before, you can put it all at risk.

The rest of the world trusts the U.S. dollar when we have orderly, sane markets. The real threat to our global competitiveness is regulators who ignore clear warning signs.

We have reason to be encouraged this time around, though.

The Biden administration is putting strong watchdogs in place at the banking and market regulators. We're empowering workers. Wages are rising. Infrastructure investment is about to spur more job growth. And we're fighting to bring down costs with the Build Back Better plan.

We can't put all that potential at risk.

I will continue to work with the financial watchdogs to ensure they have all of the tools they need to protect people's hard-earned money and our economic recovery from another bubble, and another crash.

PREPARED STATEMENT OF SENATOR PATRICK J. TOOMEY

Thank you, Mr. Chairman.

Stablecoins are a central component of the cryptocurrency ecosystem, which is itself at the vanguard of the tokenization of assets.

Stablecoins can speed up payments, especially cross-border transfers, reduce costs, including remittances, and help combat money laundering and terrorist financing through an immutable and transparent transaction record.

Stablecoins can also be programmed and made interoperable with other currencies, creating efficiencies to improve access to financial services for more Americans.

But unlike volatile cryptocurrencies like Bitcoin, stablecoins don't fluctuate in their dollar price.

In today's hearing, we will focus on stablecoins designed to maintain a 1-to-1 value relative to the U.S. Dollar, meaning one stablecoin is meant to always equal one dollar.

Over the past year, the stablecoin market has exploded. As one of our witnesses, Dante Disparte, will explain, stablecoins are beginning to be used for small business payments and international remittances. While traditional payment systems can be

expensive and take several days to settle, transferring funds via stablecoins is low-cost and nearly instantaneous.

Given that stablecoins disrupt the status quo, they've naturally drawn skepticism from incumbent industries and regulators. Last month, the President's Working Group on Financial Markets, or PWG, issued a report recommending that Congress pass legislation to establish a Federal regulatory framework for stablecoins. In their report, the Treasury Department and others expressed their worries about consumer protection and financial stability with stablecoins.

Although the report did little to highlight the potential benefits of stablecoins, I was encouraged the report acknowledged that responsibility for clarifying whether, and to what extent, Federal agencies have jurisdiction over stablecoins rests with Congress. I am open to working with the Administration and my Democrat colleagues on this front.

But whatever Congress does, let's be sure that we don't stifle innovation in an evolving digital economy or undermine our own country's competitiveness. Let's have the humility to recognize that many of our views about how financial services are delivered and how investments work are quickly becoming outdated.

This morning, I'm releasing a set of guiding principles that I think should influence our work on a stablecoin legislative framework.

Innovation

These principles recognize that stablecoins are a very important innovation, and they introduce new capabilities into money that did not previously exist. In addition to their ease of use and reduced fees associated with their transfer, stablecoins can improve the privacy and security of our transactions. They also introduce the concept of money programmability, or smart contracts, which allow automated transactions based on a sequence of verifiable events.

In recognition of the potential of these new capabilities, any regulation should be narrowly tailored and designed to do no harm. At the same time, sensible regulatory standards may help to protect against key risks, such as redemption or run risk. These principles take a different approach than the PWG report.

Options for Stablecoin Issuers

For example, the PWG report recommends that all stablecoin issuers must be insured depository institutions. There are three reasons I disagree with that recommendation.

First, stablecoin issuers have different business models than banks. They do not provide the same services as banks and do not present the same risks.

As one of today's witnesses, Jai Massari has observed, stablecoin providers do not engage in taking deposits and making loans like banks do. Because of these important differences, subjecting all stablecoin providers to the full suite of bank rules and regulations meant to address maturity transformation is not appropriately tailored to the potential risks.

Second, requiring all stablecoin issuers to become banks would stifle innovation. We know that a tremendous amount of innovation occurs outside of the banking system, including by technology companies. It is unlikely that much of this development could happen within the banking system because of onerous regulations, which create a difficult environment for innovation. Allowing entrepreneurs to innovate with digital assets like stablecoins will promote greater competition and deliver better results for consumers.

Finally, the regulation of payments activities should create an equal playing field. Great innovators like PayPal, Venmo, and Apple Pay are already subject to a State-by-State licensing regime, as well as registration with a Federal regulator.

Recognizing the range of different business models, there should be at least three options for stablecoin providers: operate under a conventional bank charter; comply with or acquire a special-purpose banking charter designed for stablecoin providers, which would be designed in accordance with legislation; or register as a money transmitter under the existing State regime and as a money services business with FinCEN at the Federal level.

This optionality would match each stablecoin provider with the regulatory framework most appropriate to the business model.

Requirements for All Stablecoin Issuers

Regardless of the charter or license they pursue, all stablecoin providers should meet certain minimum requirements. For example, they should clearly disclose what assets back the stablecoin, as well as give clear redemption policies and subject themselves to periodic audits.

These requirements would ensure that consumers have sufficient information about which stablecoin they use. It might also be appropriate to set minimum reserve requirements and attestations as well.

In addition, legislation should stipulate that non-interest bearing stablecoins are not necessarily securities and shouldn't automatically be regulated as such.

This framework should protect the privacy, security, and confidentiality of individuals using stablecoins, allowing customers to opt out of sharing personal information with third parties.

Finally, anti- money laundering and other requirements regarding financial surveillance under the Bank Secrecy Act should be modernized for all financial institutions subject to them, given the emergence of stablecoins, cryptocurrencies, and other new technologies, including artificial intelligence.

The emergence of stablecoins represents to me the latest development in the ongoing evolution of money. I stand ready to work on this issue and do so in a manner that doesn't discourage innovation or competition moving forward.

I look forward to hearing from your witnesses and yield back.

PREPARED STATEMENT OF ALEXIS GOLDSTEIN

DIRECTOR OF FINANCIAL POLICY, OPEN MARKETS INSTITUTE

DECEMBER 14, 2021

Written Testimony of Alexis Goldstein
Director of Financial Policy, Open Markets Institute

before the
Committee on Banking, Housing, and Urban Affairs
United States Senate

"Stablecoins: How Do They Work, How Are They Used, and What Are Their Risks?"

December 14, 2021

Chair Brown, Ranking Member Toomey, and Members of the Committee:

Thank you for the opportunity to testify today. I am Director of Financial Policy at the Open Markets Institute, where my work focuses on financial regulatory policy and investor and consumer protection. Previously, I worked as a programmer at Morgan Stanley in electronic trading, and as a business analyst at Merrill Lynch and Deutsche Bank focused on equity derivatives. There, I worked primarily as a product manager for the trading and risk management software used by the global equity options flow trading desks.

I want to start by thanking the Committee for holding today's hearing. I would like to highlight several areas that the Committee may wish to examine further as it relates to stablecoins, including their role in facilitating speculation in cryptocurrency markets, their centrality to decentralized finance, high cumulative fees as stablecoins move across the crypto ecosystem, and national security concerns.

I. Introduction

Stablecoins are crypto assets that attempt to maintain a stable value, either through a basket of reserve assets acting as collateral (asset-backed stablecoins), or through algorithms (algorithmic stablecoins). Often, stablecoins hold themselves out as being "pegged" to the U.S. dollar or to another currency. There are two major types of stablecoins: asset-backed stablecoins and algorithmic stablecoins.

Stablecoins are an integral part of speculative cryptocurrency trading, as nearly 75% of crypto asset trading involved a stablecoin.[1] Stablecoins are also central to the functioning of decentralized finance ("DeFi"), a section of the cryptocurrency markets largely out of compliance with Know Your Customer ("KYC"), Anti-Money Laundering ("AML"), Countering the Financing of Terrorism ("CFT"), and sanctions checks.

Stablecoins play multiple roles in DeFi, including: simplifying the valuation of crypto assets that only trade on DeFi and acting as a store of value in between speculative trades. Recent research from the World Economic Forum found no financial inclusion value in stablecoins, but many increased risks due to potential hacks, insolvency, or technical failures.[2] Additionally, stablecoins and their usage across DeFi also have implications for national security and illicit finance.

II. Asset-Backed Stablecoins

While there is no universal nomenclature for stablecoins, asset-backed stablecoins are generally understood to be crypto assets whose value is collateralized by "a fiat currency, a basket of fiat currencies or other stable-value assets."[3] There are two main categories of asset-backed stablecoins:

1. Custodial stablecoins, collateralized by assets that are stored off the blockchain ("off-chain"). Examples include Tether, U.S. Dollar Coin, Pax Dollar, and Binance USD; and
2. Stablecoins collateralized by other crypto assets that are stored "on-chain": an example of this is MakerDAO's Dai token.

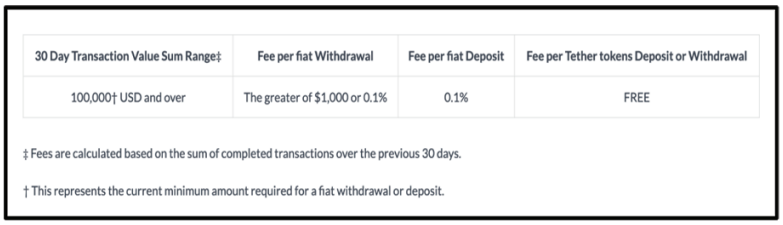
A brief discussion of four asset-backed stablecoins, Tether, U.S. Dollar Coin, Pax Dollar, and Binance USD, follows.

Tether (USDT)

Tether is an asset-backed stablecoin that has made its tokens available on several blockchains: Ethereum, EOS, Tron, Algorand, Solana and OMG.[4] Tether and the cryptocurrency exchange its executives co-runs it, Bitfinex, paid $42.5 million in October to settle charges with the Commodity Futures Trading Commission of making untrue or misleading statements and omissions of material fact in connection with Tether.[5] Tether and Bitfinex have both been barred from doing business in New York state under the terms of a settlement reached with Attorney General Letiticia James.[6]

As a condition of the settlement with the Attorney General James, Tether must provide quarterly "documents substantiating Tether's reserve account(s)".[7] Tether's latest attestation, conducted by the Cayman Islands-based accounting firm Moore Cayman states that Tether is backed by a combination of commercial paper, cash and cash equivalents, corporate bonds, and "other investments" which include other cryptocurrencies.[8]

According to Tether's website, the fee to redeem to fiat currency is $1,000 or 0.1% of the total redemption, whichever is larger.[9] Tether requires a minimum deposit of $100,000 in order to issue new Tether, and charges a fee of 0.1% of the deposit amount.



30 Day Transaction Value Sum Range‡	Fee per fiat Withdrawal	Fee per fiat Deposit	Fee per Tether tokens Deposit or Withdrawal
100,000† USD and over	The greater of $1,000 or 0.1%	0.1%	FREE

‡ Fees are calculated based on the sum of completed transactions over the previous 30 days.

† This represents the current minimum amount required for a fiat withdrawal or deposit.

Screenshot from Tether's fee page (https://tether.to/fees/), accessed December 12, 2021.

As of January 1, 2018, Tether **stopped allowing redemptions from U.S. residents**, and also stopped issuing Tether to U.S. individual and corporate customers, though they allow for carve outs at Tether's "sole discretion".[10] Despite this, major cryptocurrency exchanges serving U.S. customers like Coinbase,[11] Binance.US,[12] Kraken[13] and FTX.US[14] still allow U.S. customers to purchase Tether.

Reporting by the cryptocurrency news site *Protos* has shown that the two biggest purchasers of Tether are the crypto market making giant Cumberland and the crypto trading fund Alameda Research.[15] In an interview with Bloomberg's *Odd Lots* podcast, the majority owner of Alameda Research[16] (and CEO of FTX) Sam Bankman-Fried was asked to explain the process of redeeming Tether. When answering, he stated four separate times that the process was "messy".[17]

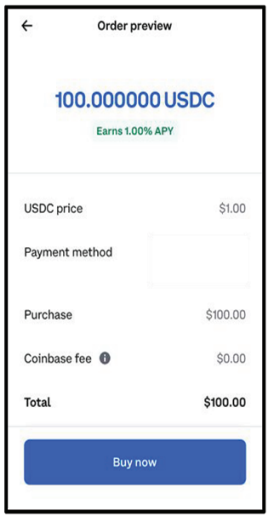
Circle, Coinbase, and U.S. Dollar Coin (USDC)

U.S Dollar Coin ("USDC") is an asset-backed stablecoin issued by Circle. Circle has made its tokens available on several blockchains: Ethereum, Tron, Algorand, Solana and Hedera.[18]

According to the whitepaper for Centre (a stablecoin consortium co-founded by Circle and Coinbase) Circle's strategic investors include "IDG Capital, one of the largest venture capital firms in China", Breyer Capital, founded by Jim Breyer, the "first investor in Facebook", and others including "Goldman Sachs, CICC Alpha, Baidu, WanXiang, CreditEase and EverBright Bank."[19]

Circle maintains a **revenue sharing agreement with Coinbase for USDC**, allowing Coinbase to profit off the sale of USDC on its exchange.[20] These profits are likely substantial, as USDC has seen rapid growth in 2021[21] and Coinbase stated in a February SEC filing that they are the "principal reseller of the USD Coin".[22] This revenue share agreement is the likely reason that Coinbase does not charge users to purchase USDC, but does charge them for purchasing competing stablecoins like Tether (and other crypto assets), raising questions of price discrimination and steering of its customers towards USDC.

Currently, Coinbase pays a 1% APY on US Dollar Coin by default, with no action needed from the user apart from purchasing US Dollar Coin (The rate used to be 0.15% APY[23]). This appears to create an automatic expectation of profits for US Dollar Coin on Coinbase:



Screenshot of the Coinbase app, displaying an "Earns 1.00% APY" message in the Order Preview screen when attempting to purchase USDC, accessed December 7, 2021.

Circle and Coinbase Change Reserves, Website Terms Following Press Scrutiny

For many months during 2021, Coinbase stated that for every dollar offered to investors in U.S. Dollar Coin, there was one dollar "in a bank account" backing it. But a July disclosure from Circle showed their assets "actually include commercial paper, corporate bonds and other assets that could experience losses and are less liquid if customers ever tried to redeem the stablecoin en masse," as *Bloomberg*'s Joe Light reported.[24] Following the press scrutiny, the Centre consortium said it would shift its reserves into cash and short-term U.S. Treasuries.[25]

Circle's October attestation, conducted by the auditing firm Grant Thornton LLP, claims that Circle is backed by "cash and cash equivalents" which they define to be "include US dollar deposits at banks and short-term, highly liquid investments that are readily convertible to known amounts of cash and have a maturity of less than or equal to 90 days from purchase". It is unclear what percentage (if any) of these are U.S. Treasuries, and if so, what their maturities are.[26]

Paxos: Pax Dollar (USDP) and Binance USD (BUSD)

The Pax Dollar ("USDP") is an asset-backed stablecoin issued by Paxos. The Pax Dollar is built on the Ethereum blockchain and adheres to Ethereum's ERC20 token standard, according to the Pax Dollar white paper.[27]

Paxos' website states that they post monthly attestations for the Pax Dollar. The latest attestation posted is from October 2021, and states that the 981,753,175.81 million in Pax Dollar supply has a Reserve Account with "U.S. dollars / amounts backed by U.S. treasuries".[28] The attestation does not specify which portion is in Treasuries versus U.S. dollars, nor does it specify the maturities of the Treasuries in their Reserve Account.

The majority of the current supply of Pax Dollar is locked into DeFi (over 65% of the Pax Dollar supply as of November 11, 2021[29]). Given that there virtually no KYC/AML checks in DeFi applications, there are risks that Pax Dollars may be utilized to convert ransomware payments from one crypto asset to another. (These risks are discussed further in the "National Security Concerns" section below).

Paxos also runs Binance's stablecoin BUSD. Binance has been subject to regulatory actions by Germany's BaFin,[30] Japan's Financial Services Agency,[31] Malaysia,[32] Hong Kong[33], and the UK's FCA.[34] The latest attestation posted by Paxos for BUSD is from October 2021, and states that 13,156,917,361.68 in BUSD supply has a Reserve Account with "U.S. dollars / amounts backed by U.S. government guaranteed instruments."[35] It is unclear from the attestation what these government guaranteed instruments are, and what maturities they have.

III. Asset-Backed Stablecoins Usage of Forced Arbitration Clauses and Class Action Bans

In traditional financial markets, consumers and investors are often subject to forced arbitration clauses and bans on class action lawsuits. These forced arbitration clauses prevent users from suing financial firms in a court of law, instead conducting dispute resolution in private arbitration, where the outcomes are typically secret and there is no right to appeal. Many asset-backed stablecoin issuers also include binding arbitration and class action bans in their terms of service.

A review of four major asset-backed stablecoins showed forced arbitration and class action bans present in every single one's terms of service:

Stablecoin	Issuer	Link to terms	Forced Arbitration?	Class Action Ban?
U.S. Dollar Coin	Circle	https://www.circle.com/en/legal/us-user-agreement	Yes	Yes
Tether	Tether	https://tether.to/legal/	Yes	Yes
Binance USD	Paxos	https://paxos.com/2019/03/29/general-terms-and-conditions/	Yes	Yes
Pax Dollar	Paxos	https://paxos.com/2019/03/29/general-terms-and-conditions/	Yes	Yes

I attempted to review the terms of service for the three algorithmic stablecoins discussed below, but I was not able to find any terms of service for the stablecoins or their platforms (OlympusDAO, Abracadabra Money, and Iron Finance).

IV. Algorithmic Stablecoins

Algorithmic stablecoins are uncollateralized crypto assets that attempt to maintain a stable value through a variety of means, which can include: an ongoing rebalancing of a basket of other crypto assets or even just the mere expectation of future market value. Professor Ryan Clemens of the University of Calgary writes that algorithmic stablecoins operate in a "perpetually vulnerable state".[36]

Below is a brief discussion of three algorithmic stablecoins: Olympus DAO, Magic Internet Money, and IRON.

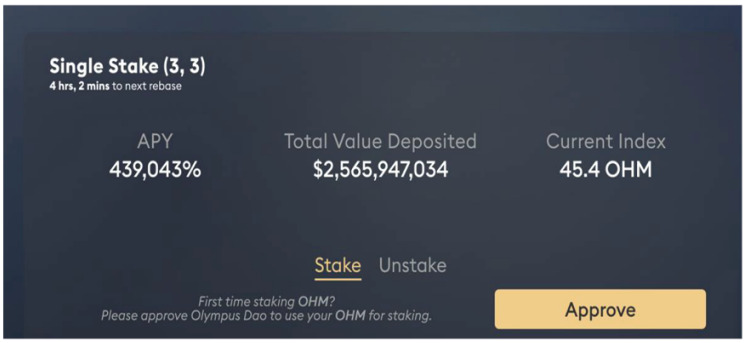
OlympusDAO

OlympusDAO is an Ethereum-based project founded by a pseudonymous developer known as "Zeus" which issues a token called OHM. According to the Olympus DAO Frequently Asked Questions ("FAQ"), they "a free-floating reserve currency, OHM, that is backed by a basket of assets."[37] Strictly speaking OlympusDAO rejects being defined as a stablecoin in its documentation. However, it defines its project as aspiring to create "an algorithmic reserve currency backed by other decentralized assets."[38]

Olympus DAO claims to utilize a different stablecoin, DAI, as its backing, writing that "Each OHM is backed by 1 DAI, not pegged to it."[39] (DAI is a stablecoin issued by MakerDAO and collateralized with crypto assets.[40]) Cryptocurrency users can purchase OHM on decentralized exchanges or "mint" OHM at a discount by locking in other crypto assets to OlympusDAO.

OlympusDAO then uses these crypto assets to "accumulate its own liquidity."[41] The OHM a user receives in exchange is not delivered immediately: there is a vesting period.[42]

Once users obtain OHM tokens, Olympus DAO advertises an eye-popping, six-figure APY (over **439,000% APY** as of December 13, 202) in exchange for locking their OHM tokens onto the platform:



Screenshot from Olympus DAO, displaying a **439,043% APY** for staking the crypto asset OHM, accessed December 13, 2021.

Some in the Crypto Industry have Warned that Olympus DAO may be a Ponzi Scheme

Many in both the financial services and cryptocurrency industries have raised alarms about OlympusDAO and its stablecoin OHM. *Bloomberg*'s Matt Levine described OlympusDAO as having "Ponzi economics".[43] Scott Lewis, the founder of the cryptocurrency metrics site *DeFi Pulse* tweeted "ohm is a ponzi. it's clear as day"[44] And the cryptocurrency news publication *Coin Desk* wrote of OlympusDAO, "Yes, it's a Ponzi scheme. But who cares?"[45]

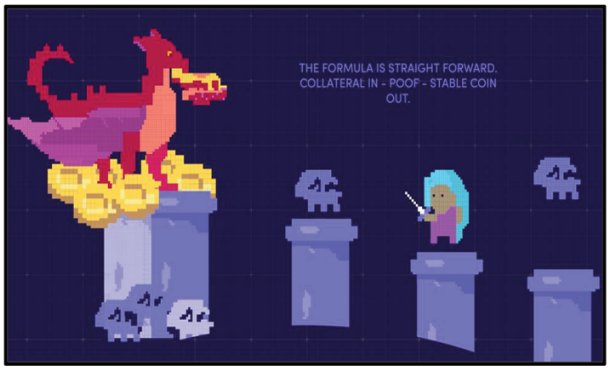
Despite multiple allegations that OlympusDAO is a Ponzi scheme, the project's popularity has led to dozens "forks" of the project[46] – a fork is when a software project's code is copied in order to be modified and adjusted for a new and different software project.

Magic Internet Money and Abracadabra Money

Magic Internet Money describes itself as a "pegged stable coin that is backed by interest bearing tokens". Its platform,called Abracadabra Money, states in its documentation that it always considers this [Magic Internet Money] token to be worth 1USD".[47]

Co-founded by pseudonymous developers[48], Magic Internet Money claims their peg to one U.S. dollar is maintained through arbitrage, conducted by trading bots: "a lot of the Market to Market

arbitrage is done by automated bots that constantly monitor pools for opportunities to capitalize on these price differences."[49]



Screenshot from Abracadabra.Money (https://abracadabra.money/), stating "THE FORMULA IS STRAIGHT FORWARD. COLLATERAL IN - POOF - STABLE COIN OUT", accessed December 12, 2021.

Cryptocurrency investors that own certain crypto tokens can use them as collateral in order to borrow Magic Internet Money.[50] The collateral accepted by Abracadabra can change: for example, it recently added support for borrowing Magic Internet Money by using the Shiba Inu crypto token as collateral.[51]

The market cap of Magic Internet Money is estimated to be some $3.95 billion – higher than Pax Dollar's $1.14 billion market cap as of December 13, 2021.[52] In addition, the stablecoin has received some legitimacy from other crypto market platforms. For example, although Coinbase does not offer the ability to purchase Magic Internet Money, it has an entire section of its website dedicated to the stablecoin that explains where users can purchase it.[53]

IRON and the IRON/TITAN Collapse

In mid-June, the price of the cryptocurrency token TITAN collapsed from $60 to close to zero over just a few hours. The protocol that created the TITAN token, Iron.Finance, lost more than $2 billion in total value locked (TVL).[54] TITAN was linked to the algorithmic stablecoin IRON. IRON attempted to retain a dollar peg by relying on arbitrageurs. As Dr. Ryan Clemens writes, "If IRON lost its peg and traded below $1, an arbitrageur could purchase it on the secondary market and redeem it for $1 of combined USDC and TITAN."[55] But this worked better in theory than practice:

> "Iron Finance unraveled when the value of its unlimited supply governance token, TITAN, fell precipitously in the DeFi secondary market. Iron Finance reported that there was significant selling by certain 'whale' holders. The market for TITAN was already thin, and

> this large-value sale triggered a cascade selloff of TITAN and an IRON redemption 'negative feedback loop.' This caused the IRON token to lose its peg, which in turn 'triggered' the algorithmic minting mechanism for TITAN and an arbitrage opportunity in a resulting 'death spiral.'"[56]

Some theorized a design failure in IRON,[57] made by the largely anonymous development team, is what led to the collapse.[58] Billionaire investor Mark Cuban also lost money in this collapse, and in the wake of it, told Bloomberg that "There should be regulation to define what a stable coin is and what collateralization is acceptable".[59]

V. Stablecoins and Financial Inclusion

In a recent report, the World Economic Forum ("WEF") found that "where regulation is evenly applied, stablecoins are subject to the same adoption and inclusion hurdles as other forms of retail finance."[60] The WEF also found that stablecoins may introduce risks that include "financial failure at the stablecoin provider from illiquidity or insolvency, lost or stolen access to funds in digital wallets or exchanges, and technical failure at the underlying blockchain or smart contract levels."[61]

Because stablecoins largely cannot be exchanged for goods and services outside of the crypto ecosystem, stablecoin users still require a bank account to convert their stablecoins back to U.S. dollars. The details of Facebook's most recent cryptocurrency pilot, Novi, is an informative example, as they make it clear that Facebook understands the users of its pilot will need to have a bank, and will need to pay wire fees in some cases to withdraw their funds. The "Learn More" section of Novi's website states that users can "add money to their account with a debit card" and they can withdraw funds by "picking up cash at a nearby location or transferring it to their bank account".[62] This means that the Facebook pilot will not help the unbanked and underbanked, nor drive any new financial inclusion. Further, by utilizing banks as on- and off-ramps for the Pax Dollar, Facebook's pilot will be free riding off the banking system.

Fees to Send Stablecoins to Others Appear to Exceed Fees for Traditional Systems

Let's assume that Person A is in the United States, and wants to send $200 in the stablecoin Tether to Person B, who is in Europe. At the end of the process, Person B converts it back to Euros in order to withdraw it to their bank. ($200 was chosen because the minimum crypto withdrawal amount on Binance for stablecoins is $135). An examination of the total fees incurred by utilizing stablecoins and cryptocurrency exchanges is more expensive ($5.98 on the low end, and $86.44 in fees on the high end) than utilizing a payment system like Western Union ($4.88 in fees).[63]

Here is an estimation of the total fees buying, sending, and cashing out $200 worth of Tether would incur across exchanges:

	Western Union	Kraken	Coinbase	Binance.us to Binance.com	FTX.us to FTX.com
Fund account	Person A: $0 (ACH)[64]	Person A: $0 (ACH)[65]	Person A: $0 (ACH)[66]	Person A: $0 (ACH)	Person A: $0-$0.50 (ACH)
Convert USD to Stablecoins	n/a	0.26% or $0.52[67]	$2.99 (buy $200 Tether)[68]	0.1% or $0.20[69]	$0.20 - $0.80 (0.1% Maker fee - 0.4% Taker fee)[70]
Send to Person B	$0 (send to bank)	$20 (send to Person B on Kraken)[71]	0 - $3.60[72] Fee depends on if it's an "off-chain"[73] or "on-chain" send.[74]	$65[75]	$5.00-$10.00[76]
Convert to EUR / Sell stablecoins for EUR	n/a	0.26%[77] or $0.52	Person B: $2.99 (sell $200 Tether)	0.1% or $0.20[78]	$0.04 - $0.14
Person B sends to Bank	Person B: Receives €172.84 (1.00 USD: 0.8642 EUR)	Person B: €5-€35 (SWIFT)[79] (equiv to $5.64 - $39.50)	$0 (SEPA)[80]	Person B: (SEPA withdrawals for Binance are not available) There is a 0.05% fee to use an Etana custody account to withdraw[81]	Person B: $75 wire to withdraw to bank for amounts less than $10,000 (SEPA)[1]
Total Fees (to send $200)	$**4.88** (Western Union)	$**26.68** - $**60.54** (Kraken)	$**5.98** - $**9.58** (Coinbase)	$**66.40** (Binance)	$**80.24** - $**86.44** (FTX)

VI. Stablecoins' Role in the Cryptocurrency Ecosystem

Stablecoins are Dependent on the Existing Banking System

[1] *Depositing & Withdrawing Fiat* FTX.COM, https://help.ftx.com/hc/en-us/articles/360042050452-Depositing-Withdrawing-Fiat-. ("Fiat withdrawals below $10,000 in value will have a $75 fee. This is a fee our bank charges us. Otherwise, there are no fees.") (last visited December 13, 2021).

Because major retailers and vendors outside of the cryptocurrency ecosystem don't accept stablecoins as payments, cryptocurrency investors need a bank account to convert their stablecoins back to U.S. dollars to pay for goods and services. To obtain cryptocurrency in the first place also requires purchasing some on an exchange, and connecting that exchange to a bank, debit card, or another payment mechanism. Tim Swanson, the head of market intelligence at the blockchain firm Clearmatics, wrote that "it is clear that from trading activity and total-value-locked up (TVL), that the DeFi ecosystem (and all coin worlds really), are reliant on maintaining frictionless U.S. banking access."[82]

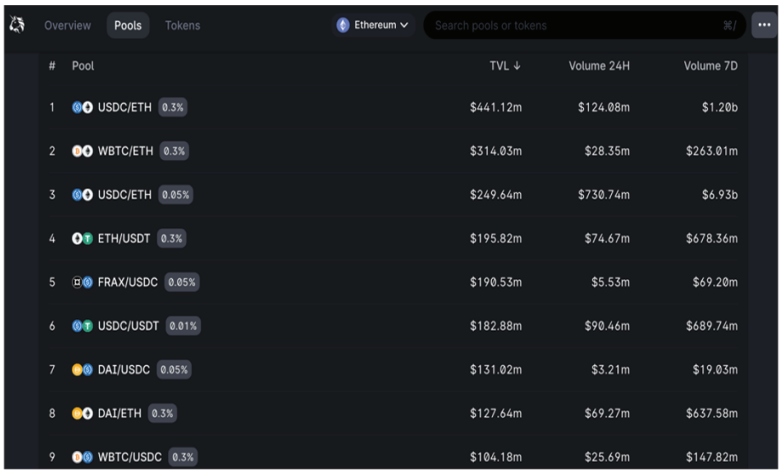
Stablecoins are Integral to DeFi

Decentralized finance of "DeFi" is marketed as purely peer-to-peer programs that operate without intermediaries.[83] However, market participants, including crypto metrics providers, have raised questions as to whether or not DeFi is truly decentralized given factors such as protocol fees, governance token control, and platform treasuries.[84] Marketing oneself as "decentralized" may be opportune from regulatory, legal and marketing standpoints; however, when crises happen that warrant quick action, many DeFi platforms take actions with many indicia of centralized control. For example: the crypto borrowing and lending platform Compound threatened to report user's income to the IRS following a bug, and Curve Finance shut down a competitors' presence on their system via an "Emergency DAO".[85]

The true size of the DeFi market remains unclear, as metrics vary wildly: crypto metrics provider Glassnode estimates there is over $248 billion locked into DeFi on the Ethereum blockchain,[86] while CoinGecko ranks it at $135.8 billion,[87] and DeFiPulse.com puts it at just shy of $100 billion.

As the President's Working Group wrote in their Stablecoin report, stablecoins "play a central role in facilitating trading, lending, and borrowing activity in DeFi." *DeFi Pulse* estimates that the total value of all stablecoins circulating on DeFi is $104.6 billions of December 12, 2021,[88] while the cryptocurrency research site *The Block* estimates the total supply of the top 8 stablecoins to be $148.45 billion.[89] This indicates that the percentage of the total stablecoin supply on DeFi is in the realm of 70 percent.

Eight out of nine of the top Liquidity Pools on Uniswap – the largest decentralized exchange – have at least one leg in a Stablecoin, as of December 13, 2021:



Uniswap's top liquidity pools, sorted by Total Value Locked ("TVL"), https://info.uniswap.org/#/pools, accessed December 13, 2021.

Finally, industry participants have noted the importance of stablecoins to DeFi. The head of policy for the Blockchain Association tweeted that "the point" of DeFi is to "let people get rid of their fiat" and that stablecoins ("a decentralized fiat instrument") are required to do so.[90]

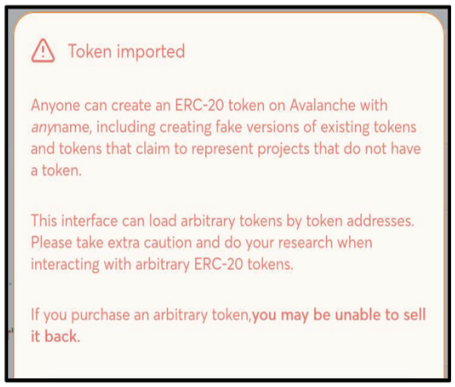
For new tokens to gain ground, users need to be able to purchase them on DeFi. Token creators enable this by creating new Liquidity Pools on platforms like Uniswap. This involves taking two tokens: (1) the new token; and (2) another token (often a stablecoin), and calling a decentralized exchange's smart contract in order to issue a new "LP token" representing those two deposits. The assets supplied to the liquidity pool enables users to swap between them. The Liquidity Provider earns a fee, but may also experience losses (which the industry calls "impermanent loss").

Investor Protection Concerns in DeFi

Given stablecoin's critical role in facilitating DeFi, it's worth briefly examining some of the investor protection concerns present in this section of crypto asset markets.

There are certain basic assumptions in traditional financial markets, including that, barring a serious liquidity crisis, you will be able to sell back a product that you buy. But in DeFi malicious actors can design tokens that can be bought, but not sold. One recent example of this phenomenon is the Squid Game token. The token gained considerable popularity following a series of uncritical headlines in the financial press, touting its 83,000% gains, all before the anonymous development team pulled all the liquidity out of the project -- causing the price of Squid Coin to plummet to zero (a technique known as a "rug pull").[91]

Scams are prevalent enough that some DeFi websites include an explicit warning on their website if you attempt to import a custom token (by searching for the token by its alpha-numeric address). For example, the Avalanche blockchain-based exchange Trader Joe displays the following warning when you import a custom token[92]:



According to the website TokenSniffer.com, which scans for new token contracts and attempts to track known scams, there are nearly one million crypto tokens (999,546) trading on DeFi. Of those, 65,654 are known scams (more than 6.5% of all tokens TokenSniffer tracks).[93]

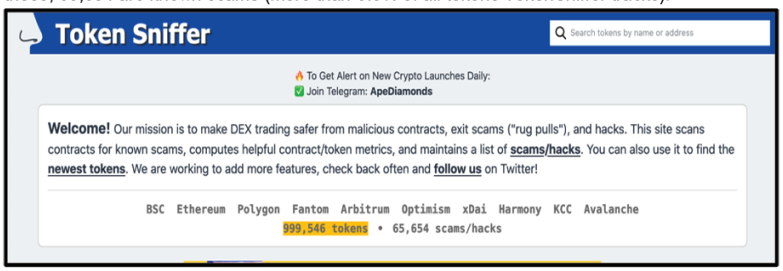


Image from TokenSniffer.com, noting 999,546 crypto tokens trading on DeFi, with 65,654 confirmed scams/hacks.[94]

VII. National Security Concerns

A report by the cryptocurrency compliance firm Elliptic, "DeFi: Risk, Regulation, and the Rise of DeCrime" outlined two of the challenges that asset-backed stablecoin issuers face when it comes to AML compliance: "First, they must ensure that the issuance of a coin is not used to directly facilitate money laundering activity. Such a situation could arise if, for example, a drug dealer were to obtain a virtual asset as a payment and then exchange that asset for a stablecoin. Likewise, the bad actor could convert fiat dollars into a gift card, and use that card to

purchase stablecoins directly from the issuer…Secondly, They should seek to understand whether the stablecoin ecosystem that they facilitate is itself being used for bad activity."[95] One of the major challenges for stablecoin issuers to ensure their stablecoins aren't facilitating illicit finance is their importance to DeFi – which raises its own concerns for ransomware and money laundering.

An October report from ("FinCEN") found that DeFi was being used to convert ransomware-related payments to other types of cryptocurrency.[96] Elliptic's DeFi report found that "DeFi presents criminals with the opportunity to launder proceeds of crime by exchanging it for other assets or hiding the blockchain money trail."[97]

A large amount of many stablecoins' supply are locked into smart contracts on DeFi – either as one (or more) leg of a liquidity pool, that allows anyone to swap from their stablecoin to another asset; or locked into crypto borrowing and lending arrangements:

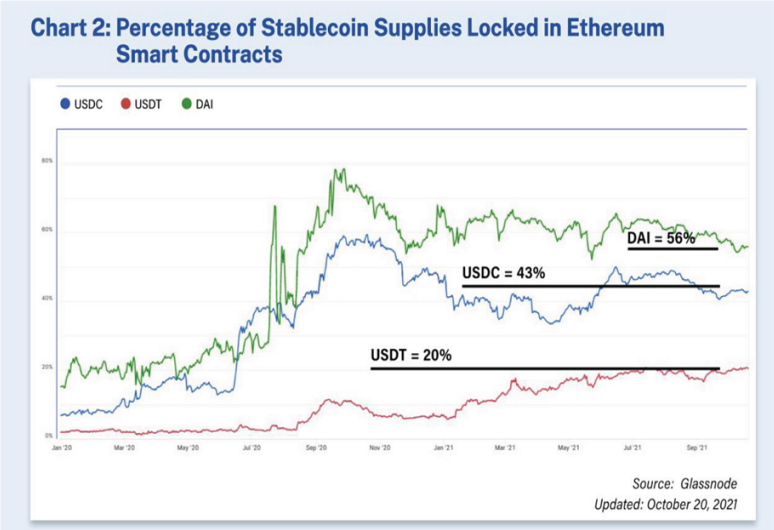


Image from the President's Working Group on Financial Markets report on Stablecoins.[98]

Smart contracts on DeFi exchanges typically do not compare the cryptocurrency addresses executing their code against the Specially Designated Nationals and Blocked Persons list ("SDN list"). Thus, stablecoins locked into Ethereum smart contracts could be helping to facilitate various forms of illicit finance, including the swapping of ransomware payments for other crypto assets.

In October, the Treasury Department's Office of Foreign Assets Control (OFAC) clarified this October that all actors in crypto asset markets are expected to comply with sanctions.[99] OFAC's

October guidance states that "[a]ll companies in the virtual currency industry, including technology companies, exchangers, administrators, miners, and wallet providers, as well as more traditional financial institutions that may have exposure to virtual currencies" should consider incorporating the controls outlined in OFAC's guidance into their sanctions compliance programs.[100] The secondary market for stablecoins, and the outsized portion of many stablecoin's supply in DeFi smart contracts, presents challenges for issuers for ensure full compliance with OFAC's October sanctions guidance and other illicit finance checks. Wherever possible, stablecoin issuers should proactively work to ensure that the stablecoins they issued aren't used for illicit finance in any part of the ecosystem – not just conduct checks at the point of issuance or redemption.

VIII. High Fees to Move and Trade Stablecoins on Ethereum

Many stablecoins utilize the Ethereum blockchain and adheres to Ethereum's ERC20 token standard, including the Pax Dollar,[101] U.S. Dollar Coin, Tether, and Binance USD. The Ethereum blockchain remains the dominant blockchain for DeFi, with an estimated 70% of all decentralized finance ("DeFi") activity, according to an analysis by JPMorgan.[102]

As many reports[103] have made clear, the Ethereum blockchain faces challenges of scalability, congestion, and extremely high fees.[104] The mean Ethereum transaction fee was $56.45 on November 11, 2021, according to metrics provider Glassnode. Fees to merely transfer a crypto asset from one wallet to another were an estimated $22 on November 5, 2021 at 6 p.m., some $54 on November 11, 2021 at 9:45 p.m, according to Etherscan.[105]

As the Ethereum network can only process approximately 30 transactions a second,[106] fees often spike to extreme levels whenever there's increased congestion, as investors become increasingly willing to pay higher fees in order to get their transaction executed by an Ethereum miner. Ethereum blockchain fees are frequently prohibitively expensive for users with smaller holdings.[107] All of this creates heightened risks for stablecoin holders in the event of a run on a stablecoin, or the loss of its peg. It's likely that the fees to move stablecoins off DeFi (or to swap them for another crypto asset) would be highest, and most regressive, at moments of volatility and crisis.

IX. Stablecoin's Ethereum Usage Raises Climate Concerns

Most major asset-backed stablecoins have a version of their token that runs on the Ethereum blockchain. Ethereum still uses "Proof of Work" to validate transactions, a type of cryptocurrency mining that creates a number of extensive climate harms, which include annual energy consumption akin to that of entire nations[108], 30,700 tons of electronic waste (computer hardware is notoriously difficult to recycle)[109] annually, higher electricity bills for residents of states with crypto mining[110], and quality of life issues[111]. More than 70 climate, economic, racial justice, business and local organizations recently wrote to Congress, asking them to mitigate the considerable contribution portions of the cryptocurrency markets are making to climate change.[112]

In addition, Proof of Work cryptocurrency mining has been exacerbating the shortages of semiconductors.[113] Senators Maggie Hassan and Joni Ernst recently introduced a bill calling on the Treasury Department to compile a report on how cryptocurrency mining operations are impacting semiconductor supply chains. It is unclear how stablecoin issuers plan to mitigate the increasing carbon footprint that follows the ongoing growth of their tokens.

Conclusion

There are many investor, national security, and usability concerns with both algorithmic and asset-backed stablecoins. Congress should continue to examine if there are regulatory gaps that require new legislation to ensure consumer and investor protection as it relates to stablecoins, and regulators should continue to monitor stablecoins and ensure compliance with existing laws.

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PREPARED STATEMENT OF JAI MASSARI

PARTNER, DAVIS POLK & WARDWELL, L.L.P.

DECEMBER 14, 2021

Chairman Brown, Ranking Member Toomey, and Members of the Committee, thank you for inviting me to speak today on this interesting and complex topic.

Since the earliest days of our Nation, as our economy has grown and transformed, so too has our understanding of money. The dramatic changes we are all familiar with have seen purses of gold and silver coins eventually replaced by wallets holding State and later national bank notes, then Federal Reserve notes alongside checkbooks tied to demand deposits, followed by the proliferation of credit and debit cards, and more recently the swift rise of payment apps.

Like the innovations in public and private money that preceded them, stablecoins squarely present the same core regulatory concerns as earlier forms of money—those of consumer protection, systemic stability, safety and soundness, and combating illicit finance. But with thoughtful regulation, stablecoins can perhaps offer benefits over the technologies that came before, including lower costs, faster services, new services made possible by programmability, opportunities to expand financial inclusiveness, greater traceability, and the potential for enhanced operational resiliency through the use of distributed networks.

The Committee is today asking the key questions: how do stablecoins work; how are they used now and how will they be used in the future; and what are the resulting risks? To this, I would add: what are the potential benefits? The answers to these questions form the basis for understanding how stablecoin activities should be regulated.

U.S. regulators have made important progress in examining these questions. As you know, the President's Working Group on Financial Markets (PWG) published a policy statement on stablecoins in 2020.[1] Along with the FDIC and OCC, the PWG also published a report last month on Federal regulation of the issuance of stablecoins and related stablecoin activities.[2] Indeed, regulators around the world have been thinking about these questions in earnest since 2019.[3]

I'll focus my comments today on "true" or "payment" stablecoins as described in the PWG Report.[4] As I've written previously,[5] true stablecoins are non-interest bearing financial instruments designed to maintain a stable value against a reference fiat currency—say one dollar. This reference value is also referred to as the stablecoin's par value. A well-designed stablecoin typically holds its value through a pair of promises. First, the stablecoin issuer agrees to sell and buy them back at par value (perhaps for a fee). Second, the issuer agrees to hold a pool of safe assets—the "reserve"—that has an aggregate market value at least equal to 100 percent of the aggregate par value of the stablecoins. Such a reserve is designed to back the issuer's obligation to repurchase stablecoins at par, and is replenished with the proceeds of stablecoin sales.

The reserve is meant to ensure that the issuer can always redeem outstanding stablecoins at their par value on demand. For this reason, reserve assets of a well-

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[1] President's Working Group on Financial Markets, Statement on Key Regulatory and Supervisory Issues Relevant to Certain Stablecoins (Dec. 2020), *https://home.treasury.gov/system/files/136/PWG-Stablecoin-Statement-12-23-2020-CLEAN.pdf*.

[2] President's Working Group on Financial Markets, The Federal Deposit Insurance Corporation, and The Office of the Comptroller of the Currency, Report on Stablecoins (Nov. 2021), *https://home.treasury.gov/system/files/136/StableCoinReport-Nov1-508.pdf* [hereinafter "PWG Report"].

[3] E.g., Bank for International Settlements Committee on Payments and Market Infrastructures and Board of the International Organization of Securities Commissions, "Application of the Principles for Financial Market Infrastructures to Stablecoin Arrangements" (Oct. 2021); Financial Stability Board, "Regulation, Supervision and Oversight of 'Global Stablecoin' Arrangements" (Oct. 2020); G20 Finance Ministers and Central Bank Governors Meeting, G20 Press Release on Global Stablecoins (Oct. 2019); Financial Stability Board, "Regulatory Issues of Stablecoins" (Oct. 2019); G7 Working Group on Stablecoins, "Investigating the Impact of Global Stablecoins" (Oct. 2019).

[4] PWG Report, supra n. 2, at 2 (defining "payment stablecoins" as "those stablecoins that are designed to maintain a stable value relative to a fiat currency and, therefore, have the potential to be used as a widespread means of payment"). While there are many different types of stablecoins, including algorithmic stablecoins and stablecoins pegged to gold and other real assets, assessing the regulatory treatment of true stablecoins is an appropriate priority given their potential to play a wider role in consumer and business payment activities outside of cryptocurrency trading. Id. From here, any references to "stablecoins" throughout this written statement mean "true stablecoins" or "payment stablecoins."

[5] Christian Catalini and Jai Massari, "Stablecoins and the Future of Money", *Harv. Bus. Rev.* (Aug. 10, 2021), *https://hbr.org/2021/08/stablecoins-and-the-future-of-money*.

designed stablecoin would consist of cash and genuine cash equivalents, such as bank deposits and short-term U.S. Government securities. This should enable the reserve to remain liquid even during stressed market conditions, minimizing the risk of loss if large numbers of stablecoin holders seek redemptions at once.[6]

The insight underlying a true stablecoin is not new. It's instead a form of "narrow bank"—a concept that has been in the public discourse since at least the Great Depression.[7] Narrow banks sometimes have not been considered as economically useful as fractional reserve banks. This is because they do not engage in maturity and liquidity transformation—that is, using short-term deposits to make long-term loans and investments—which is the core function of modern banking and the lifeblood of the real economy.[8] But because narrow banks do not engage in maturity or liquidity transformation, they are generally considered safer than fractional reserve banks. We tolerate the risk traditional banking activities impose on the economy because of the benefits.

While stablecoin issuers have structural similarities to narrow banks, they provide potential new benefits that are worth recognizing. The basic business model for a stablecoin is to serve as a payment instrument. Today, stablecoins are used primarily in connection with cryptocurrency trading and decentralized finance (DeFi) applications.

For the moment, therefore, they are largely on the margins of the banking system and the real economy.

Some, however, view stablecoins as having a potentially broader use in retail payment services.[9] Payments using blockchain rails would complement existing payment systems grounded in the traditional banking sector such as cash, checks, credit and debit cards, and wire transfers. These incumbent technologies offer varying benefits and drawbacks. As stablecoins begin to play a role in retail payment transactions, they offer a way to decouple payment services from credit services, presenting us with the potential for increased competition from new entrants, expanded services, lower costs for consumers and greater opportunities for financial inclusion.

Particularly if they begin to realize this potential, and even more so if they approach systemic scale, stablecoins should be regulated in a manner that addresses the risks they present, which U.S. regulators have identified. As set out in the PWG Report, these include the risk of runs on poorly designed reserves, risks associated with the operation of payment systems generally, risks of scale, and risks arising from regulatory gaps.[10]

There already appears to be broad agreement among U.S. policymakers, regulators, and the industry on the general principles of stablecoin regulation. Regulation of stablecoin issuers should include restrictions on permissible types of reserve assets to ensure sufficient short-term, liquid backing; auditing and transparency standards so regulators and the public can evaluate reserve composition; restrictions that preclude maturity and liquidity transformation activities in order to shield reserve assets from the associated risks; obligations to address illicit financing and sanctions considerations; and requirements to address operational risks arising from settling transfers on blockchain networks. U.S. financial regulators have addressed these topics before and, with Congressional guidance, can do so again.

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[6] Today, reserve assets vary among stablecoin issuers. For most U.S. dollar stablecoin issuers, their reserves are legally constrained by requirements under existing State money transmitter laws, with some making public commitments to maintain their reserves only in cash and genuine cash equivalents.

[7] E.g., Paul H. Douglas et al., "A Program for Monetary Reform", (1939) (outlining the Chicago Plan), *https://www.monetary.org/pdfs/a-program-for-monetary-reform.pdf*; Milton Friedman, "A Program for Monetary Stability" (*Fordham Univ. Press* 1992); Ronnie J. Phillips, "The 'Chicago Plan' and New Deal Banking Reform", Working Paper No. 76 (June 1992), *https://www.levyinstitute.org/pubs/wp/76.pdf*; Jaromir Benes and Michael Kumhof, "The Chicago Plan Revisited", IMF Working Paper (2012), *https://www.imf.org/external/pubs/ft/wp/2012/wp12202.pdf*. Some banking historians have argued that the concept of narrow banks has even deeper roots, tracing back to deposit banks in Medieval Europe and Rome, which were what we would call custody banks today.

[8] E.g., Kenneth J. Arrow, "The Organization of Economic Activity: Issues Pertinent to the Choice of Market Versus Non-Market Allocation", in *Joint Economic Committee of the Congress of the United States, the Analysis and Evaluation of Public Expenditures: The PPB System* 48 (1969) ("The creation of money is in many respects an example of a public good").

[9] See, e.g., PWG Report, supra n. 2, at 8 ("Beyond digital asset trading, several existing stablecoin issuers and entities with stablecoin projects under development have the stated ambition for the stablecoins they create to be used widely by retail users to pay for goods and services, by corporations in the context of supply chain payments, and in the context of international remittances.").

[10] PWG Report, supra n. 2, at 12–14.

However, requiring stablecoin issuers to be insured depository institutions (that is, insured banks)—as suggested in the PWG Report—is not necessary and, unless certain adjustments are made, is not workable. I will explain why.

An insured-depository requirement is unnecessary because stablecoins can be structured and regulated to avoid the risks that require deposit insurance and the application of traditional banking oversight in the first place. Banks—by design—are in the business of maturity and liquidity transformation. Banks take in deposits that can be withdrawn on demand, against which they hold some short-term liquid assets, like cash in a Federal Reserve Bank account, but more importantly they hold long-term, relatively illiquid assets, like 30-year mortgages and long-term corporate loans. This activity creates economic value in the form of increased money supply and credit.

But it also creates run risk and the need for deposit insurance.[11] Limiting stablecoin reserves to short-term, liquid assets, and requiring the market value of those reserves to be no less than the par value of stablecoins outstanding, is an alternative way to avoid run risk—as U.S. policymakers have recognized since at least the 1930s.[12]

An insured-depository requirement is unworkable, without adjustments to the existing bank regulatory framework, because banks are subject to leverage and risk-based capital ratios that are calibrated based on the assumption that a majority of their assets are relatively illiquid and riskier than cash and genuine cash equivalents. Leverage ratios, in particular, are designed to backstop risk-weighted capital requirements. They treat cash and cash equivalents as if they had the same risk-and-return profile as long-term consumer and business debt, which they do not.

To take an example, a stablecoin issuer subject to a 4 percent leverage ratio would need to hold $104 billion of cash and genuine cash equivalents against $100 billion of circulating stablecoins—$100 billion backing the stablecoins on a dollar-for-dollar basis and a cushion of $4 billion of required capital in the form of shareholders' equity. A bank that engages in customary lending activities, such as credit card, real estate, and business lending, is able to price its loan products to cover the cost of the required capital and still make a reasonable return. A stablecoin issuer, whose assets may be limited to zero-to-low interest paying cash and genuine cash equivalents such as bank deposits and short-term U.S. Government securities, has no such ability. Therefore, unless Congress recalibrates the ratios to reflect the lower risk-and-return profile of stablecoin issuers who limit their reserve assets to cash and genuine cash equivalents, the stablecoin business model would be uneconomic for an insured depository institution—except perhaps as a sideline for a large, diversified financial services provider.

How, then, should stablecoins be regulated? Today, U.S. stablecoin issuers and digital wallet service providers are largely regulated by the States under money-transmitter regimes and trust-company authorities. New York regulates stablecoin activities under its special-purpose virtual currency licensing program, known as the BitLicense.[13] Wyoming has developed its own special-purpose bank license to accommodate cryptocurrency custody and payments activities.[14] The innovative work of State regulators has already played a key role in the expansion of stablecoin activities.

There is at present some Federal regulation of stablecoin activities. U.S. stablecoin issuers and digital wallet providers are, for example, subject to the Bank Secrecy Act's anti- money laundering requirements as money services businesses registered with FinCEN, the U.S. Treasury's Financial Crimes Enforcement Network.

But an expanded Federal role may well be appropriate and useful. This could include an optional Federal charter for stablecoin issuers that would preempt the need for State-by-State licensing in return for supervision by Federal regulators. A new and well-designed Federal charter could accommodate a business model premised on the issuance of stablecoins fully backed by short-term, liquid assets and the provision of related payments services. This charter could impose requirements for reserve asset composition while tailoring leverage ratios or risk-based capital require-

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[11] E.g., Douglas W. Diamond and Philip H. Dybvig, "Bank Runs, Deposit Insurance, and Liquidity", 91 *J. Pol. Econ.* 401 (1983) ("It is precisely the 'transformation' of illiquid assets into liquid assets that is responsible both for the liquidity service provided by banks and for their susceptibility to runs.").

[12] Douglas, Friedman, Phillips, Benes, and Kumhof, supra n. 7; See also, Davis Polk & Wardwell LLP, "U.S. Regulators Speak on Stablecoin and Crypto Regulation", (Nov. 12, 2021), at n. 12–13 and accompanying text, *https://www.davispolk.com/insights/client-update/us-regulators-speak-stablecoin-and-crypto-regulation.*

[13] 23 NYCRR Part 200.

[14] HB0074, Special Purpose Depository Institutions, 2019 *Wyo. Sess. Laws* 328.

ments and other requirements to the nature of the business model. And it could restrict the stablecoin issuer from engaging in riskier activities, to minimize other claims on reserve assets. This option would likely be welcomed by many stablecoin issuers even though it would entail comprehensive Federal oversight.

I would like to close by thanking the Committee for its focus on these important issues. The Committee's work today in understanding how stablecoins work, how they can be used, and the risks they present is indispensable to developing a resilient regulatory framework. While I do not believe that stablecoin issuers should be limited to insured depository institutions, I strongly support commonsense regulation of stablecoins and their issuers in a way that takes account of their benefits and risks. And I am optimistic that there is much common ground among innovators, policymakers, regulators, and the public on these questions. This common ground can pave the way for a regulatory approach that safeguards consumers, the financial system and the broader economy, while continuing to promote innovation in this exciting and promising new financial technology.

I am happy to answer questions.

PREPARED STATEMENT OF DANTE DISPARTE

CHIEF STRATEGY OFFICER AND HEAD OF GLOBAL POLICY, CIRCLE

DECEMBER 14, 2021

Chairman Brown, Ranking Member Toomey, Members of the Senate Committee on Banking, Housing, and Urban Affairs, thank you for the opportunity to share my testimony with you today.

My name is Dante Disparte and I am the Chief Strategy Officer and Head of Global Policy for Circle, a leading digital financial services firm and the sole issuer of USD Coin, or USDC—a dollar digital currency supporting the extensibility of the U.S. Dollar in a competitive, always-on global economy.

Having recently completed my 3-year term on the Federal Emergency Management Agency's National Advisory Council, and being no stranger to disaster displacement and hardship, I want to acknowledge the communities affected by last week's devastating storms. Indeed, as this disaster and others have shown, with the movement of financial aid and disaster relief, when speed matters most, friction stands in the way.

As a country, we have faced a Great Depression, a Great Deleveraging and in 2020 with the onset of the COVID–19 pandemic, we faced nothing short of a Great Correction. In this correction, the centrality of technology for any semblance of political, business, economic, and household continuity was laid bare. What was also clear is that access to the internet and other digital public goods was unequal. How we engage with money and payments in digital form was clearly an area of prepandemic vulnerability in the U.S. and around the world.

The advent of stablecoins or what we like to refer to as dollar digital currencies like USDC, are an important innovation enabling greater control over how we send, spend, save, and secure our money. To define a stablecoin—noting that, like money itself, not all of these innovations are created equal—is tantamount to the moment we converted our compact discs (CDs) into MP3s. The CD and music is still yours, but now enjoys the powers of programmability, user control, and a digitally native form factor that works anywhere, on any device, across the planet.

Stablecoins, in effect, are designed to reference and import the economic properties of an underlying asset. By circulation the most successful of which all reference the dollar, with the economic aim of combating the "buyer's and spender's remorse" that plagued early cryptocurrencies. USDC is a now 3-year old dollar digital currency standing at more than $40 billion in circulation and cumulatively supporting more than $1.4 trillion in on-chain transactions, in a manner that enhances financial inclusion, responsible innovation and integrity. Critically, the dollar-denominated assets backing USDC, which are strictly cash and short-duration U.S. Treasuries of 90 days or less, are all held in the care, custody and control of U.S. regulated financial institutions.

Indeed, as this internet-native financial infrastructure continues to grow, we aim to do our part ensuring the future of payments and money is more inclusive than the past. Our recently announced Circle Impact initiative has four core components, each of which is close to home for me having grown up in poverty and being a first generation high school and college graduate.

These include:

- Allocating a share of USDC dollar reserves to Minority Depository Institutions (MDIs) and community banks across the country. We hope this will accrue to

billions of dollars over time, strengthening the balance sheet of these banks and, thereby, strengthening their communities.

- Embarking on Digital Financial Literacy initiatives together with Historically Black Colleges and Universities (HBCUs) and other partners supporting the development of essential learning and hands-on approaches to entrepreneurialism.
- Leveraging our SeedInvest platform, which is one of the Nation's leading equity crowdfunding businesses, to catalyze targeted campaigns for women and minority entrepreneurs across the country.
- Assisting humanitarian interventions and coordinating public–private partnerships to mobilize blockchain-based payments and USDC to deliver corruption-resistant, real-time aid and relief.

Because nothing worth doing is worth doing alone, our hope is to catalyze uncommon coalitions on these initiatives, which are deeply connected to our mission of raising global economic prosperity through the frictionless exchange of financial value.

While some argue the U.S. may lose the digital currency space race if it fails to issue a Central Bank Digital Currency (CBDC). I argue that we are winning this race because of the sum of free market activity taking place inside the U.S. regulatory perimeter with digital currencies and blockchain-based financial services. The sum of these activities are advancing broad U.S. economic competitiveness and national security interests.

Thank you again Chairman Brown and Ranking Member Toomey for the opportunity to speak with you today. I look forward to addressing the Committee's questions.

Reflections on the Policy Environment

With the emergence of digital currency innovations as important financial markets infrastructure, Circle has continued to prioritize engagement with U.S. State, Federal, and international regulators and policymakers. This culminated with the President's Working Group on Financial Markets report on stablecoins (PWG), which highlighted the recommendation that stablecoin arrangements be managed by insured depository institutions. The report goes on to raise a number of other potential risks to financial markets and consumers, which Circle has prioritized satisfying. It is important to note that the most enduring financial markets policies espouse a same risk, same rules technology-neutral approach to regulation. With the advent of digital assets, it is important to also look at the economic behavior of the digital asset or token.

Indeed, well before the PWG issued its recommendations, Circle announced its intention to become a federally chartered commercial bank. In the interim, USDC in circulation and the appropriate consumer protection, financial crime compliance and other standards are governed on a level footing to other major U.S. payments companies. One core difference, however, is that payments companies tend to build payment systems on proprietary technology, which creates a walled garden environment and often exacts the highest fees from those who can least afford it. Circle's approach, on the other hand, is to build on public blockchain infrastructure and in accordance with open source technology standards. This not only promotes innovation and competition, it promotes interoperability across payment systems, akin to how email networks work across platforms and service providers. Imagine how usable a Gmail account would be if Gmail could not send a message to a Hotmail user or a Yahoo account? Many of the world's payment networks labor under this walled garden challenge where the cost of interoperability, speed and distance traveled draw close parallels to pre-internet telecommunications networks.

Along these lines, Circle's services and USDC in particular, are increasingly being leveraged as a pro-competition open medium of exchange based on the U.S. dollar being the currency of the internet. Major credit card companies, small businesses, remittance companies, and many others, are making USDC a native settlement option for their businesses. This in turn is increasing market optionality with payments, while building a bridge between digitally native financial services and real-world use cases. One recent example is the enablement of USDC as a settlement option on the MoneyGram network leveraging the Stellar blockchain as open financial infrastructure.

Some digital currency projects may resemble monetary airline miles, which are usable only if you wish to travel on a specific, closed network or if you were born in the "right" postal code. The structure of USDC and other Circle services based on public blockchain networks, promotes wide adoption, network effects and much needed price competition and interoperability, all without sacrificing requirements to protect the integrity of the financial system. Over time, important companion in-

novations in the digital identity domain will ensure privacy preserving approaches to financial access and novel internet-native financial markets based on digital currencies and blockchains can continue to grow.

In an always-on global economy, markets and people's financial needs do not take bank holidays. The advent of trusted digital currencies like USDC are enabling a wide range of use cases, including supporting cross-border remittances such as the MoneyGram example mentioned above. Remittances are the veritable flywheel of the global economy and are typically recession resistant money flows. However, with the onset of the COVID–19 pandemic, global remittance flows may have lost up to $200 billion in volume according to the World Bank (down from more than $700 billion prepandemic) due to the double-jeopardy of economic slowdowns, as well as the void of open payment networks. Digital currencies and the corresponding blockchain-based financial services ecosystem are beginning to fill this void as more than 200 million people worldwide (and more than 20 million) in the U.S. adopt these services.

Another use case in keeping with lower cost peer-to-peer payments and remittances, is the use of USDC and blockchain-based payments for disbursing aid and humanitarian relief. Moving physical cash into a humanitarian setting may often be a honey pot for corruption, bribery, and fraud due to the limited traceability of physical money. The auditing fidelity of blockchains and the trust and price parity to the dollar of USDC can be used to support corruption-resistant, real-time relief payments. A successful program supporting doctors in Venezuela is emblematic of the opportunity for faster aid, development, and humanitarian support using digital currencies.

Micropayments and programmable money, which are elusive but needed areas in our economy, are also made possible with dollar digital currencies and blockchain-based transaction ledgering. By prevailing payment standards, it often costs more to send a small amount of money than the sum of money sent. Micropayments for example for a freelance journalist who can accrue payments for each "like" of their article becomes a possibility with the increasingly widespread use of USDC for high-trust low-friction internet commerce and payments. Indeed, the bootstrap use case of USDC supporting the growth of digital asset market activity has satisfied exacting performance and operational standards.

In terms of market trust, transparency and accountability, Circle has consistently and voluntarily reported on the status of dollar-denominated reserves and their sufficiency to meet demands for USDC outstanding. This has been done with third party attestations from a leading global accounting firm. Circle has also prioritized building, designing, and guarding the prudential standards for USDC inside of and conforming with prevailing U.S. regulatory standards that apply to leading fintech and payments firms such as PayPal, Square, Venmo and Stripe, among others.

Since its inception, USDC has always been easily redeemable and most redemptions happen speedily. Additionally, given the growing integration as a settlement option in leading merchant and credit card networks, the use of USDC in its digitally native form for the procurement of goods and services remains a growing use case. The first USDC stablecoin was minted in September 2018. Since then, $95,976,829,528.16 have been issued and, as of December 1, 2021, $57,129,781,321.95 have been redeemed. This demonstrates a vibrant market is evolving around the use of USDC for payments, as well as a well functioning on and off ramp supporting redemption requests.

The extensibility of the U.S. Dollar as the reference currency of the internet is not a zero-sum proposition. As and when the potential for a CBDC becomes a possibility in the U.S. (notwithstanding some of the potential design risks and drawbacks), the experience, transaction throughput, and openly competitive market powered by dollar digital currencies and blockchains, will be a useful pathway for future upgradability. In short, it is better to get it right, than to get it fast. The same also holds true with acknowledging that most "value added" money in circulation today, whether enshrined on a plastic card or stemming from the money creation of the fractional reserve banking system, is in fact privately issued. The advent of dollar digital currencies like USDC inherit, are answerable and additive to U.S. monetary, regulatory, and compliance policy.

Emerging policy and regulation for the future growth of stablecoins and the digital assets market in the U.S. should aspire to do no harm, spur responsible financial services innovation, and recognize the importance of U.S. States for being our fintech innovation labs. One challenge however, is that the States are not often represented in global macroprudential and regulatory bodies such as the Bank for International Settlements (BIS), the Financial Action Task Force (FATF), among others.

Harmonizing a broad U.S. approach to digital assets and competition in the digital currency space race, can improve U.S. competitiveness, security, and lower fundamental costs for basic financial access.

PREPARED STATEMENT OF HILARY J. ALLEN

PROFESSOR, AMERICAN UNIVERSITY WASHINGTON COLLEGE OF LAW

DECEMBER 14, 2021

Hearing on
"Stablecoins: How Do They Work, How Are They Used, and What Are Their Risks?"
Before the U.S. Senate Committee on Banking, Housing, and Urban Affairs

Tuesday, December 14, 2021

Prepared Statement

Hilary J. Allen
Professor of Law
American University Washington College of Law

Chairman Brown, Ranking Member Toomey, and Members of the Committee:

Thank you for inviting me to testify at today's hearing. My name is Hilary Allen, and I am a Professor of Law at the American University Washington College of Law. I teach courses in corporate law and financial regulation, and my research focuses on financial stability regulation. I have authored several law review articles about fintech and financial stability, and I have also written a book, *Driverless Finance: Fintech's Impact on Financial Stability*, that explores the threats that crypto and other fintech innovations pose for our financial system. Much of my testimony is drawn from this book.

Prior to entering academia, I spent seven years working in the financial services groups of prominent law firms in London, Sydney and New York. In 2010, I worked with the Financial Crisis Inquiry Commission, which was appointed by Congress to study the causes of the financial crisis of 2007-2008.

I am not testifying on behalf of the Washington College of Law or any other institution; the views expressed here are entirely my own.

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1. Executive Summary

The rise of crypto poses very real risks for financial stability, which I have explored at length in research that I would be happy to share with the Committee.[1] In considering its response to crypto, I submit that Congress's most important goal should be to ensure that crypto does not cause a financial crisis. Proponents of crypto often cite the industry's potential to create jobs and improve financial inclusion, but financial crises destroy jobs and exacerbate inequality – including for people who never invested in crypto in the first place.

A "stablecoin" is a relatively new form of crypto asset. Stablecoins try to avoid the volatility associated with cryptocurrencies like Bitcoin by pegging their value to the US Dollar (or some other fiat currency). In November of this year, the President's Working Group on Financial Markets released a report on stablecoins (the "PWG Report") that identified a number of risks associated with stablecoins, and made three recommendations for addressing those risks. The PWG Report's first recommendation reads as follows:

> ***To address risks to stablecoin users and guard against stablecoin runs****, legislation should require stablecoin issuers to be insured depository institutions, which are subject to appropriate supervision and regulation, at the depository institution and the holding company level.*[2]

In this statement, I will set out why I share the PWG's general concerns about crypto and financial stability, but disagree with this specific recommendation. In short, stablecoins are not really being used to make payments for real-world goods and services. Instead, the primary use of stablecoins is to support the DeFi ecosystem. DeFi is a type of shadow banking system with fragilities that could – if DeFi reaches significant scale – disrupt our real economy. If lawmakers and regulators treat stablecoins as regulated banking products, that will lend legitimacy to and inspire confidence in stablecoins in a way that is likely to turbocharge the growth of DeFi. While stablecoins do have structural fragilities that may make them vulnerable to runs, the incidence and costs of stablecoin runs can be addressed by other policies that are less likely to encourage the growth of DeFi.

At the conclusion of this statement, I will summarize some of the policy options available to Congress in responding to stablecoins. These policy options range from an outright ban on stablecoins, through a licensing regime for stablecoins, to a multifaceted approach that uses aspects of securities law, antitrust, financial stability regulation, and banking law to respond to stablecoins' risks. While any regulation will inevitably create some barriers to innovation, this is a necessary trade-off when dealing with money and finance. Use cases for stablecoins and DeFi are often explained with analogies to other digital services – "send money as easily as sending a photograph", or "send money just like sending an email" – but these analogies underestimate the stakes involved. Because money and finance are the lifeblood of our economy, finance has always been highly regulated in a way that Kodak's provision of photographs, and FedEx's delivery of couriered letters, never were.

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[1] See, for example, *Driverless Finance,* 10 Harv. Bus. L. Rev. 157 (2020); *Payments Failure*, 62 B.C. L. Rev. 453 (2021); DRIVERLESS FINANCE: FINTECH'S IMPACT ON FINANCIAL STABILITY, Oxford University Press (2021).

[2] President's Working Group on Financial Markets, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency, REPORT ON STABLECOINS, 2 (November 2021).

2. Introduction

Today's hearing is about stablecoins, how they work, how they are used, and their associated risks. A stablecoin is a new type of digital asset that is designed to have a value that is more stable than cryptocurrencies like Bitcoin, which are notoriously volatile (as a result, Bitcoin has never been useful as money or as a payments mechanism, even though it remains a popular investment). There are different ways that the creators of stablecoins seek to stabilize their value. The most widely-used stablecoins are backed by a reserve of real-world assets. This asset reserve is intended to inspire confidence in stablecoin holders that they will be able to redeem their stablecoin at any time at a rate that is pegged to the US Dollar (or some other fiat currency). There are also algorithmic stablecoins which rely on computer programs to adjust the supply of the stablecoins to keep the value stable in the face of demand.[3] Algorithmic stablecoins have not yet experienced significant uptake and so they are not the focus of my testimony (although they should still be on regulators' radar). The focus of my statement is on stablecoins backed by reserves, and how they are being used. Importantly, these stablecoins are not currently being used to pay for real-world goods and services in any meaningful way. Instead, their primary use is in the "decentralized finance" or "DeFi" ecosystem.[4] I will explain DeFi in more detail in Section 4; for now, it suffices to say that DeFi creates digital versions of existing financial services like loans.

There are many different types of risks associated with stablecoins, and the DeFi ecosystem in which they are primarily deployed. There are risks for investors, whose investments may be vulnerable to fraud, hacks, and glitches; these risks are best addressed by the SEC and CFTC. Then there are risks that stablecoins could thwart public policy objectives, if they are used for money laundering or to avoid tax obligations or sanctions – FinCEN, the IRS, and OFAC are pursuing these issues. This statement, however, will focus on the risks that stablecoins and DeFi pose for financial stability. I will therefore start by elaborating on what "financial stability" is, and why financial stability regulation is important.

Financial stability regulation aims to prevent or mitigate financial crises, and so it must ensure that the financial system is robust enough to absorb future shocks. While some people have already forgotten the cost of the financial crisis of 2008, for others, the trauma of losing jobs and homes is still with them. Furthermore, the wealth disparities exacerbated by the 2008 crisis persist: for most middle-class families, their net worth in 2017 remained lower than it had been in 2007.[5] These disparities were even more pronounced for middle class African American and Hispanic

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[3] On algorithmic stablecoins, *see* Ryan Clements, *Built to Fail: The Inherent Fragility of Algorithmic Stablecoins*. 11 WAKE FOREST L. REV. ONLINE 131 (2021) (available at http://www.wakeforestlawreview.com/2021/10/built-to-fail-the-inherent-fragility-of-algorithmic-stablecoins/).

[4] "At the time of publication of this report, stablecoins are predominantly used in the United States to facilitate trading, lending, and borrowing of other digital assets." PWG Report, *supra* Note 2 at 8. *See also* the Bank for International Settlements finding that "The growth of stablecoins has been exponential since mid-2020, when DeFi activities started to take off." Sirio Aramonte *et al.*, *DeFi Risks and the Decentralization Illusion*, BIS QUARTERLY REVIEW, 25 (Dec. 2021).

[5] Nelson D. Schwartz, *The Recovery Threw the Middle Class Dream Under a Benz*, N.Y. TIMES, Sept. 12, 2018, https://www.nytimes.com/2018/09/12/business/middle-class-financial-crisis.html.

families.[6] In short, the harm of the 2008 crisis fell disproportionately on the most vulnerable members of society. While supporters of crypto regularly cite its ability to create jobs and promote financial inclusion, a crypto-inspired financial crisis would destroy these, and more.[7]

To be clear, financial stability regulation does *not* aim to eliminate all risks from the financial system. Instead, the focus of financial stability regulation is on eliminating *systemic* risks that could compromise the ability of financial institutions and markets to perform the risk management, capital intermediation and payments processing functions necessary for broader economic growth.[8] In short, the endgame of financial stability regulation is sustainable economic growth, and ensuring the stability of financial markets and institutions is a means to that end. In the context of stablecoins and DeFi, this means that financial stability regulation should focus on protecting everyone who could be harmed by the impact of stablecoins and DeFi on our broader economy – especially those have chosen not to invest in stablecoins or DeFi, but could nonetheless be harmed by fallout from a crypto market failure.

There is significant uncertainty about how the markets for stablecoins, DeFi, and other crypto applications will develop. One possible response when faced with uncertainty is to wait and see what will happen. However, given the potential harm that crypto could cause for the broader economy, "wait and see" is not good policy. It is therefore commendable that the PWG has proactively engaged with the risks that stablecoins might pose for financial stability, and that Congress is proactively contemplating legislation on this issue. However, in my view, the PWG's recommendation that Congress enact legislation requiring "stablecoin issuers to be insured depository institutions" reflects an approach that is too microprudential in nature.

"Microprudential" regulation describes regulation that focuses on the stability of individual institutions, on the assumption that if an institution is stable, the financial system as a whole will benefit.[9] The PWG Report proceeds from the view that as long as there's no run on an individual stablecoin, then that will benefit financial stability. An important lesson from the financial crisis of 2008, though, is that financial stability regulation should be "macroprudential" in orientation, meaning that we should think through the systemic consequences of regulatory decisions[10] – for example, that microprudential regulation of stablecoins could fuel the growth of destabilizing DeFi. Macroprudential regulation also requires collaboration among regulators overseeing different parts of the financial system, with different perspectives on "how different developments fit together and where the unseen risks might be hidden."[11] In my statement today, I will highlight

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[6] *Id.*

[7] A recent research paper found that "inequality rises following recessions and that rapid credit growth in the run up to a downturn exacerbates that effect…These links between inequality, credit and downturns are particularly significant for recessions associated with financial crises." Jonathan Bridges *et al.*, *Credit, Crises and Inequality*, Bank of England Staff Working Paper No. 949 (Nov. 2021) (available at https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2021/credit-crises-and-inequality.pdf?la=en&hash=9FC00E0CEA234D1E2C7C34A589A64183294F8FD6).

[8] For further discussion of financial stability as a regulatory goal, *see* Hilary J. Allen, *Putting the "Financial Stability" In Financial Stability Oversight Council*, 76 OHIO ST. L. J. 1087, 1098 *et seq.* (2015).

[9] For a discussion of macroprudential and microprudential approaches to regulation, *see* Armour *et al.*, PRINCIPLES OF FINANCIAL REGULATION (2016) 416-18.

[10] *Id.*

[11] Martin Hellwig, *Financial Stability and Monetary Policy*, 20 (Aug. 2015) (available at https://www.coll.mpg.de/pdf_dat/2015_10online.pdf).

the dangers inherent in taking too microprudential an approach to regulating stablecoins, and suggest alternative policy responses that are informed by securities law, antitrust, and financial stability regulation, as well as banking regulation.

3. Stablecoins and financial stability

The PWG Report considers a number of risks associated with stablecoins, including the potential for runs on stablecoins. Put simply, a "run" is a self-fulfilling prophecy that arises when the holders of a seemingly safe asset start to lose confidence that they will be able to withdraw or redeem that asset at the expected value when they need to. Fearing the worst, they seek to withdraw or redeem the asset early – which means that the issuer of the purportedly safe asset has to sell off assets in order to raise enough cash to satisfy the withdrawal/redemption requests. Because the issuer has to sell quickly, assets are often sold at a discount, which depresses the price of the issuer's portfolio of assets and may ultimately drive the issuer into insolvency.

The paradigmatic example of this is a bank run, which occurs when panicking bank depositors seek to withdraw all of their funds from a bank, forcing that bank (which has invested the depositors' funds in long-term assets like loans) to start selling assets at a discount to raise the funds necessary to meet withdrawal requests. If the bank's assets shrink so much – as a result of these discounted fire sales – that the bank's liabilities outnumber its assets, the bank will fail, and then it will be unable to perform its usual functions of managing risk, intermediating capital, and facilitating payments for its customers. Furthermore, the discounted fire sales will not only affect the bank experiencing the run; they will also affect the market price of the assets that are sold, which (in a vicious cycle) can threaten the solvency of other institutions that have invested in similar assets.

In short, runs can cause financial stability problems in two ways: they can deprive the economy of capital intermediation services on which it relies, and they can ignite fire sales that drive down the prices of financial assets in a way that drags down other institutions and markets. As the PWG report and others have observed, asset-backed stablecoins may be vulnerable to runs because they purport to be redeemable against a fiat currency at a fixed value.[12] If something were to shake confidence in a stablecoin (as the PWG report identifies, this 'something' could range from a hack to a problem with the reserve assets),[13] then holders might come to doubt that the stablecoin could retain a stable value against their preferred fiat currency. We could then expect holders to redeem their stablecoins for fiat currency, forcing the issuer of the stablecoin to start liquidating the reserve of assets backing the stablecoin, depressing the market value of those assets, and incapacitating the stablecoin as a means of transacting.

Because of this potential for a run on stablecoins, the PWG Report has recommended that stablecoins should be treated more like bank deposits and brought within the sphere of banking regulation.[14] However, in my view, this recommendation misses some key context. Stablecoins

[12] PWG Report, *supra* Note 2 at 2.
[13] *Id.* at 12.
[14] The report recommends that "legislation should require stablecoin issuers to be insured depository institutions, which are subject to appropriate supervision and regulation, at the depository institution and the holding company level." *Id.* at 2.

differ from deposits in two important ways: (i) the expectations of the parties using them are different; and (ii) they play different roles in intermediating capital. Because of these differences, stablecoins should not be brought within the perimeter of banking regulation (at least, not now – the Financial Stability Oversight Council ("FSOC") and the Office of Financial Research ("OFR") should monitor stablecoins for changes in expectations and usage). Regulating stablecoins like bank deposits will lend them implicit government backing – and with it, confidence and legitimacy far beyond what stablecoin issuers could generate on their own.[15] Inspiring this type of confidence in the stability of stablecoins may counterproductively make runs more likely. Furthermore, legitimized stablecoins will turbocharge the growth of the DeFi (which relies upon stablecoins to facilitate "fund transfers across platforms and between users").[16]

Expectations surrounding stablecoins

Runs happen when people lose confidence that a particular asset (like a dollar in a deposit account) will continue to remain accessible at the expected value. This "confidence" aspect of runs means that runs are unlikely to occur if the people holding an asset never expected it to have a stable value in the first place. Right now, stablecoins are not being used for payments for real world goods and services in any meaningful way, and so the people using them do not need them to maintain a stable value. The recent exponential growth in stablecoin usage has been driven by people who have purchased stablecoins to speculate in the DeFi markets,[17] suggesting that they do not care whether their stablecoins will maintain a consistent value.[18] Investor protection regulation can help tamp down on any limited expectations of stability that do exist, by preventing stablecoin issuers from advertising their stablecoins as being more stable than they really are, and by mandating disclosure of the assets in the reserve.

If stablecoins start to become widely used as payments mechanisms for real-world goods and services, then expectations will shift, and runs will be more likely. The FSOC and the OFR should monitor the stablecoin market for such a shift. However, (with some caveats I will discuss shortly) this seems unlikely to happen in the near term. Payments mechanisms benefit from network effects, meaning that they become more useful as more people and businesses use them. Stablecoins therefore have a "chicken and egg" problem when it comes to paying for real world goods and services: they need to develop a critical mass of merchants and users in order to become useful enough to attract more merchants and users. Before merchants and users are willing to start embracing stablecoins in this way, stablecoin issuers will have to address concerns about the ability of distributed ledger technology to process payments on a large scale. Changes in the size and usage of a payment system often create problems, and it will be particularly challenging for decentralized distributed ledger to respond to these changes.[19] If there is nobody "in charge" of

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[15] The PWG report recommends that "with respect to stablecoin issuers, legislation should provide for supervision on a consolidated basis; prudential standards; and, potentially, access to appropriate components of the federal safety net." *Id.* at 16.

[16] Aramonte, *supra* Note 4 at 24.

[17] *See* Note 4.

[18] As one reporter observed about the stablecoin Tether, "It wasn't that they trusted Tether, I realized. It was that they needed Tether to trade and were making too much money using it to dig too deeply. "It could be way shakier, and I wouldn't care," said Dan Matuszewski, co-founder of CMS Holdings LLC, a cryptocurrency investment firm." Zeke Faux, *Has Anyone Seen Tether's Billions*, BLOOMBERG'S BUSINESSWEEK (Oct. 7, 2021).

[19] Hilary J. Allen, *Payments Failure*, 62 B.C. L. Rev. 453, 494 (2021)

the ledger on which the stablecoins are used, no fix can take effect unless and until it is adopted by the majority of the nodes that control that ledger. If majority approval cannot be achieved, the gridlock can be addressed by a "hard fork" that splits the distributed ledger in two, but given the network effects of payments systems, hard forks can be a very problematic response to governance problems.

While stablecoins face major hurdles to becoming a viable payments mechanism, there are two obvious scenarios in which these hurdles could be overcome more quickly. One is for lawmakers to follow the PWG's recommendation to regulate stablecoins like bank deposits, which would lend stablecoins greater credibility as a payments mechanism and attract merchants and users. It is perhaps telling that Jeffrey Allaire (the CEO of Circle, issuer of the USDC stablecoin) has welcomed this type of banking regulation for stablecoins.[20] In my view, this approach would be unwise – if the government wishes to promote better and faster payments frameworks for underserved consumers, there are simpler technological solutions to explore that don't require an inherently fragile asset like the stablecoin running on a distributed ledger with complex governance issues (complexity is itself a source of financial instability, and simpler solutions are less likely to cause problems).[21] Simpler technological solutions will also avoid the environmental costs of crypto mining.[22]

The second way in which a stablecoin could quickly become a widely-used payments system is if it is launched by a firm that already has a well-established network of users. Most pressingly, large tech firms already have large networks of users that they could encourage to adopt any stablecoin they issue. If a tech giant introduced a stablecoin, it could quickly become an important payments system that becomes critical to the real-world economy (particularly if the tech firm is willing to use a permissioned distributed ledger that will allow it to easily make changes to the underlying distributed ledger as its scale of usage changes). People *would* expect such a stablecoin to have a stable value, and in this sense, Meta/Facebook's Diem could pose a real threat to financial stability. That does not mean, though, that all stablecoins should be regulated like bank deposits. Instead, the problems related to Diem (and Meta/Facebook's other financial projects) should be dealt with directly – as should any other attempt by a tech giant to provide payments services. This may involve using antitrust law; a complementary approach would be to use the FSOC's designation power under Section 113 of Dodd-Frank to designate the tech giant in question as a systemically important financial institution and subject it to supervision by the Federal Reserve. Congress could also consider strengthening existing legislation that

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[20] "But I would say at the highest level, the proposal that dollar stablecoin issuers in the US financial system should be regulated as banks at the federal level by the Federal Reserve is something that we think represents significant progress in the growth of this industry." *Circle CEO discusses stablecoin regulation and the bank charter process*, YAHOO NEWS (Nov. 9, 2021)
(available at https://news.yahoo.com/circle-ceo-discusses-stablecoin-regulation-213747962.html).

[21] Allen, *supra* Note 19 at 464 *et seq*.

[22] "According to Marion Laboure, a Deutsche Bank analyst, mining one bitcoin consumes a larger carbon footprint than nearly two billion Visa transactions. Another incredible stat: an individual bitcoin transaction couldpower the average U.S. household for 61 days. Adding in the energy consumption of Ethereum, and the two major cryptocurrencies would rank 15th in the world, nearly equivalent to Mexico." Steve Goldstein, *Here's how many Visa transactions can be completed using the energy to mine one bitcoin*, MARKETWATCH (Dec. 10, 2021).

prevents commercial firms from accepting deposits so that commercial firms are prohibited from accepting deposits *and* from offering payments services.

The Role of Stablecoins in Intermediating Capital

When considering the problems associated with runs on stablecoins, it's important not to lose sight of why runs are a problem. Runs are not intrinsically bad, but they do become a problem when they interfere with the capital intermediation on which the broader economy depends (either by igniting fire sales that drag down the prices of assets held by other institutions and markets, or by disabling a capital-intermediating service for which there are no ready substitutes). For example, bank runs are a problem because they prevent banks from extending the credit that individuals and businesses rely upon for growth. In the worst case, runs can generalize into a broad-scale bank panic at multiple institutions, causing a widespread collapse in lending. Deposit insurance was adopted in 1934 to prevent this kind of panic and protect the flow of credit, notwithstanding valid objections from economists about moral hazard (in this context, "moral hazard" means that deposit insurance gives banks incentives to engage in riskier behavior in order to multiply their profits in good times, knowing that there is a government safety net that will absorb the losses in bad times).[23]

The moral hazard associated with deposit insurance was ultimately deemed a price worth paying to keep banks stable and funds flowing through them to the broader economy. But the value proposition for stablecoins is much less clear: what economic growth do they propel? And what moral hazard would government backing for stablecoins create? Right now, stablecoins are primarily being used to facilitate DeFi, and so the issue of whether we're worried about stablecoins' continuing ability to intermediate capital will depend on our conclusions about the utility of DeFi, and whether or not DeFi deserves implicit government support. These issues will be addressed in the next Section.

The remining concern about stablecoins, from a financial stability perspective, is whether run-inspired fire sales will have systemic consequences. This will depend on what assets are in stablecoins' reserves. The PWG Report observes that "[b]ased on information available, stablecoins differ in the riskiness of their reserve assets, with some stablecoin arrangements reportedly holding virtually all reserve assets in deposits at insured depository institutions or in U.S. Treasury bills, and others reportedly holding riskier reserve assets, including commercial paper, corporate and municipal bonds, and other digital assets."[24] It is possible that mass withdrawals by stablecoins from insured deposit accounts could trigger runs on the institutions that provide those deposit acccounts, but that doesn't mean that stablecoins need to be brought inside the perimeter of banking regulation. This possibility could be dealt with by prudential

[23] Moral hazard is the "tendency of an insured to relax his efforts to prevent the occurrence of the risk that he has insured against because he has shifted the risk to an insurance company." RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 121 (5th ed. 1998). Lovett expressed the application of moral hazard in the banking context as follows: "If governments and modern nations do not allow most banks to [fail], how can the leaders and managements of banking institutions be disciplined and avoid unduly risky, negligent, or adventurous lending policies (or simply poor asset-liability management)?" William A. Lovett, *Moral Hazard, Bank Supervision and Risk-Based Capital Requirements*, 49 OHIO ST. L.J. 1365, 1365 (1989).

[24] PWG Report, *supra* Note 2 at 4.

regulation of existing insured depository institutions: they could be prohibited from accepting deposits from stablecoin issuers on the grounds that it is an unsafe and unsound practice (there are already banking regulations that limit acceptance of other volatile deposits, like brokered deposits).[25]

To the extent that stablecoins invest in other assets types like U.S Treasuries, commercial paper, corporate and municipal bonds, and other digital assets, the impact of stablecoin runs will depend on the size of the stablecoin reserve. This is another argument for why Congress and regulators should not adopt policies that encourage the growth of stablecoins (and should take measures to keep tech giants out of the stablecoin business). If a stablecoin were to gain significant traction, then fire sales of its reserve assets would obviously be of significant concern, but if stablecoins remain modestly sized, then any fire sales will have limited impact on broader asset markets. Interestingly, the reserves of Tether, which currently has by far the largest market value of any stablecoin, may not actually be as big as expected. As one recent report put it: "[e]xactly how Tether is backed, or if it's truly backed at all, has always been a mystery. For years a persistent group of critics has argued that, despite the company's assurances, Tether Holdings doesn't have enough assets to maintain the 1-to-1 exchange rate, meaning its coin is essentially a fraud."[26] If true, this would be highly problematic for investors in Tether, but it would also limit the systemic impact of any fire sale of Tether's reserve assets – because there wouldn't be so many of them. A run on Tether could, however, be disastrous for DeFi investors, as tens of billions of dollars of Tether are locked into DeFi protocols.[27]

4. DeFi and financial stability

DeFi, like any new and evolving business model or technology, is hard to pin down with a precise definition. Right now, the term is used to describe any simulacrum of traditional financial services performed using blockchain technology (relying in particular on smart contracts and stablecoins).[28] It can sometimes be hard to disentangle DeFi's aspirations from its realities. The term "decentralized finance" speaks to an aspiration – the hope that blockchain technology can be used to deliver financial services "without centralized intermediaries or institutions."[29] The expansion of DeFi is sometimes described as the foundation of "web3", an idealized vision for an internet that would run on a distributed ledger and therefore avoid the concentrated power of tech giants like Meta/Facebook and Google. In reality, though, distributed ledger technology is not as decentralized as claimed.[30]

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[25] "The OCC does…discourage brokered deposits because of their high volatility and cost, and banks may bay a higher FDIC deposit insurance premium for such items" Richard Scott Carnell *et al.*, THE LAW OF FINANCIAL INSTITUTIONS, 118 (2021).
[26] Faux, *supra* Note 18.
[27] Aramonte, *suprat* Note 4 at 24.
[28] The Wharton Blockchain and Digital Asset Project, DEFI BEYOND THE HYPE: THE EMERGING WORLD OF DECENTRALIZED FINANCE, 2-3 (May 2021) (available at https://wifpr.wharton.upenn.edu/wp-content/uploads/2021/05/DeFi-Beyond-the-Hype.pdf).
[29] *Id.* at 2.
[30] *See* Angela Walch, *Deconstructing 'Decentralization': Exploring the Core Claim of Crypto Systems*, in CRYPTO ASSETS: LEGAL AND MONETARY PERSPECTIVES (ed. Chris Brummer) (2019).

Recent research from the Bank for International Settlements has observed that there is "a "decentralisation illusion" in DeFi due to the inescapable need for centralised governance and the tendency of blockchain consensus mechanisms to concentrate power."[31] There have been many illustrations of the lack of real decentralization in the cryptoverse.[32] One recent example involves BadgerDAO, which paused all of its smart contracts upon receiving reports of unauthorized withdrawals[33] – if decentralization lived up to the hype, there should be no person who could choose to pause the operation of these smart contracts. In addition to individuals who can control the governance of DeFi apps, many of the investors driving the growth of DeFi are institutional players, often engaging in transactions worth $10 million or more of cryptocurrency.[34] More generally, DeFi relies heavily on centralized crypto services (including stablecoins), which in turn rely on traditional financial services (like banks and fiat currencies).[35] DeFi is therefore not particularly decentralized, but using the term "decentralized" to describe these services serves a marketing purpose, and may also be intended to discourage regulation (if policymakers believe the decentralization hype, they may be misled into thinking that there are no intermediaries to regulate, notwithstanding that DeFi relies in part on the regulated financial system, wallets and exchanges are obvious candidates for regulation, and software developers and miners could also be regulated. Furthermore, just as some regulations and fiduciary duties are applied to significant shareholders of a corporation, concentrated owners of tokens could also be regulated).

In reality, DeFi's defining attribute is the technology it relies on, rather than decentralization. As already stated, DeFi relies on blockchain technology. Stablecoins are essential to DeFi's operation, as are smart contracts. A "smart contract" is simply a type of computer program that is designed to be self-executing and self-enforcing. These programs establish certain rights and obligations associated with tokens that are hosted on a distributed ledger, and execute on the distributed ledger (although they can be programmed to consult outside data sources, which are referred to as "oracles", before executing). The crypto industry's vision is that smart contracts, stablecoins, and distributed ledgers will be used in concert to provide new versions of "payments, lending, trading, investments, insurance, and asset management" services,[36] but it is still unclear who will use these services. A recent article in The Economist put it this way: "The problem is that all this fancy financial engineering has, as yet, no "real" economy to service. Instead it underpins an incorporeal casino: most of those using DeFi do so to facilitate or leverage their bets on one of many speculative tokens."[37] If stablecoins are primarily used in

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[31] Aramonte, *supra* Note 4 at 22.
[32] For examples of actions within the Bitcoin and Ethereum blockchain systems that suggest centralized control, *see* Walch, *supra* Note 30.
[33] "Badger has received reports of unauthorized withdrawals of user funds. As Badger engineers investigate this, all smart contracts have been paused to prevent further withdrawals. Our investigation is ongoing and we will release further information as soon as possible", https://twitter.com/BadgerDAO/status/1466263899498377218 (Dec 1, 2021).
[34] Chainanalysis, *DeFi Whales Turned Central, Northern & Western Europe into the World's Biggest Cryptocurrency Economy* (Oct. 14, 2021) (available at https://blog.chainalysis.com/reports/central-northern-western-europe-cryptocurrency-geography-report-2021-preview/).
[35] "To the extent that DeFi relies on such stablecoins, it remains dependent on CeFi and traditional finance." Aramonte, *supra* Note 4 at 25.
[36] Wharton Blockchain and Digital Asset Project, *supra* Note 28 at 2.
[37] Alice Fulwood, *Decentralized Finance is Booming, But it Has Yet to Find Its Purpose*, THE ECONOMIST (Nov. 8, 2021).

DeFi, and DeFi is an "incorporeal casino", then treating stablecoins like regulated deposits will provide implicit government backing to that casino, encouraging its growth.

DeFi Growth

A recent report from the BIS described DeFi as largely self-referential, and concluded that "[g]iven this self-contained nature, the potential for DeFi-driven disruptions in the broader financial system and the real economy seems limited for now."[38] If Tether were to fail right now, for example, that would cause real problems for the DeFi ecosystem that relies upon it, but because DeFi still remains largely disconnected from both real-world economic applications and the established financial system, there would be limited pressure on the government to bail it out. However, as DeFi grows, the possibilities for something to go wrong, and for that something to impact the broader economy, increase.

Before the rise of crypto, the supply of new types of financial assets was always constrained—if only a little bit— because assets had to have some kind of connection to some kind of real-world economic good or service. Now, assets can be created out of thin air by anyone with computer programming knowledge, and an unconstrained supply of financial assets means more opportunities for asset bubbles to grow, and more assets to be dumped during fire sales. More assets also means more trading transactions which means more contractual relationships between counterparties that can transmit shocks through the system. Market practices requiring DeFi transactions to be overcollateralized with stablecoins could theoretically put some limits on the growth of DeFi, but when stablecoins are used as collateral for loans, the proceeds of those loans are often used as collateral for other loans, which can then be used as collateral for further loans, and so on.[39] This is multiplying the amount of leverage in the DeFi ecosystem, and the use of derivatives is also increasing the amount of leverage.[40] As the 2008 crisis amply demonstrated, increased use of leverage makes a system more fragile both by inflating asset bubbles on the upswing, and by causing fire sales on the downswing (if someone buys an asset with mostly borrowed money, then if the price of that asset falls, they will have to sell either that asset or some other asset in order to raise money to repay the loan).

DeFi could also grow as traditional financial institutions become increasingly interested in investing in, and offering, crypto.[41] The head of JPMorgan's blockchain team, for example, said earlier this year that "[w]e are keeping a very close eye on the DeFi evolution."[42] And the interest goes both ways, with some members of the crypto industry welcoming a relationship with traditional finance: the CEO of Circle recently said that "crypto needs to be integrated with the traditional financial system, creating "a hybrid model."[43] Regulated financial institutions could make huge profits by offering DeFi versions of their traditional products and services (in the past,

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[38] Aramonte, *supra* Note 4 at 21.
[39] *Id.* at 29.
[40] *Id.*
[41] *Id.* at 31-32.
[42] Ian Allison, *Remember JPMCoin? Next Step is Programmable Money, Bank Exec Says*, COINDESK (Jun. 7, 2021) (available at https://www.coindesk.com/business/2021/06/07/remember-jpm-coin-next-step-is-programmable-money-bank-exec-says/).
[43] Ephrat Livni, *Congress Gets a Crash Course on Cryptocurrency*, N.Y. TIMES (Dec. 8, 2021) (available at https://www.nytimes.com/2021/12/08/business/house-financial-services-crypto.html).

financial institutions have had significant financial success in offering new versions of existing financial products that are exciting, but not much better at discharging their functions than previous versions).[44] Now that unlimited crypto assets can be created through computer programming, DeFi provides enormous opportunities for profit that may prove too seductive for the established financial industry to ignore. However, because the real economy relies upon the established financial industry for credit and other services, the government may feel compelled to bail out DeFi if it becomes integrated with the traditional financial system.

There are a number of avenues through which the financial industry's ventures into DeFi could cause problems for the traditional financial system, and ultimately the broader economy. First, financial institutions might make large, leveraged investments in DeFi and other crypto products. If the value of those products were to fall precipitously (for example, because of a hack), then the institutions invested in them would see their overall asset portfolios shrink, and could even experience a run. Either eventuality could have severe real-world consequences if it shuts down the availability of credit for individuals and small businesses, or ignites fire sales of unrelated asset classes. Furthermore, runs and other financial panics tend to be worse if there isn't much information available about the assets involved, or if that information exists but is impossible to understand. Most investors (including established financial institutions) are used to reviewing balance sheets and written disclosures to assess investments, not computer code. While it's possible for written disclosures to describe how smart contracts will operate, one study found that the written disclosure documents provided to crypto investors can be highly inconsistent with how the code of the relevant smart contracts actually functions.[45] This lack of clarity may exacerbate the problems associated with financial institutions investing in crypto.

Financial institutions might also be inclined to launch their own stablecoins (JPMorgan has already done so with its JPMCoin, although JPMCoin runs on JPMorgan's proprietary ledger rather than on a decentralized ledger).[46] If bank-issued stablecoins could be used in the DeFi ecosystem, than all the concerns raised in Section 3 about lending implicit government support to DeFi would be realized. There are also monetary policy and safety and soundness concerns associated with bank-issued stablecoins: a bank like JPMorgan has always been able to profit by making US dollar loans to borrowers, but regulations (most importantly reserve and capital requirements) ultimately limit the amount of loans that banks can make. In addition, banks have no right to create US dollars for their own spending—that right belongs solely to the central bank. JPMorgan could create JPMCoins for its own spending, though, and because JPMCoins are not subject to reserve and capital requirements, JPMorgan could also theoretically make unlimited loans in JPMCoins.

Disenchantment with the existing financial system has spurred interest in DeFi, and that disenchantment is understandable and often justified. However, we should be keenly aware that if there is money to be made in any substitute financial system, established financial intermediaries will seek to find a way in. Congress should therefore consider steps to keep regulated depository institutions and their affiliates separate from DeFi. One measure that would contribute to this goal

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[44] Dan Awrey, *Complexity, Innovation, and the Regulation of Modern Financial Markets*, 2 HARV. BUS. L. REV. 235, 263-4 (2012).
[45] Shaanan Cohney *et al.*, *Coin-Operated Capitalism*, 119 COLUM. L. REV. 591 (2019).
[46] Allen, *supra* Note 19 at 495-6.

would be to prevent these institutions from investing in DeFi or any other crypto; another would be to prevent these institutions from issuing any stablecoin that operates on a decentralized ledger. We should also be keenly aware, though, that even without the involvement of established financial intermediaries, DeFi will tend towards centralization and concentration, and that it suffers from many of the same problems as traditional finance – along with some new ones.

Speed and rigidity

As previously noted, DeFi relies heavily on smart contracts as well as stablecoins. There have been a lot of news stories recently about hackers exploiting bugs in the code of these smart contracts, but even flawless code can cause financial stability problems.[47] In moments of crisis, "the elasticity of law has proved time and again critical for avoiding a complete financial meltdown."[48] Smart contracts, however, are designed to be as inflexible as possible, executing their preprogrammed instructions without waiting for any further input from a court or even the parties themselves.

When unexpected events occur, parties to regular financial contracts have the opportunity to amend them or agree not to enforce them. Legal systems have also developed the ability to relax and suspend contractual obligations in the face of a significant unanticipated event, whether through the use of bankruptcy courts, encouraging a contractual party not to enforce their rights, or even by enacting legislation that declares certain contractual terms illegal.[49] Because of their reliance on smart contracts, DeFi transactions will execute quickly, and will be harder to stop or undo (for example, DeFi loans are often structured so that they are automatically liquidated if there is insufficient collateral posted).[50] The execution of a smart contract can only be paused, changed, or undone with the consent of whoever controls the relevant distributed ledger, and where the ledger is decentralized and permissionless (like the Ethereum ledger) there is no single individual who can coordinate the process—even if the parties to the smart contract (as well as the public interest) all support it. Instead, any pause, change or reversal of a smart contract will require the consensus of all the nodes in the distributed ledger supporting the smart contract, which will take time (after the DAO hack in 2016, it took over a month for the nodes of the Ethereum distributed ledger to coordinate their response).[51] It seems highly unlikely that this kind of consensus could ever be achieved *before* the smart contract executes, and so any intervention is likely to come too late to prevent runs, fire sales, and other destabilizing harms.

While there are steps that can be taken to better equip a smart contract to adapt to unexpected events (for example, a smart contract can be programmed to consult an external oracle), taking these kinds of steps will increase transaction costs. The Ethereum ledger (which is "the predominant blockchain on which DeFi protocols and applications function")[52] charges a "gas

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[47] Mark Hochstein, *The Downside of Programmable Money*, COINDESK (Nov. 30, 2021) (available at https://www.coindesk.com/business/2021/11/30/the-downside-of-programmable-money/).
[48] Katharina Pistor, *A Legal Theory of Finance*, 41 J. COMPARATIVE ECON. 315, 321 (2013).
[49] Anna Gelpern & Adam J. Levitin, *Rewriting Frankenstein Contracts: Workout Prohibitions in Residential Mortgage-Backed Securities*, 82 S. CAL. L. REV. 1075, 1128– 29 (2009).
[50] Aramonte, *supra* Note 4 at 27.
[51] Primavera De Filippi & Aaron Wright, BLOCKCHAIN AND THE LAW: THE RULE OF CODE, 188 (2018).
[52] PWG Report, *supra* Note 2 at 9.

cost" for any computing done, and consulting an oracle would increase the amount of computing power (and thus the gas charge) necessary to execute a smart contract. Participants in the DeFi markets will probably be willing to bear these charges up to a certain point, but eventually, these ongoing operational costs will discourage measures that cater for very unusual events. Unfortunately, when we're talking about financial stability, low-probability high-consequence tail events are the ones we're most concerned about.

5. An illustration: AIG's credit default swaps in the DeFi era

It can be hard to conceptualize DeFi's implications for financial stability in the abstract. I therefore offer an illustration here, by explaining what would have happened in 2007-8 if credit default swaps issued by AIG had been issued as a form of DeFi.[53]

In the lead-up to the 2018 financial crisis, the insurance giant AIG had issued an estimated $1.8 trillion of credit default swaps ("CDS") that would require it to make payments if the mortgage-backed securities ("MBS") underlying those CDS suffered some type of credit event. AIG was not in a position to actually pay out on all of those CDS – at the time, AIG's parent company reported total capital of $95.8 billion – but AIG had assumed that the underlying MBS would never default and that payments would never be required. However, as time progressed, and the mortgages backing those MBS began to default in alarming numbers, people started to admit the possibility that MBS themselves might default, which made AIG's position riskier. Worried that AIG might not be able to make payments on its CDS if the MBS failed, the banks and other investors that had bought CDS from AIG turned to provisions in their contracts that required AIG to provide them with collateral if the risks associated with MBS increased.

It was these calls for collateral that ultimately forced a government bailout – to the tune of tens of billions of dollars – to prevent AIG from failing. In particular, the investment bank Goldman Sachs demanded on several occasions that AIG post collateral in response to downgrades of the MBS referenced in the CDS that AIG had issued to Goldman. Pursuant to the agreements governing the arrangements between Goldman Sachs and AIG, these collateral calls were authorized if Goldman Sachs believed that the value of the underlying MBS had decreased. However, AIG had dismissed the possibility of such collateral calls – in fact, many senior people at AIG were unaware that the contracts authorized these collateral calls at all – and so no one at AIG had developed any way of assessing what the appropriate amount of collateral should be. As a result, Goldman Sachs was largely in a position to dictate how much collateral it was entitled to in a collateral call.

When Goldman Sachs did make its collateral call, AIG objected, the parties negotiated, and they ultimately agreed that AIG could post much less collateral than Goldman Sachs had initially demanded. However, if this had happened in an era of DeFi and the parties had used smart contracts to automate the collateral call process, Goldman Sachs would simply have had to inform

[53] This account of events relating to the credit default swaps that AIG issued to Goldman Sachs is drawn from Rena S. Miller & Kathleen Ann Ruane, Congressional Research Service, R41398, THE DODD-FRANK WALL STREET REFORM AND CONSUMER PROTECTION ACT: TITLE VII, DERIVATIVES (2012); and Financial Crisis Inquiry Commission, THE FINANCIAL CRISIS INQUIRY REPORT: FINAL REPORT OF THE NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, 265-274 (2011).

a so-called "oracle" of the amount of desired collateral (remember that AIG didn't negotiate for any rights with respect to collateral calls). Upon consulting the oracle, the smart contract would immediately have withdrawn stablecoins from AIG's wallet on the distributed ledger and transferred them to Goldman Sachs. There would have been much less scope for flexibility or negotiation in Goldman Sachs' treatment of AIG, and AIG's solvency might have been in jeopardy as early as 2007.

When AIG ultimately did reach the brink of failure in September 2008, again as a result of collateral calls in connection with the many CDS it had issued, AIG's insolvency was averted by the government pledging to provide AIG with the funds necessary to cover those collateral calls. If the relevant CDS provisions had been automated as smart contracts, though, would there have been a way to suspend collateral calls until AIG received its infusion of government funds, or would collateral (in the form of stablecoins) already have been transferred away form AIG, rendering AIG insolvent before government aid could arrive? Parties to a paper contract can agree among themselves not to enforce a contract when it is not in their best interests to do so, but there is much less flexibility in a smart contract. Unless a smart contract were programed in advance to delay execution following the announcement of a government bailout of a counterparty (an unlikely event that would probably not have been contemplated at the time the smart contract was programmed), such news would not prevent default – even though, in reality, the announcement of government support succeeded in saving AIG in 2008.

6. A note on monetary policy

This testimony is primarily focused on the impact of stablecoins and DeFi on financial stability. However, financial instability is not the only threat to broader economic growth. Central banks like the Federal Reserve carry out monetary policy functions in order to match the supply of money to the needs of the economy, and the rise of stablecoins has the potential to disrupt these functions. For example, central banks manage the money supply to respond to inflation. When there is a lot of money available in the economy, it is cheaper to borrow, and cheaper money increases purchasing power which can drive up inflation. The converse is also true: when there is less money available, inflation is reduced. If money increasingly takes the form of stablecoins issued by private entities, then that could displace the use of fiat currencies and limit the ability of central banks to match the money supply to the economic situation. Private sector institutions – who have no mandate to serve the public interest – will have usurped control over the money supply, undermining central banks' ability to rein in inflation or address deflation. This is yet another reason to avoid policies that encourage the growth of stablecoins.

Central banks are certainly concerned about the impact that widely-used stablecoins could have on their monetary policy. As a result, many central banks are contemplating adopting central bank digital currencies ("CBDCs") to compete with privately-issued stablecoins, notwithstanding that they have misgivings about the financial stability implications of CBDCs (particularly their potential to encourage runs from bank deposits to CBDCs).[54] Given these financial stability concerns (and also concerns about user privacy), if CBDCs are nothing more than a defensive

[54] Bank for International Settlements, CENTRAL BANK DIGITAL CURRENCIES: FOUNDATIONAL PRINCIPLES AND CORE FEATURES, 8-9 (2020).

response designed to outcompete the Diems of the world, that is another reason for Congress to consider whether Diem should be permitted in the first place. The need to protect monetary policy is also another justification for measures that prohibit regulated depository institutions from issuing stablecoins: if significant volumes of transactions are consummated in JPMCoins, for example, the Federal Reserve will also have lost some of its control of the money supply.

7. Possible Congressional approaches to stablecoins

Ban or licensing regime

Given stablecoins' inherent fragility, limited utility outside of the DeFi ecosystem, and potential to cannibalize monetary policy, Congress should consider whether banning stablecoins is appropriate. If Congress does not wish to enact a full ban, it could also consider a licensing regime for stablecoins whereby stablecoins will only be authorized if their issuers can demonstrate: (i) that the stablecoins have a purpose that is connected to real-world economic growth (i.e. growth outside of the DeFi ecosystem); (ii) that the issuers have the institutional capacity to manage the risks associated with the stablecoin's reserve and technology; (iii) that a run on the stablecoin would not impact financial stability; and (iv) that the stablecoin does not pose a threat to U.S. monetary policy. Although a ban or a licensing regime would need to be designed carefully to limit regulatory arbitrage, it would not be impossible to implement. As this statement has explored, stablecoins and DeFi are not as decentralized as advertised, and so there are intermediaries to whom regulation could be applied.

When considering measures like a ban or a licensing regime, Congress will no doubt wish to consider the impact of such measures on innovation. Innovation is important, but Congress should think critically about the type of innovation it wants to encourage. It would be wrong to assume that all crypto-related innovation is intended to make financial services more accessible to underserved populations. Stablecoins and DeFi services are used predominantly by people who already have access to the traditional banking system. If stablecoins and DeFi only provide marginal improvements over the financial services that are already available, but end up making our financial system more fragile, then chilling their development would be good public policy. It is worth noting that a World Economic Forum White Paper recently concluded that stablecoins currently offer limited benefits for financial inclusion:

> *The principal finding of this white paper is that stablecoins are subject to many of the same barriers that constrain citizens from accessing other financial products and services, such as bank accounts, mobile money accounts or fully digital remittance providers. Where stablecoins are accessible, they generally address financial inclusion barriers to a similar degree as other digital financial services…stablecoins as currently deployed would not provide compelling new benefits for financial inclusion beyond those offered by pre-existing options.*[55]

If Congress wants to encourage financial inclusion, it could consider focusing on supporting innovation in simpler mobile payments and remittance technologies, which might satisfy consumers' needs without the complications of runnable stablecoins, or distributed ledgers

[55] World Economic Forum, *What is the Value Proposition of Stablecoins for Financial Inclusion*, DIGITAL CURRENCY GOVERNANCE CONSORTIUM WHITE PAPER SERIES, 8 (Nov. 2021) (available at https://www3.weforum.org/docs/WEF_Value_Proposition_of_Stablecoins_for_Financial_Inclusion_2021.pdf).

with convoluted governance structures. Simpler technologies would also avoid the environmental costs of crypto mining.

More limited interventions

A ban or licensing regime would respond to all of the financial stability risks identified in this statement (including the risk of runs on stablecoins), as well as responding to concerns about monetary policy. More limited interventions would inevitably entail tradeoffs. I have advocated against bringing stablecoins within the perimeter of banking regulation, which means that stablecoins will remain more fragile than they would be if regulated more like bank deposits. To limit the fallout of any run on a stablecoin, measures will therefore need to be considered to: (i) limit investors' expectations about the stability of stablecoins; (ii) monitor changes in the usage of stablecoins; (iii) prevent large tech firms and regulated depository institutions from issuing stablecoins; and (iv) prevent regulated depository institutions from accepting deposits from stablecoin issuers.

I will set out here some suggestions for measures that can be taken to address these objectives, and other objectives identified in my testimony.

- The SEC and CFTC should continue to oversee the stablecoins under their jurisdiction to ensure that investors are protected. More specifically:
    - The SEC and CFTC should prevent stablecoin issuers from misrepresenting that stablecoins are more stable than they are (for example, enforcement actions would be appropriate against stablecoins that claim they are covered by FDIC insurance).
    - The SEC and CFTC should compel disclosure of the contents of the reserves backing any stablecoin under their jurisdiction.
        - While various crypto industry members have asked that Congress create a dedicated crypto regulator, doing so would be problematic for many reasons, including that:
            - The US already has too many financial regulators, which leads both to duplicative regulatory efforts and issues falling through regulatory gaps. Adding another regulator would exacerbate this issue.
            - The more specialized the regulator, the more opportunities there are for the industry to "capture" the regulator. Concerns about captured regulators were an important impetus for the abolition of the Office of Thrift Supervision in 2010, and would be a real concern with a dedicated crypto regulator.
- The Office of Financial Research ("OFR") and the Financial Stability Oversight Council ("FSOC") should be charged with monitoring the growth of stablecoins. If a stablecoin becomes a widely-used and accepted payment service, the FSOC should consider:
    - Designating the stablecoin issuer as a systemically important financial institution, utilizing the designation power bestowed by Section 113 of Dodd-Frank. This would subject the issuer to supervision by the Federal Reserve.
    - If the stablecoin is decentralized, it may be more appropriate for the FSOC to use its authority under Section 804 of Dodd-Frank to designate the associated payment

service as systemically important, and therefore subject to supervision by the Federal Reserve.

- Steps should be taken to prevent large tech firms like Meta/Facebook from issuing stablecoins:
    - The FSOC should explore how its designation power under Section 113 of Dodd-Frank could be applied to a large tech firm. The possibility of designation (and subsequent regulation by the Federal Reserve) may be enough to discourage Meta/Facebook from pursuing its Diem stablecoin.
        - A tech firm's size and the availability of substitutes for its stablecoins would obviously be relevant to determining its systemic importance, but the FSOC should also take into account the size of the firm's network, the breadth of the firm's non-financial services, and the firm's unique access to certain kinds of data.
    - Antitrust regulators should consider prohibiting a large tech firm from leveraging its network (as developed in a market where it has monopoly or near-monopoly power) into a payments platform.
    - Congress should consider amending existing legislation that prevents commercial firms from accepting deposits to prohibit such commercial firms from accepting deposits *and* offering payments services.
- Regulators of insured depository institutions and their holding companies should issue rules (or at the very least, guidance) designating the following practices as unsafe and unsound:
    - Holding stablecoin reserves in a deposit account.
    - Investing in any crypto asset.
- Insured depository institutions should be prohibited from issuing their own stablecoins. This could be achieved by legislation amending national banks' powers as specified in 12 USC Section 24 (seventh) (equivalent amendments would need to be made to the powers of state-chartered banks as well). Alternatively, banking regulators could effect this prohibition through a joint rulemaking.

RESPONSES TO WRITTEN QUESTIONS OF CHAIRMAN BROWN FROM ALEXIS GOLDSTEIN

Questions for Ms. Alexis Goldstein, Director of Financial Policy, Open Markets Institute, from Chairman Sherrod Brown:

1. Stablecoin companies frequently claim that their products are safe because reserves are invested in low-risk, highly liquid assets, such as bank deposits. Very low-risk assets, however, have low or even nominal returns. If stablecoin reserves are invested in these assets, do stablecoin providers face pressure to obtain revenue from stablecoin users in other ways, such as by cross-selling DeFi investments or charging transaction fees? Is there evidence in the market so far that firms face these incentives?

Stablecoin issuers that invest their reserves in very low-risk assets will likely face challenges generating positive returns. A recent example of this is Circle, the issuer of USDC, who disclosed in their amended S-4 (filed December 23, 2021) a net income loss of over $313 million, and an operating loss of over $42 million.[1]

Stablecoin issuers will likely branch out into other, more profitable (and higher risk) markets. Circle also indicates their plans to do just this in their original 8-K filing, which details plans to launch "Circle DeFi", a service they describe as allowing "companies to have connectivity to Compound, Aave, and other protocols through Circle Accounts and Circle APIs".[2] Ostensibly, DeFi product offerings would come with higher fees that could offset the USDC issuance business. But DeFi comes with its own set of risks, as nearly all DeFi platforms, including the platforms mentioned in the investor presentation -- Compound, Aave, Maker -- currently lack Know Your Customer, no Anti-Money Laundering, and no Countering Terrorist Financing checks. Maker is exploring adding KYC but is only in a research phase.[3]

2. Major stablecoin issuers, including Circle and Tether, do not allow retail stablecoin users to redeem their coins directly at the issuer. Yet most DeFi arrangements are used extensively or even predominantly by retail consumers, and, as discussed at the hearing, stablecoins are integral to these platforms. Are there risks that arise from the fact that DeFi is accessible to consumers, but important stablecoin redemption processes are not? Please explain.

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[1] *Amended S-4*, CIRCLE (Dec. 23, 2021), https://www.sec.gov/Archives/edgar/data/0001876042/000110465921153174/tm2124445-4_s4a.htm at 112.

[2] *FORM 8-K, SUPPLEMENTAL PRESENTATION MATERIALS*, CIRCLE (Jul. 7, 2021) https://www.sec.gov/Archives/edgar/data/0001824301/000121390021036070/ea143875ex99-4_concordacq.htm at 15.

[3] *Grant Announcement: KYC/AML Compliance Research*, MAKERDAO (Feb. 2, 2022), https://forum.makerdao.com/t/grant-announcement-kyc-aml-compliance-research/12991.

U.S. retail investors can neither purchase nor redeem the top two stablecoins by market cap (Tether and USDC) directly from the issuer[4] – they are exclusively reliant on cryptocurrency exchanges to trade a stablecoin for a dollar. This embeds within the cryptocurrency ecosystem significant counterparty risk, not just to the stablecoin issuer but to the third-parties customers rely on to convert their stablecoins into fiat.

As the President's Working Group (joined by the FDIC and OCC) noted in its recent stablecoin report, stablecoins "play a central role in facilitating trading, lending, and borrowing activity in DeFi."[5] We see this reflected in a major DeFi exchange, Uniswap, where eight out of nine of the top Liquidity Pools on Uniswap have at least one leg in a Stablecoin, as of December 13, 2021.[6]

DeFi fees, especially on the Ethereum blockchain, can be prohibitively high for users with small amounts of assets.[7] The loss of a stablecoin peg would likely be particularly harmful to small investors on DeFi: they would not have access to redeem Tether or USDC, but would instead need to send their assets to a cryptocurrency exchange in order to be sold. But in times of volatility (as a loss of a stablecoin peg likely would be), Ethereum network fees tend to spike (As the Ethereum network can only process approximately 30 transactions a second,[8] fees often spike to extreme levels whenever there's increased congestion, as investors become increasingly willing to pay higher fees in order to get their transaction executed by an Ethereum miner). This may leave some users with small asset amounts stranded, as the fees may exceed the amounts they have locked into DeFi (stored in liquidity pools or locked into crypto lending or borrowing platforms like Aave or Compound).

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[4] See: *FAQs,* TETHER, https://tether.to/faqs/. ("Unfortunately, Tether has decided to stop serving U.S. individual and corporate customers altogether. As of January 1, 2018, no issuance or redeeming services will be available to these users. Exceptions to these provisions may be made by Tether, in its sole discretion, for entities that are: Established or organized outside of the United States or its territorial or insular possessions; and, Eligible Contract Participants pursuant to U.S. law.") (last visited Dec. 12, 2021); and

[5] *Report on Stable Coins*, PRESIDENT'S WORKING GROUP ON FIN. MARKETS, THE FED. DEPOSIT INS. CORP. (FDIC), AND THE OFFICE OF THE COMPTROLLER OF THE CURRENCY (OCC) (2021), https://home.treasury.gov/system/files/136/StableCoinReport_Nov1_508.pdf.

[6] *Hearing on Stablecoins Before the U.S. Senate Banking Comm.* (2021) (written testimony of Alexis Goldstein), https://www.banking.senate.gov/download/goldstein-testimony-12-14-21 pp 11-12.

[7] *See* Liesl Eichholz, *Avalanche: The New DeFi Blockchain Explained*, GLASSNODE (Feb. 10, 2021), https://insights.glassnode.com/avalanche-the-new-defi-blockchain-explained/ ("With the price of ETH on the rise, even basic token swaps on Ethereum are becoming prohibitively expensive for entry-level players, while interactions with more complex DeFi contracts can come attached with fees exceeding 0.1 ETH (over $170 at the time of writing)."). *See also* Nivesh Rustgi, *Ethereum Miners Earn Record $110M Amid ETH Crash*, CRYPTO BRIEFING (May 21, 2021), https://cryptobriefing.com/ethereum-miners-earn-record-110-million-amid-eth-crash/.

[8] Luke Conway, *What Is Ethereum 2.0?*, STREET (Oct. 27, 2021), https://www.thestreet.com/crypto/ethereum/ethereum-2-upgrade-what-you-need-to-know.

3. When stablecoin issuers preclude retail users from redeeming directly, consumers can convert stablecoins into fiat currency by selling the tokens for dollars on exchanges. But as we saw on the day of the hearing—when major crypto exchanges experienced glitches in their price quote systems—exchanges have been prone to outages and malfunction. Please discuss how exchange outages or errors can affect stablecoin markets and stablecoin holders. Are there scenarios involving exchange failures that give rise to particular concern?

Without redemption rights, cryptocurrency exchanges are the only place where retail investors can exchange their stablecoins for U.S. dollars. This introduces additional counterparty risk on behalf of the customer to the exchange. It's an awkward second step not typically present in other kinds of digital payments – you don't need to *also* set up a stock brokerage account in order to send money electronically.

4. Please describe any risks and benefits that you believe are presented by smart contracts. In what contexts, if any, are smart contracts a valuable tool? Could smart contracts create systemic risks? As compared with traditional contracts, are smart contracts useful in consumer or small business contexts?

Smart contracts are immutable – unable to be modified once they are deployed onto a specific blockchain.[9] This makes DeFi platforms that rely on smart contracts particularly vulnerable to hacks and exploits, as platforms need to deploy new smart contracts to fix any bugs in old ones, leaving the platform and its assets at risk of catastrophic losses in the interim. This inherent vulnerability has led to massive losses in DeFi in 2021; a November 2021 report by Elliptic estimated that there were $12 billion total in losses in DeFi from January - November 2021.[10]

So-called "flash loans", which utilize smart contracts,[11] are often employed to hack DeFi protocols (that themselves rely on smart contracts). Flash loans are unsecured loans where capital is borrowed and repaid in a single transaction. As just one example, in October 2021, a flash loan was used to steal $130 million from the DeFi lending platform Cream Finance.[12]

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[9] Erfan Andesta, Fathiyeh Faghih, and Mahdi Fooladgar, *Testing Smart Contracts Gets Smarter*, IEEE (Dec. 2020), https://ieeexplore.ieee.org/document/9303670. ("Smart contracts are immutable, verifiable, and autonomous pieces of code that can be deployed and ran on blockchain networks like Ethereum. Due to the immutability nature of blockchain, no change is possible on a deployed smart contract or a verified transaction").

[10] *DeFi: Risk, Regulation, and the Rise of DeCrime*, ELLIPTIC (Nov. 18, 2021), https://www.elliptic.co/resources/defi-risk-regulation-and-the-rise-of-decrime.

[11] https://www.coindesk.com/learn/2021/02/17/what-is-a-flash-loan/.

[12] Sam Reynolds, *Flash Loan Exploit Whips Cream Finance For $130 Million*, BLOCKWORKS (Oct. 28, 2021), https://blockworks.co/flash-loan-exploit-whips-cream-finance-for-130-million/.

Smart contracts may have some narrow use cases in finance. However, as in any system designed and run by human beings, the ability to rescind or amend certain transactions has proven useful over time. Whether it means canceling a fraudulent charge on your credit card or staying certain payments in a large firm bankruptcy proceeding, human judgment and discretion is often needed to maintain consumer and investor protection as well as financial stability.

5. Some stablecoin providers and commentators believe that Congress should create a new form of financial institution charter, specifically for stablecoin issuers. In a recently released framework for stablecoin legislation, Senator Toomey has also adopted this view.[1] From your perspective, would a novel stablecoin charter be preferable to requiring firms to follow existing law and conform to the regulatory categories it creates? Could new regulatory carve-outs incentivize regulatory arbitrages or otherwise undermine key existing rules?

It is preferable to mitigate the risks presented by stablecoins with the existing authorities of market and prudential regulators, rather than creating a novel stablecoin charter. The main use for stablecoins is as a waystation in between trades on more volatile crypto assets, and a custom stablecoin charter risks extending the federal safety net to a volatile and speculative asset class while ignoring the many secondary market risks already present.

6. In Senator Toomey's framework, he also suggested that some stablecoin issuers could, "based on their business models," choose to be regulated by "[r]egister[ing] as a money transmitter under the existing state regime and as a money services business under FinCEN's federal regime." Are state money transmitter and federal MSB rules adequate for managing the risks to consumers and the economy created by stablecoins? Please describe the strengths and limitations of these regimes, as applied to stablecoins.

Limiting the oversight of stablecoin issuers to federal MSB rules would present serious challenges, in large part due to the ongoing lack of sufficient funding for IRS enforcement. FinCEN delegates Bank Secrecy Act compliance examinations of virtual currency MSBs to the IRS. This raises challenges as IRS enforcement funding has been cut by 24 percent in inflation-adjusted terms since 2010.[13] This enforcement funding challenge appears to impact the IRS's MSB examinations, as it has only conducted 66 exams of virtual currency MSBs in five years (from 2015-2020), while there are 524 virtual currency entities in the IRS's examination database as of the end of FY 2020.[14] Thus, only some 12.5% of the virtual currency entities under the IRS's examination remit have been examined in the last five years.

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[13] Chye-Ching Huang, *Depletion of IRS Enforcement Is Undermining the Tax Code*, CENTER ON BUDGET AND POLICY PRIORITIES (Feb. 11, 2020), https://www.cbpp.org/research/federal-tax/depletion-of-irs-enforcement-is-undermining-the-tax-code.

[14] *VIRTUAL CURRENCIES: Additional Information Could Improve Federal Agency Efforts to Counter Human and DrugTrafficking*, GOVERNMENT ACCOUNTABILITY OFFICE (Dec. 2021), https://www.gao.gov/assets/gao-22-105462.pdf at 45.

MSBs also face potentially lighter-touch regulation at the state level for operational and safety and soundness requirements. For example, exam cycles are not uniform and may be less frequent than bank or broker-dealer exams. State regulatory staff tended to be less well-resourced. Finally, state-licensed MSBs are subject to more permissive capital requirements than banks or broker-dealers. For example, in Pennsylvania and Ohio, my cursory review of money transmitter state law shows that each state requires only $500,000 in net worth to obtain the relevant license, in addition to coverage by a surety bond. Even with licenses and bonding in all 50 states, that amount of capital seems insufficient to cover potential losses associated with various risks inherent in stablecoins (ex: speculative use case, funding mismatch inherent in stablecoins' promise of redemption on demand versus investment in illiquid assets, etc).

7. Senator Toomey's framework further proposes that "[c]ommercial entities should be eligible to issue stablecoins, provided they choose one of these regimes [i.e., a bank charter, a special purpose stablecoin charter, or money transmitter and MSB rules]." Please discuss whether, in your view, it would be prudent to allow large, non-financial companies like Amazon or Alphabet to issue stablecoins.

There are a number of risks of large, non-financial firms issuing stablecoins, and there are also risks of such a firm creating cryptocurrency wallets that support other issuers stablecoins, as detailed in Open Markets Institute's November 2021 letter to the financial regulators about the risks of Facebook's Novi pilot.[15] These risks include the potential for predatory pricing, monetization of consumers' private financial data, conflicts of interest, and unchecked concentrations of corporate power. As Open Markets Institute noted in the letter, there are also questions as to the legality of such an offering by a large non-financial company:

> **"There are several legal and regulatory implications for Facebook's pilot that warrant particular attention by the agencies. The stablecoins sold by Facebook to Novi customers may be debt instruments and investment contracts that are 'securities' for purposes of the federal securities laws and thus may be subject to regulation by the Securities and Exchange Commission. In addition, Facebook may be engaged in the business of receiving deposits through Novi because Facebook agrees to hold stablecoins purchased by its customers and to allow those customers to transfer their stablecoins to others. Facebook represents that the stablecoins it sells to customers will maintain a one-for-one parity with the U.S. dollar. Court decisions since Marine Bank v. Weaver, 455 U.S. 551 (1982), establishes that financial offerings like Novi are both "securities" and "deposits" unless they are**

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[15] *Open Markets Documents Grave Concerns with Facebook's Digital Wallet Pilot Program*, OPEN MARKETS INST. (Nov. 23, 2021), https://www.openmarketsinstitute.org/publications/letter-to-regulators-grave-risks-of-facebook-digital-wallet-pilot.

issued by FDIC-insured depository institutions or foreign banks that are subject to equivalent regulatory regimes.

The Biden administration's recent report on stablecoins noted that 'Relevant authorities, including the Department of Justice, may consider whether or how section 21(a)(2) of the Glass-Steagall Act may apply to certain stablecoin arrangements.' Facebook's Novi is a stablecoin arrangement that appears to provide deposit services (including safekeeping and payments) to its customers. Thus, through Novi, Facebook may be unlawfully engaged in the offering of unregistered securities, and they may also be in the illegal business of receiving deposits without a bank charter."[16]

8. Finally, Senator Toomey's proposal states that "[r]egulation should protect the privacy . . . and confidentiality of individuals using stablecoins." Could creating carve-outs for stablecoins from existing know-your-customer or BSA/AML rules raise national security concerns? If so, how?

There are already national security concerns with the usage of stablecoins on DeFi, as noted in my written testimony:

"Smart contracts on DeFi exchanges typically do not compare the cryptocurrency addresses executing their code against the Specially Designated Nationals and Blocked Persons list ("SDN list"). Stablecoins locked into Ethereum smart contracts could be helping to facilitate various forms of illicit finance, including the swapping of ransomware payments for other crypto assets."[17]

To explicitly carve-out stablecoins from KYC/AML or BSA rules would make existing problems worse, as stablecoin issuers would not be obligated to prevent entities on the sanctions list from redeeming stablecoins. This is concerning, given a February 2022 report by the United Nations which found that North Korean cyber-attacks have stolen millions of dollars worth of cryptocurrency to fund the country's missile programs.[18]

<u>Questions for Ms. Alexis Goldstein, Director of Financial Policy, Open Markets Institute, from Ranking Member Patrick J. Toomey:</u>

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[16] *Open Markets Documents Letter Re: Facebook's Digital Wallet Pilot Program*, OPEN MARKETS INST. (Nov. 23, 2021), (Nov. 23, 2021), https://static1.squarespace.com/static/5e449c8c3ef68d752f3e70dc/t/619c15925a26166be151cf37/1637619090580/Concerns+with+Facebook's+digital+asset+pilot+project+.pdf.

[17] *Hearing on Stablecoins Before the U.S. Senate Banking Comm.* (2021) (written testimony of Alexis Goldstein), https://www.banking.senate.gov/download/goldstein-testimony-12-14-21.

[18] *North Korea: Missile programme funded through stolen crypto, UN report says*, BBC (Feb. 6, 2022), https://www.bbc.com/news/world-asia-60281129.

1. Ms. Goldstein, your hearing testimony lays out a series of discrete and very narrow hypothetical circumstances under which a stablecoin transfer from the United States to a European country would cost more than a money transfer using Western Union, which is a traditional money transfer service. Your hypothetical makes a number of assumptions that minimize the cost of traditional money transfers. In addition, you do not account for the significant speed advantage offered by stablecoins or the fact that many networks enable such transfers at low or no costs. For example, individuals have the capability to transfer stablecoins on networks like Solana, Stellar, Algorand, or Hedera in less than five seconds, far outpacing traditional means of money transfer. Stablecoins also provide the ability to transfer value to locations outside of Europe, including locations that are more expensive to reach using traditional payment transfer intermediaries. In these cases, stablecoins stand to be tremendously beneficial tools for remittances to family members across the globe.

    a. Do you agree that, under many circumstances, stablecoins could be a faster and less expensive mechanism to transfer value than traditional money transfer services?

For financial services to be effective and efficient for the average consumer, simplicity is essential. Currently, stablecoins are not accepted as legal tender in any nation. Therefore, using stablecoins as a mechanism for payments or remittances requires relying both on the existing rails of the banking system (as is the case with traditional money transfer services) and cryptocurrency exchanges (as is *not* the case with traditional money transfer services). — In other words, individuals seeking to pay for goods or services with stablecoins or individuals seeking to convert a stablecoin remittance into money they can use in the real economy requires relying on multiple intermediaries and taking multiple steps. These extra steps and extra players present added costs and speed disadvantages. I would agree with your premise that stablecoins could be faster and less expensive, but only in the narrow case where a user wanted to remain in the cryptocurrency ecosystem and not convert back to fiat.

As noted by the President's Working Group's (joined by the FDIC and OCC, shorthanded here as "PWG") report on stablecoins, stablecoins "play a central role in facilitating trading, lending, and borrowing activity in DeFi."[19] In contrast, PWG report discussed stablecoins' use of payments in a hypothetical, future use case. Even the network monopoly Facebook couldn't make stablecoins work as payments, as evidenced by the Diem consortium recently selling off its assets.[20]

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[19] *Report on Stable Coins*, PRESIDENT'S WORKING GROUP ON FIN. MARKETS, THE FED. DEPOSIT INS. CORP. (FDIC), AND THE OFFICE OF THE COMPTROLLER OF THE CURRENCY (OCC) (2021), https://home.treasury.gov/system/files/136/StableCoinReport_Nov1_508.pdf.

[20] Olga Kharif, *Meta-Backed Diem Association Confirms Asset Sale to Silvergate*, BLOOMBERG (Jan. 31, 2022), https://www.bloomberg.com/news/articles/2022-01-31/meta-backed-diem-association-confirms-asset-sale-to-silvergate.

Some confusion over the costs and speeds identified in my testimony also stem from a distorted reality of how stablecoin transfers work in practice.

Ethereum is the dominant blockchain for stablecoin adoption. Ethereum's ERC-20 token standard is the only standard that is supported natively by *all* the top 5 stablecoins[21] by market cap;[22] hence it enables an apples to apples comparison, and was the reason why I used this example in my testimony. In addition, Ethereum's ERC-20 token standard is the only blockchain that *all* major exchanges support for stablecoins, again, which is why I used this example in my testimony.

For example, while FTX supports Solana's SPL token standard for stablecoins, Coinbase and Kraken do *not* support the SPL standard.[23] While Binance supports both the Binance Chain or the Binance Smart Chain BEP-20 and BEP-2 token standards, Coinbase, Kraken, and FTX do *not* support BEP-20 or BEP-2.[24] Neither the Coinbase, Kraken, FTX.us nor Binance.us (nor the non-U.S. Binance.com[25]) exchanges appear to support trading

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[21] *How It Works,* TETHER, https://tether.to/en/how-it-works. ("Tether tokens exist as digital tokens built on various blockchains including Algorand, Ethereum, EOS, Liquid Network, Omni, Tron, Bitcoin Cash's Standard Ledger Protocol, and Solana."); *USDC: the world's leading digital dollar stablecoin,* CIRCLE, https://www.circle.com/en/usdc#:~:text=What%20blockchains%20support%20USDC%3F,Stellar%20as%20a%20native%20asset. ("USDC is available natively as Ethereum ERC-20, Algorand ASA, Solana SPL token, Stellar asset, TRON TRC-20, Hedera token, and Avalanche ERC-20."); *Why does Paxos use Ethereum?*, PAXOS, https://paxos.com/2019/03/03/why-does-paxos-standard-use-ethereum/, accessed February 6, 2022. ("Paxos stablecoins follow the ERC-20 protocol, which is a standard for smart contracts on the Ethereum blockchain. The ERC-20 standard specifies a set of standard functions to manage transactions and track account balances…Please note: In order to send and receive USDP, or BUSD, customers must have an Ethereum wallet that accepts ERC-20 tokens."); *Dai 1.0*, MAKERDAO, https://developer.makerdao.com/dai/1/. ("Dai 1.0 (beta) is a stable coin implemented as an ERC20 token on the Ethereum blockchain."); *TerraUSD (UST)*, COINBASE, https://help.coinbase.com/en/coinbase/getting-started/crypto-education/ust. ("UST is hosted on the Ethereum blockchain."); Do Kwon, *Announcing TerraUSD (UST)— the Interchain Stablecoin*, MEDIUM (Sep. 21, 2020) https://medium.com/terra-money/announcing-terrausd-ust-the-interchain-stablecoin-53eab0f8f0ac. ("A few weeks ago, we launched TerraUSD (UST) with Bittrex Global, and announced plans to take it interchain to every major blockchain, starting with Ethereum and Solana.").

[22] https://coinmarketcap.com/view/stablecoin/, accessed February 6, 2022. Top five stablecoins by market cap were: Tether, USDC, BUSD, TerraUSD, and DAI

[23] https://support.kraken.com/hc/en-us/articles/360000678446-Cryptocurrencies-available-on-Kraken

[24] Coinbase, Does Coinbase support Binance Chain (BEP-2)?, https://help.coinbase.com/en/coinbase/trading-and-funding/sending-or-receiving-cryptocurrency/does-coinbase-support-binance-chain--bep-2-. ("Coinbase does not currently support Binance Chain (BEP-2) because it is a separate blockchain that is not integrated with our platform."); Kraken, Does Kraken support Binance Chain (BEP20/BEP2 tokens)?, https://support.kraken.com/hc/en-us/articles/360049417272-Does-Kraken-support-Binance-Chain-BEP20-BEP2-tokens- ("At this time Kraken does not support Binance Chain (BNB) or the Binance Smart Chain (BSC) (BEP20/BEP2 Tokens). BEP20/BEP2 tokens deposited to any Kraken address will not be credited and will result in the loss of your deposit."); FTX.us https://help.ftx.us/hc/en-us/articles/360043065054-Crypto-Deposits-and-Withdrawals ("USDT can be deposited or withdrawn as either OMNI, ERC20, TRC20, SPL."). All accessed February 6, 2022.

[25] *How to choose a network?*, BINANCE.COM, https://www.binance.com/en/support/faq/85a1c394ac1d489fb0bfac0ef2fceafd. ("BEP2 refers to the Binance Chain. Its native cryptocurrency is BNB. BEP20 refers to the Binance Smart Chain (BSC). Binance Smart Chain is a decentralized blockchain, its native cryptocurrency is BNB. ERC20 refers to the

stablecoins running on the Algorand, Hedera, or Stellar networks. Coinbase's separate Coinbase Wallet does support Stellar, but it appears to do so only via Steallar's native token XLM.[26] The counterexamples to my testimony cited in the hearing failed to account for these differences and elided over key nuances.

Some of the non-dominant blockchains mentioned above have additional challenges of stability, cybersecurity, and difficulty of access for those whose internet access is limited to smartphones. Solana has experienced 6 outages in January 2022 alone,[27] and recently, the most significant bridge between the Solana and Ethereum blockchain, Wormhole, was exploited and over $320 million was stolen.[28] Until recently, many Solana wallets were not available as native devices on mobile phones, a predominant means of accessing the internet for many households in need of remittances. For example, the Solana wallet. Phantom, launched an iPhone app on January 31, 2022.[29] Android is promised soon but not currently available; fake Android versions of Phantom aimed at stealing users' funds do exist, leading Phantom to dedicate a warning to these fake Android apps in their help pages.[30]

There are also additional risks with sending stablecoins through crypto exchanges, such as sending stablecoins to the incorrect wallet address, which renders funds unrecoverable.[31] Traditional money transfer services, in contrast, are subject to Regulation E rights around cancellation and refunds in the event of erroneous transfers.

Traditional money services can certainly use improving; the expense of remittances is something that Dodd-Frank attempted to address and which policymakers should continue to pursue. Research by the World Economic Forum on stablecoins, however, has shown it

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Ethereum network. Its native cryptocurrency is ETH. TRC20 refers to the TRON network. EOS refers to the Enterprise Operation System network. BTC refers to the Bitcoin network….Please make sure that the selected network is the same as the network of the platform you are withdrawing funds from or depositing funds to. If you select the wrong network, you will lose your funds.").

[26] *Supported Assets and Networks*, COINBASE, https://help.coinbase.com/en/wallet/getting-started/what-types-of-crypto-does-wallet-support ("Coinbase Wallet supports the Ethereum, Polygon, Bitcoin, Dogecoin, Litecoin, Stellar Lumens, and Ripple network.").

[27] Mily Nicolle and Bloomberg, *Once billed as a rising star in crypto, Solana's sixth outage this month—and founder's 'lol' tweet—frustrates traders*, FORTUNE (Jan. 25, 2022), https://fortune.com/2022/01/25/solana-founder-anatoly-yakovenko-crypto-crash-blockchain-instability/.

[28] Olga Kharif and Yueqi Yan, *DeFi Project Known as Wormhole Hit With a Potential $320 Million Hack*, BLOOMBERG (Feb. 2, 2022), https://www.bloomberg.com/news/articles/2022-02-02/blockchain-bridge-wormhole-hit-with-potential-315-million-hack.

[29] Phantom (@phantom) TWITTER (Jan. 31, 2022, 9:34 AM), https://twitter.com/phantom/status/1488158676363845632 ("Phantom for iPhone is finally here! Everything you can do on desktop, now in your pocket.")

[30] https://help.phantom.app/hc/en-us/articles/4406705592339-Is-Phantom-available-on-mobile-iOS-or-Android- ("Phantom is NOT available on Android! Using a fake Phantom mobile app will result in your funds being stolen. Please help us by reporting these apps when you see them.")

[31] "FTX.US is not responsible if you send deposits or withdrawals to an incorrect address. If you are withdrawing from FTX.US to an incorrect address, there is likely nothing FTX.US can do to recover the tokens. If you deposit to an incorrect FTX.US address, we can attempt to recover it, but will charge at least $500 or 5% to do so." https://help.ftx.us/hc/en-us/articles/360043065054-Crypto-Deposits-and-Withdrawals.

to lack financial inclusion benefits due to barriers that include the need for internet connectivity, the need to open an account with a cryptocurrency exchange to obtain stablecoins, and the lack of acceptance with merchants (the WEF also cited a lack of options for small business loans, due to high fees and the requirements that loans be over-collateralized).[32]

The proliferation of blockchains, bridges, cryptocurrency exchanges, and stablecoins makes it very difficult to comparison shop across crypto payments systems or against traditional money transfers. The example in my testimony was a good faith effort to provide the Committee with a real world apples-to-apples comparison. I would welcome the opportunity to discuss this more with you or your staff.

Questions for Ms. Alexis Goldstein, Director of Financial Policy, Open Markets Institute, from Senator Robert Menendez:

1. White supremacy is an existential threat for our country. According to the Department of Homeland Security, domestic violent extremism is now the greatest terrorism threat to the U.S., and cryptocurrency is being used to fund these domestic terrorists.

    a. Is there any way to know how much funding white supremacists groups receive in cryptocurrency?

Following the transfers of assets is challenging in the cryptocurrency environment, given the prevalence of self-hosted cryptocurrency wallets identified only through pseudonymous cryptocurrency addresses (in Ethereum, for example, these are a 42-character hexadecimal string beginning with "0x"[33]). The lack of Know Your Customer (KYC) checks at most self-hosted wallet providers, and the lack of KYC throughout the decentralized finance ("DeFi") ecosystem makes any sort of analysis of cryptocurrency asset movements extremely challenging.

According to the Southern Poverty Law Center, it is more difficult now to track these hate groups and domestic terrorists because of their use of digital currencies.

    b. Is it in regulators and Congress' best interest to act and curb terrorist use of cryptocurrency?

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[32] *What is the Value Proposition of Stablecoins for Financial Inclusion?*, WORLD ECONOMIC FORUMS (NOV. 2021), https://www3.weforum.org/docs/WEF_Value_Proposition_of_Stablecoins_for_Financial_Inclusion_2021.pdf.

[33] *What is an Ethereum Address?*, ETHERSCAN, https://info.etherscan.com/what-is-an-ethereum-address/#:~:text=An%20Ethereum%20address%20is%20a,with%200x%20appended%20in%20front.

Yes. For example, a February 2022 report by the United Nations found that North Korean cyber-attacks have stolen millions of dollars worth of cryptocurrency to fund the country's missile programs.[34] Chainalysis found that North Korean-linked hacks extracted nearly $400 million worth of digital assets in 2021, and that the value of North Korea-linked hacks grew by 40% from 2020 to 2021.[35] In addition, FinCEN recently identified in an October report that there were $590 million of ransomware reports in the first 6 months of 2021, more than all of 2020 combined. They also identified approximately $5.2 billion in outgoing BTC transactions potentially tied to ransomware payments.[36]

2. Despite key differences on a financial level, stablecoins are still cryptocurrencies just like any other when it comes to their increasingly widespread use in criminal activities thanks to the anonymity they offer. As stablecoins become more broadly used both as a payment method and as an investment vehicle, Congress and the financial regulators need to address the elements of the cryptocurrencies that make them attractive for illicit uses, including money laundering, fraud, cyberterrorism, and sanctions evasion.

a. Does the anonymity offered by stablecoins and other cryptocurrencies make them more appealing for criminal use?

Yes. Please refer to the answer to question 2(c) below.

As Chairman of the Foreign Relations Committee, I'm particularly concerned about Venezuela, Russia, Iran, and other countries that develop, mine, or use digital currencies to evade sanctions, weakening one of our most effective foreign policy tools.

b. How can Congress and financial regulators minimize the ability of bad actors to use stablecoins or other cryptocurrencies to evade sanctions?

In October guidance, Treasury's Office of Foreign Assets Control made it clear that all cryptocurrency market actors, including "exchangers, administrators, miners, wallet providers, and users" all play "an increasingly critical role in preventing sanctioned persons from exploiting virtual currencies to evade sanctions and undermine U.S. foreign

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[34] *North Korea: Missile programme funded through stolen crypto, UN report says*, BBC (Feb. 6, 2022), https://www.bbc.com/news/world-asia-60281129.

[35] *North Korean Hackers Have Prolific Year as Their Unlaundered Cryptocurrency Holdings Reach All-time High*, CHAINALYSIS (Jan. 13, 2022), https://blog.chainalysis.com/reports/north-korean-hackers-have-prolific-year-as-their-total-unlaundered-cryptocurrency-holdings-reach-all-time-high/.

[36] *FinCEN Issues Report on Ransomware Trends in Bank Secrecy Act Data*, FINCEN (Oct. 15, 2021), https://www.fincen.gov/news/news-releases/fincen-issues-report-ransomware-trends-bank-secrecy-act-data.

policy and national security interests."[37] Compliance with this October guidance may face challenges, given past resistance from the cryptocurrency industry to Marathon Digital creating a sanctions-compliant mining pool.[38] The Treasury Department should work to ensure they take enforcement actions against those out of compliance with the October virtual currency guidance.

c. In general, what challenges do we face in trying to crack down on the use of cryptocurrency for illicit purposes?

As identified by the compliance firm Elliptic in a November 2021 report,[39] and by FinCEN in an October report,[40] those using cryptocurrencies for illicit finance have a range of tools available in order to hide their assets. These include "tumblers" and "mixers" (like Tornado Cash,[41] which is being used to launder the $15 million in Ether stolen from Crypto.com[42]) meant to obscure and hide cryptocurrency transfers from law enforcement, the use of DeFi to convert ransomware payments to other cryptocurrencies, and so-called "Layer 2" solutions which lack the transaction transparency of Layer 1 blockchains.[43] The lack of Know your Customer, Anti-Money Laundering and Countering the Financing of Terrorism compliance across DeFi, which has some $230 billion in assets,[44] is a particular challenge for countering illicit finance. In addition, cryptocurrency exchanges with insufficient KYC/AML controls are another challenge. In November, the Justice Department arrested two foreign nationals charged with deploying Sodinokibi/REvil ransomware to attack businesses and government entities in the United States.[45] The DOJ

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[37] *Sanctions Compliance Guidance for the Virtual Currency Industry (Brochure)*, OFFICE OF FOREIGN ASSETS CONTROL (Oct. 2021), https://home.treasury.gov/system/files/126/virtual_currency_guidance_brochure.pdf.

[38] Kollen Post, *FinCEN Issues Report on Ransomware Trends in Bank Secrecy Act Data*, THE BLOCK (Jun. 2, 2021) https://www.theblockcrypto.com/linked/106865/marathon-ofac-bitcoin-mining-pool-taproot.

[39] *DeFi: Risk, Regulation, and the Rise of DeCrime*, ELLIPTIC (Nov. 18, 2021), https://www.elliptic.co/resources/defi-risk-regulation-and-the-rise-of-decrime.

[40] *FinCEN Issues Report on Ransomware Trends in Bank Secrecy Act Data*, FINCEN (Oct. 15, 2021), https://www.fincen.gov/news/news-releases/fincen-issues-report-ransomware-trends-bank-secrecy-act-data.

[41] https://tornado.cash.

[42] Sam Reynolds, *Crypto.com's Stolen Ether Being Mixed Through Tornado Cash*, COIN DESK (Jan. 18, 2022), https://www.coindesk.com/business/2022/01/18/cryptocoms-stolen-ether-being-laundered-via-tornado-cash/.

[43] Harry Halpin and Ania Piotrowska, *Achieving Network Privacy in Bitcoin: VPNs and Tor Help, But Mixnets Are Needed*, BITCOIN MAGAZINE (Jan. 20, 2022), https://bitcoinmagazine.com/technical/why-mixnets-are-needed-to-make-bitcoin-private.

[44] *DeFi Total Value Locked Hits All-Time High of $236 Billion*, BLOOMBERG/PR NEWSWIRE (Nov. 1, 2021), https://www.bloomberg.com/press-releases/2021-11-01/defi-total-value-locked-hits-all-time-high-of-236-billion.

[45] *Ukrainian Arrested and Charged with Ransomware Attack on Kaseya*, DEPARTMENT OF JUSTICE (Nov. 8, 2021), https://www.justice.gov/opa/pr/ukrainian-arrested-and-charged-ransomware-attack-kaseya.

issued a warrant to seize up to $13 million in funds stored on the cryptocurrency exchange FTX by one of the alleged ransomware attackers.[46]

3. Cryptocurrency certainly has the potential to broaden access to investments and financial services, but I'm worried that some crypto exchanges seem to be adopting some of the same measures seen in traditional banks that raise the barrier of entry.

a. Isn't it true that newer users with the least assets often pay disproportionately high fees to access crypto services?

Yes. For example, Coinbase has two cryptocurrency exchange platforms: Coinbase, and Coinbase Pro. Coinbase is aimed at newer users — but charges astronomically higher fees than its Coinbase Pro offering: it costs $0.99 to purchase $5 worth of Bitcoin or the stablecoin Tether (USDT) on Coinbase, but only approximately $0.02 to do so on Coinbase Pro.[47] Another example is that users with smaller amounts to invest may face higher fees than they could overcome with trading returns or interest income. The crypto borrowing and lending platform Aave, which allows users to deposit crypto assets and earn rewards, and use their crypto as collateral for borrowing, is explicit about this in its FAQ, writing "You can deposit any amount you want, there is no minimum or maximum limit. Still, it's important to take into account that for really low amounts it is possible that the transaction cost of the process is higher than the expected earnings. It is recommended that you consider this when depositing very low amounts".[48]

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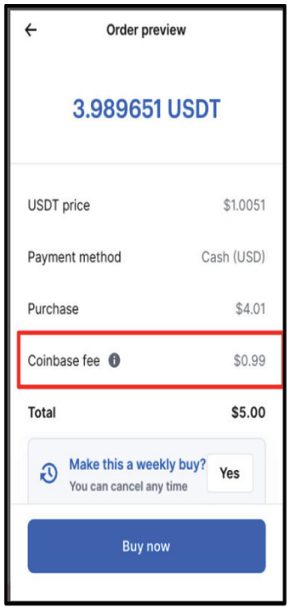
[46] *Warrant to Seize Property Subject to Forfeiture*, DEPARTMENT OF JUSTICE (Sep. 10, 2021) https://www.justice.gov/opa/press-release/file/1447131/download ("In the matter of seizure…all funds up to $13 million in the FTX Trading Limited account")

[47] The precise fee schedule for Coinbase is vague and undisclosed. The Coinbase website states "Fees are calculated at the time you place your order and may be determined by a combination of factors including the selected payment method, the size of the order, and market conditions such as volatility and liquidity." https://help.coinbase.com/en/coinbase/trading-and-funding/pricing-and-fees/fees. By contrast, the precise fee schedule for Coinbase Pro is documented, but the fee depends on if the user is a Maker or a Taker of liquidity, and what the users' "fee tier" is; users that do larger volumes receive lower fees. The maximum fee on Coinbase Pro appears to be 0.50%. The maximum fee on Coinbase is far higher. https://help.coinbase.com/en/pro/trading-and-funding/trading-rules-and-fees/fees.

[48] Aave FAQ, *Is there a minimum or maximum amount to deposit?*, AAVE, https://docs.aave.com/faq/depositing-and-earning.



Screenshot from Coinbase app

b. Won't high fees for new users and traders with fewer assets keep many Americans from making use of these cryptocurrencies?

Yes. To elaborate, the Ethereum blockchain remains the dominant blockchain for DeFi, with an estimated 70% of all DeFi activity, according to an analysis by JPMorgan.[49] As many reports[50] have made clear, the Ethereum blockchain faces challenges of scalability, congestion, and extremely high fees.[51] The mean Ethereum transaction fee was $33.23 on February 5, 2022, and $56.45 on November 11, 2021.[52] Fees to merely transfer a crypto asset from one wallet to another were an estimated $22 on February 6, 2022, and were as high as $54 on November 11, 2021.[53]

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[49] Joanna Ossinger, *JPMorgan Team Suggests Crypto's DeFi Boom Slower Than It Seems*, BLOOMBERG (Nov. 12, 2021), https://www.bloomberg.com/news/articles/2021-11-12/jpmorgan-team-suggests-crypto-s-defi-boom-slower-than-it-seems. ("The Ethereum network now has about a 70% share of DeFi activity, versus a near-total lock at the start of the year, the team added.")

[50] Jeff Benson, *War Over Ethereum Gas Fees and Usability Continues*, DECRYPT (Nov. 22, 2021), https://decrypt.co/86640/war-ethereum-gas-fees-usability-continues.

[51] Will Gottsegen, Ethereum's Fees Are Too Damn High, Coin Desk (Nov. 22, 2021), https://www.coindesk.com/tech/2021/11/22/ethereums-fees-are-too-damn-high/.

[52] Glassnode, Ethereum: Mean Transaction Fees [USD], https://studio.glassnode.com/metrics?a=ETH&c=usd&category=&m=fees.VolumeMean&s=1616752632&u=1644105600&zoom=, last accessed February 6, 2022 at 7:00 PM.

[53] Ethereum Gas Tracker, ETHERSCAN, https://etherscan.io/gastracker (visited Nov. 11, 2021, 6:00 PM and February 6, 2022 7:00 PM).

The problem is bad enough that some DeFi platforms acknowledge the high fees in their FAQs, as Aave does (discussed in the answer to 3(a) above).

This is the same paradigm we see in traditional banks. A recent report from the CFPB showed that in 2019 banks collected $15.47 billion in overdraft fees, which overwhelmingly affect the lowest-income Americans. If stablecoins are going to fulfill the promise of democratizing finance, they need to be accessible to everyone.

a. What changes should be made to ensure cryptocurrency is more accessible to smaller investors?

Exchanges like Coinbase could consider extending the lower fees it charges to its Coinbase Pro customers (noted in the answer to question 3b) to the users of the Coinbase platform.

However, a better policy option would be for Congress and the relevant regulatory agencies to examine methods to extend banking services to unbanked and underbanked households, continue work on reducing the cost of remittances and otherwise enable broadband access to allow users to connect to banking services cheaply and efficiently.

RESPONSES TO WRITTEN QUESTIONS OF SENATOR TOOMEY FROM JAI MASSARI

Q.1. Ms. Massari, during your testimony you encouraged Congress to consider an optional Federal charter specific to stablecoin issuers. Specifically, you said that a "new and well-designed Federal charter could accommodate a business model premised on the issuance of stablecoins fully backed by short-term, liquid assets and the provision of related payments services. This charter could impose requirements for reserve asset composition while tailoring leverage ratios or risk-based capital requirements and other requirements to the nature of the business model. And it could restrict the stablecoin issuer from engaging in riskier activities, to minimize other claims on reserve assets. This option would likely be welcomed by many stablecoin issuers even though it would entail comprehensive Federal oversight."

How should a new charter designed for stablecoin issuers differ from existing bank charters at the State or Federal level?

A.1. The purpose of a new type of charter would be to accommodate the different business model of true stablecoin issuers from the business model of banks. As discussed in my testimony, banks engage in maturity transformation and liquidity transformation because they have short-term demand liabilities—that is, demand deposits—and are able to hold long-term loans and other illiquid and risky assets—for example, 30-year nonconforming mortgages, credit card loans, and real estate used as business premises. These activities are important to U.S. consumers, businesses, and the U.S. economy.

Accordingly, U.S. banking regulations have been developed to ensure that banks can execute their business model in a safe and

sound manner. For example, banks are subject to leverage and risk-based capital ratios that are calibrated based on the assumption that a majority of their assets are relatively illiquid and riskier than cash and genuine cash equivalents. Deposit insurance requirements and lender-of-last resort facilities are designed to address the risk of bank runs that can occur when depositors lose confidence that their banks are able to convert their illiquid assets to cash fast enough to satisfy withdrawal requests.

True stablecoin issuers,[1] on the other hand, should not meaningfully engage in maturity or liquidity transformation in connection with their stablecoin activities. Their obligation to redeem the stablecoins they issue should be at least 100 percent backed by cash and cash equivalents. The stablecoin business, rather than generating returns from long-term lending and investments, is instead focused on payment services. Indeed, it is the potential for stablecoin systems to operate as retail payments systems at scale that has raised concerns among U.S. financial regulators, as reflected in the PWG report.[2]

A Federal charter for stablecoin issuers should be designed to address the business model of true stablecoin issuers and the characteristics of true stablecoins and the risks arising from the issuer's activities—which, in the case of credit, liquidity, and price risks, are substantially less than the same risks arising from maturity and liquidity transformation. Regulation of true stablecoin issuers should include restrictions on permissible types of stablecoin reserve assets to cash and genuine cash equivalents, auditing and transparency standards, obligations to address illicit financing and sanctions considerations, and requirements to address traditional and novel operational risks. In addition, permitting stablecoin issuers to be members of the Federal Reserve System with Federal Reserve master accounts would provide the Federal Reserve with regulatory authority over those issuers. A new Federal charter should tailor existing leverage ratios to the business model of true stablecoin issuers. The current leverage ratios applicable to banks engaged in maturity or liquidity transformation are excessive, unnecessary, and unworkable when applied to true stablecoin issuers whose obligations to redeem their stablecoins are at least 100 percent backed by cash and cash equivalents. Likewise, a requirement that federally chartered stablecoin issuers obtain deposit insurance is not needed because a properly designed reserve requirement is an alternative to Federal deposit insurance, as recognized by leading economists since at least the 1930s.[3]

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[1] I describe the characteristics of "true stablecoins" in more detail in my written testimony.

[2] President's Working Group on Financial Markets, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency, Report on Stablecoins (Nov. 2021) 15, *https://home.treasury.gov/system/files/136/StableCoinReport-Nov1-508.pdf* (noting that "prudential concerns relate to the potential for stablecoin runs, payment system risks, and the possibility that some stablecoins may rapidly scale").

[3] See, e.g., Paul H. Douglas et al., "A Program for Monetary Reform", (1939) (outlining the Chicago Plan), *https://www.monetary.org/pdfs/a-program-for-monetary-reform.pdf*; Milton Friedman, "A Program for Monetary Stability", (*Fordham Univ. Press* 1992); Ronnie J. Phillips, "The 'Chicago Plan' and New Deal Banking Reform", Working Paper No. 76 (June 1992), *https://www.levyinstitute.org/pubs/wp/76.pdf*; Jaromir Benes and Michael Kumhof, "The Chicago Plan Revisited", IMF Working Paper (2012), *https://www.imf.org/external/pubs/ft/wp/2012/wp12202.pdf*; see also Davis Polk & Wardwell LLP, "U.S. Regulators Speak on Stablecoin and Crypto Regulation", (Nov. 12, 2021), at n. 12–13 and accompanying text, *https://www.davispolk.com/insights/client-update/us-regulators-speak-stablecoin-and-crypto-regulation.*

RESPONSES TO WRITTEN QUESTIONS OF SENATOR SINEMA FROM JAI MASSARI

Q.1. In recent years, digital assets have become increasingly popular holdings for publicly traded standards. Currently, the generally accepted accounting principles (GAAP) set by the Financial Accounting Standards Board use an intangible assets model for accounting digital assets. What potential issues, if any, may arise from using an intangible assets model to assess stablecoin holdings?

A.1. As you note, how digital assets, including stablecoins, are treated from an accounting perspective is an important issue. I am not an accounting expert and, therefore, I cannot provide input on the specifics of GAAP or the precise issues associated with any particular accounting method. Based on my experience as a legal practitioner, however, I believe it would be helpful for GAAP standard setters to evaluate whether differences in treatment between digital assets and other types of financial assets make sense, particularly in light of increasing corporate holdings of digital assets.

Q.2. If a new model of accounting is designed for digital assets, should stablecoins be treated similarly to other cryptocurrencies?

A.2. I am not an accounting expert and therefore cannot speak to the appropriate accounting treatment of digital assets generally or stablecoins specifically. Based on my experience as a legal practitioner focused on U.S. financial regulation, however, I observe that different types of digital assets have different economic and legal characteristics. Viewing all digital assets as the same—either for legal or accounting purposes—merely because they are recorded and transferred on a blockchain seems inconsistent with the approach we take for other types of assets. Therefore, as should be the case with the legal classification of these assets, the accounting treatment of digital assets should be based upon the economic characteristics of the digital asset.

Q.3. How can the GAAP accurately account for stablecoin issuers' holdings with awareness of holdings for the purpose of stablecoin backing?

A.3. I am not an accounting expert and therefore cannot comment on the GAAP treatment of stablecoins. However, as a matter of consumer protection more broadly, I think it is critically important that stablecoin holders have clear and accurate information about stablecoin reserve composition.

RESPONSES TO WRITTEN QUESTIONS OF CHAIRMAN BROWN FROM DANTE DISPARTE

Q.1. At the hearing, I asked whether Circle would continue to allow USDC to be used to facilitate cryptocurrency speculation if Circle received a bank charter. To be clear, if Circle received a bank charter, would it place any limitations on how USDC could be used in DeFi markets? If so, please describe such limitations.

A.1. As the sole issuer of USDC, Circle supports its broad adoption to enable U.S. dollars to exist in digital form on the internet. We will continue to support digital dollars on the internet as a medium

of exchange, a store of value, and a unit of account, whether we receive a national bank charter or not.

Respectfully, Circle does not "allow USDC to be used to facilitate cryptocurrency speculation," any more than the United States Mint or a United States bank "allows" U.S. currency to be used to speculate on gold or individual stocks. The use of USDC for investments and digital asset capital markets activities still only confers the USDC holder with something denominated and pegged to a dollar. Put another way, USDC has the same use cases as a U.S. dollar, and because Circle is regulated by the appropriate authorities, we have the same relationship with USDC users as banks have with people and institutions that use U.S. dollars.

Circle does restrict its customers to institutions that comply with and satisfy the company's Know Your Customer (KYC) requirements and are not on sanctions lists, such as the U.S. Department of the Treasury Office of Foreign Assets Control (OFAC) list. Broadly speaking, if a USDC user breaks the law or violates applicable regulations, Circle will follow appropriate measures, including applicable financial crime compliance steps in collaboration with law enforcement.

We believe becoming a full-reserve national digital currency bank will enable frictionless, instant, and nearly free payments of U.S. digital dollars on open, permissionless blockchains. We believe a digital bank will create a safer and more resilient financial system. It will also build on open networks to support new forms of capital formation and intermediation. Traditional capital formation through today's banking system, including the borrowing and lending of money, is expensive, inefficient, and exclusive. Lending money to banks for most individuals yields near-zero interest returns. At today's inflation rate, individual depositors are losing approximately 7 percent of their wealth every year. We can do better. Digital dollars can increase global prosperity and economic freedom. New forms of digital asset capital market activities offer a less expensive, more prosperous, faster, and more inclusive alternative.

Q.2. In response to my question about limiting the use of USDC in DeFi, you noted that "Circle's counterparties, as a company, are other institutions and companies," and that "[w]e don't face the retail market as a retail payment system." You also said that the "advent of a whole host of internet-native capital markets, payments, and an always-on economy that is built around these innovations in public blockchains is important."

You emphasized in your testimony as well that USDC has important applications in strengthening financial inclusion, and could even be used in humanitarian contexts.

How can Circle ensure that USDC benefits consumers if its counterparties are institutions and companies, whose practices with respect to the retail market may undermine financial inclusion, and consumer and investor protection? Can Circle advance its goals if the policies and practices that govern how consumers use USDC are determined by other institutions?

A.2. Circle promotes responsible financial service innovation in the growing digital asset market. USDC provides an important compo-

nent of a robust and interoperable payment system, fostering financial inclusion and competition, which in turn helps reduce costs for financial success. Circle strongly believes that institutions and companies, including Circle, must be committed to financial inclusion. That is why we have announced our Circle Impact initiative, and why we are deliberately focusing on where we can apply USDC to humanitarian use cases, such as our collaborative efforts to support doctors in Venezuela, among other efforts.

Moreover, for the reasons provided in response to Senator Brown's first question, Circle believes we are able to advance our goals notwithstanding counterparties who might not share Circle's commitment to financial inclusion and investor protection. There are two reasons for this: first, the very nature of USDC fosters increased financial inclusion and investor protection, for all the reasons previously identified. Second, the fact that other intermediaries might have policies or practices that are inconsistent with inclusion and consumer protection is not the fault of USDC itself. Once again, the proper analogy is to U.S. dollars: a company that transacts exclusively in U.S. dollars, but does bad things, does not implicate the dollar itself—it is that company and its policies that are to blame, not the currency in which it transacts business. The existence and increasing prevalence of companies with similar goals and compliance protocols as Circle will help strengthen financial inclusion, and reduce the risk to consumers and investors.

Q.3. Further, once USDC has been issued to a Circle institutional customer, is Circle deprived of control of the token? Could it regulate how that entity uses USDC, or regulate services the entity offers retail customers that employ USDC? If so, how?

A.3. Congress has the authority to prohibit certain activities, and regulators have the obligation to enforce the law. Users and issuers of stablecoins like USDC have the obligation to comply with the law. The issuer of a stablecoin should not use its position to either make law or regulate otherwise lawful conduct of a stablecoin user. Circle does not intend to use its position as issuer of USDC to control lawful use cases of USDC.

Circle's institutional customers make USDC available to their respective markets. Circle partners only with those institutions that comply with and satisfy Circle's KYC requirements and are not on sanctions lists, such as the OFAC list. Circle also verifies the identity all of its customers pursuant to the company's Anti-Money Laundering (AML)/Counter Terrorist Financing (CTF) and Sanctions Program in compliance with regulatory requirements and expectations, including but not limited to the Bank Secrecy Act (BSA). Circle has the ability to take action to freeze or seize USDC on its platform. That represents the first line of defense and the first line of control. Circle also works in accordance with its licensing and other regulatory requirements to support the safe and sound use of USDC on the blockchains that it supports. Similarly, once a USDC token is redeemed, Circle and law enforcement have a line of sight into whether illegal activity has taken place.

Additionally, the Centre Consortium has the ability to block individual blockchain addresses from sending and receiving USDC. Examples of such a scenario in which Centre would take action in-

clude to comply with applicable law, regulation, or court order, or a threat to the USDC network. Circle does not exercise control over USDC blocking.

Finally, a virtual asset service provider (VASP), digital wallet, bank or another intermediary, whether or not they are a Circle customer, also has the ability, and at times the duty, to freeze transactions or tokens, subject to their respective regulatory, legal, and compliance requirements.

RESPONSES TO WRITTEN QUESTIONS OF SENATOR TOOMEY FROM DANTE DISPARTE

Q.1. Mr. Disparte, as you and I discussed at the hearing, I am concerned about the misleading assertion that stablecoins are only used to facilitate lending, borrowing, and trading of other digital assets, and that stablecoins are not used to make payments for real-world goods and services. Contrary to this claim, your testimony noted that the stablecoin USDC is increasingly being leveraged by major credit card companies, small businesses, remittance companies, and others as a settlement option for their businesses.

Could you provide data and/or examples regarding the extent to which USDC is being used for payments (including cross-border payments) and remittances?

A.1. Trusted digital currencies like USDC and blockchain-based financial services are building bridges between internet-native applications and real-world financial use cases and transactions. None is more important for financial inclusion than peer-to-peer remittances, which cumulatively in prepandemic times amounted to more than $700 billion a year. Circle is working to address inefficiencies that have plagued traditional remittance transfers, such as slow delivery and high fees for sending money across borders. Examples of Circle's work in this area include:

- Partnering with MoneyGram International, one of the world's largest money transfer companies, to enable USDC-denominated remittances on the Stellar blockchain and facilitate cross-border payments for millions of customers worldwide. With the global reach of MoneyGram's services and the speed and low cost of transactions on Stellar, people can convert their cash into and out of USDC, giving them access to fast and affordable digital asset services that may have previously been out of reach.
- Leveraging Circle's payments infrastructure and USDC, Bitso, the largest cryptocurrency exchange platform in Latin America with more than 3 million users, launched an initiative to make it easier, faster and more secure for Mexican residents to send and receive cross-border payments to or from the U.S. In 2020, remittances increased nearly 10 percent to over $40 billion. Remittances continued to increase in 2021, largely attributed to the growth of migrant labor in the United States.
- Helping the legitimate, elected Government of Venezuela distribute millions of dollars of desperately needed aid to the Nation's frontline medical workers as they battled coronavirus under horrendous conditions. Circle partnered with the

Bolivarian Republic of Venezuela (led by President-elect Juan Guaido), U.S.-based fintech Airtm, and the U.S. Government to send the relief funds. The joint initiative established a disbursement pipeline that leveraged USDC to bypass the controls that Nicolas Maduro's authoritarian Government placed on Venezuela's financial system.

Additional examples of how Circle is powering USDC to facilitate payments include:

- Working in concert with Clothia, Visa, and Crypto.com, Circle is making it easier for a clothing marketplace to pay designers globally. Traditional cross-border payments are complex, costly and can take a long time to process. Clothia, a U.S.-based, curated marketplace that showcases the best up-and-coming fashion designers from around the world-managing operations and distribution so their designers can focus on design, artistic expression, and manufacturing. The company currently represents 140+ designers in 24 countries. Given their global business model, Clothia must make timely payments to designers around the world. Clothia chose Circle, USDC, Visa, and Crypto.com as their payout partner to improve the designers' payment experience.
- Partnering with Aid:Tech, a financial services company that brings transparency and accountability to Federal relief distribution, to leverage Circle's APIs and USDC to speed up the delivery of aid.
- Partnering with Wintermute, which selected USDC to convert digital assets into fiat in support of the Covid Relief Fund in India, an initiative to provide food, medical equipment and even vaccines to those affected by the virus. Wintermute selected Circle because of the company's swift minting and redeeming procedure, reliable transfer capabilities on multiple blockchains, and its worldwide presence which allows for efficient conversions to fiat.
- Coordinating with Visa, the Stellar blockchain and the fintech startup Tala to drive crypto adoption for underbanked customers in emerging markets. More than 3 billion people have limited or no access to services to borrow, save, or grow their money; Tala's partnership with Visa and Circle will help bring equitable financial tools to a massive underserved population.
- Partnering with the philanthropy Endaoment to create a disaster relief fund to help communities in the Midwest and South regions of the United States that were devastated by tornadoes in December 2021.

Additional data points on how USDC is helping to create and enable an internet-native ecosystem built on digital dollars, with U.S. Dollar assets held within the care and custody of U.S. regulated financial institutions:

- Over 100 billion USDC issued, with over 50 billion in circulation as of February 6, 2022, and 10,000 percent growth over 2 years.

- Nearly $2.5 trillion in on-blockchain payments and settlements in 2021, and 4.6 million active wallet addresses with USDC transactions in 2021 (Source: Internal Data Aggregations).
- 223 digital wallets support USDC transactions in over 175 countries (Source: Apple App Store and Google Play Store combined).
- 34 leading exchanges support trading and USDC conversion in 180+ countries, providing liquidity and convertibility to key currency markets around the world.
- More than 200 blockchain protocols supporting USDC.
- Hundreds of regulated financial institutions (VASPs) in financial centers around the world are supporting USDC.

RESPONSES TO WRITTEN QUESTIONS OF SENATOR SINEMA FROM DANTE DISPARTE

Q.1. In recent years, digital assets have become increasingly popular holdings for publicly traded standards. Currently, the generally accepted accounting principles (GAAP) set by the Financial Accounting Standards Board use an intangible assets model for accounting digital assets. What potential issues, if any, may arise from using an intangible assets model to assess stablecoin holdings?

A.1. There are many different types of digital assets that exist today, and while these assets all rely on blockchain technology, there are significant differences among them in terms of economics, rights, obligations and risks, which need to be considered in determining the appropriate accounting framework. U.S. GAAP does not specifically address a holder's accounting for digital assets. The accounting therefore has to be evaluated based on the nature of the asset, the type of entity that holds the asset, and how the asset is held. In applying existing accounting standards, companies typically consider the definitions of intangible assets, financial instruments, inventory as well as cash and cash equivalents. In this response, we will differentiate between cryptocurrencies, such as Bitcoin, and reserve-backed stablecoins, such as USDC.

Cryptocurrencies

Current U.S. GAAP does not provide specific authoritative guidance related to the accounting for digital assets, and as such, cryptocurrencies like Bitcoin are typically classified as indefinite-lived intangible assets. As a result, holders record impairment losses as the cryptocurrencies' fair value falls below their carrying value, however such impairment losses are not reversed when the market values of these assets subsequently increase. Given the inherent volatility in many cryptocurrencies' market values, this accounting framework does not reflect the true economic value of the digital assets held by companies on their balance sheet at each reporting period. Therefore, companies that hold these digital assets generally use non-GAAP earnings measures in order to provide more relevant information to financial statement users, which reflect the true economics, rights, obligations, and risks of the digital

assets held and more accurately explain their financial performance.

In the recent Financial Accounting Standards Board (FASB) Invitation to Comment (ITC) Agenda Consultation, many cryptocurrency industry members, public companies, and public accounting firms raised similar concerns about the application of the intangible asset accounting framework to cryptocurrencies, stating it does not provide relevant information to financial statement users because it does not appropriately reflect the underlying economics associated with digital assets and places unnecessary operational burdens on the financial reporting process for the companies that hold them. Our view is that a fair value accounting model for cryptocurrencies would give a more comprehensive view of the underlying economics and provide more relevant information to financial statement users.

Clear and authoritative U.S. GAAP guidance providing a fair value accounting model for cryptocurrencies would allow companies to more accurately present the economics, risks, and rewards of holding these assets, making financial statements more relevant and useful to financial statement users. Clear guidance would also minimize the operational burden on companies and align U.S. GAAP with International Financial Reporting Standards (which does provide an option to record upward movements after an indefinite-lived intangible asset has been impaired).

Stablecoins

A stablecoin is a blockchain-powered digital currency that combines the benefits of traditional digital assets (cryptographic security, digital transfer and settlement finality, fast transaction speeds, potentially lower transaction costs, and clear auditability) with the price stability of traditional fiat currencies. This is achieved by pegging the value of the stablecoin to a national currency or other reference assets. Because of the variety of facts and circumstances that may exist, there is no authoritative guidance around the accounting for stablecoins.

At Circle, we believe the accounting treatment of reserve-backed stablecoins should reflect the underlying economics of the reserves and the regulatory framework in which the stablecoin operates, which supports the value, intended use, functionality, and features of the stablecoin. Given the lack of authoritative guidance under U.S. GAAP, there is diversity in practice. Holders may elect to apply the intangible assets model while others have regarded them as financial instruments, as they are entitled to redeem the coins for cash from the issuer. As previously outlined, the intangible assets model does not reflect the stability and rights related to a stablecoin, resulting in substantial operating burdens to accounting and financial reporting processes, and having little relevance to financial statements users.

The accounting treatment of stablecoins like USDC is a policy opportunity for the United States. In September 2021, the Conference of State Bank Supervisors released the Money Transmission Modernization Act for State adoption as part of States' broader effort to modernize their financial regulatory systems. This model law aims to replace 50 sets of State-specific money transmitter laws

and rules with one single set of nationwide standards and requirements created by State and industry experts. The measure proposes a legal classification that applies to stablecoins, which reads as follows:

> (aa) "Stored value" means monetary value representing a claim against the issuer evidenced by an electronic or digital record, and that is intended and accepted for use as a means of redemption for money or monetary value, or payment for goods or services.

Notwithstanding the fact that there will likely be further accounting standard developments around digital assets and stablecoins, we believe reference to the underlying reserves, the rights conferred to holders of a stablecoin, and the applicable regulatory framework under which the stablecoin operates can inform the relevant U.S. GAAP framework to apply in the absence of authoritative guidance. In the case of Circle, the U.S. dollar-denominated reserves backing USDC are held in the care, custody and control of the U.S. regulated banking system and issued in compliance with money transmitter requirements under the electronic stored value definition above. The reserves are strictly comprised of cash and short-duration U.S. obligations, and we have consistently made publicly available reports on the reserves and their sufficiency to meet demands for USDC outstanding with third party attestations from a leading global accounting firm on a monthly basis.

Under the current U.S. GAAP framework, our view would be that U.S. dollar-denominated asset-backed stablecoins like USDC should be accounted for by holders as financial instruments (as USDC represents a right to receive cash from the issuer). Holders of a stablecoin from an issuer who meets the definition of a financial institution which functions similar to a demand deposit with rights to that deposit transferable over a public blockchain, could potentially meet the definition of and could be considered cash and cash equivalents under current U.S. GAAP.

We believe that a comprehensive framework under U.S. GAAP should be developed and given the prudential standards underlying USDC issuance, USDC should be accounted for in contemplation of a holders' right to redeem the tokens for U.S. dollars with consideration to the high-quality liquid assets the reserves supporting its value and the regulatory framework we operate in. The financial reporting of the reserves that support the stablecoin should focus on providing transparency about the nature and risks of these holdings to financial statements users.

We look forward to working with standard-setting bodies, public accounting firms, and others to advance those principles.

Q.2. If a new model of accounting is designed for digital assets, should stablecoins be treated similarly to other cryptocurrencies?

A.2. We believe that a comprehensive accounting framework designed for digital assets should reflect the different types of digital assets and the different underlying economics, rights, obligations, risks, and uses of those assets.

The purpose of USDC and other similar stablecoins, is to function as a stable store of value and convenient medium of exchange,

with the same range of potential downstream applications as a U.S. dollar (or other equivalent fiat currency). USDC is not designed as an investment product as there is no reasonable expectation of profits by USDC holders, and accordingly is not a security. As the reserves backing USDC are solely invested in U.S. dollars and short-duration U.S. obligations, the instrument imports the monetary policy of the U.S. Federal Reserve Board. The regulatory framework under which we operate requires us to redeem USDC for one U.S. dollar; however, most digital assets, such as Bitcoin and Ether, do not hold value related to specific reference assets and are therefore subject to volatility and differing risks and rewards. Given the differing underlying economics and risks and rewards associated with different digital assets, we believe USDC and other stablecoins should be accounted for as a distinct class of digital assets within a future authoritative framework for accounting for digital assets.

When considering how stablecoins, as a distinct class of digital assets should be accounted for within a future authoritative accounting framework, we believe USDC and other similar stablecoins should be accounted for in contemplation of a holders' right to redeem the tokens for U.S. dollars and in relation to the high-quality liquid assets the reserves supporting the value are invested in. In our view this would mean that stablecoins like USDC should be accounted for as a financial instrument or as cash and cash equivalents by holders.

Q.3. How can the GAAP accurately account for stablecoin issuers' holdings with awareness of holdings for the purpose of stablecoin backing?

A.3. We value trust, transparency and compliance and would be supportive of U.S. GAAP disclosure requirements which provide financial statements users with relevant information to assist in their determination as to the stability, composition, and values of reserves supporting the stablecoins issued by the respective issuer.

In terms of market trust, transparency, and accountability, Circle has consistently and voluntarily reported our U.S. dollar-denominated reserves and the sufficiency of these reserves to meet the demands of all USDC outstanding as evidenced by third-party attestations published monthly. Circle has also prioritized building, designing, and guarding the prudential standards for USDC inside of and conforming with the prevailing U.S. regulatory standards that apply to leading fintech and payments firms such as PayPal, Block (formerly, Square), Venmo, and Stripe, among others.

Circle would welcome Federal regulations requiring rigorous standards for the assets backing U.S. dollar-denominated stablecoins as well as requirements for public disclosure and accountability. In Circle's view, the assets backing dollar-referenced stablecoins should be fully reserved and backed by U.S. dollars or short-duration U.S. obligations. In addition, financial statement disclosure requirements need to focus on providing transparency about the nature and risks of these assets and should be applied consistently by stablecoin issuers, who should be required to regularly report on the reserves and be subject to rigorous and consistent capital requirements.

From an economic competitiveness standpoint, this is an opportunity for the United States financial accounting standards setters, such as the FASB, to lay the foundation for how stablecoins are accounted for and disclosed on companies' balance sheets. The FASB should lead the way in developing a robust and clear accounting framework to provide financial statement users with high quality and comparable information, while balancing financial statement preparers' financial reporting and operational challenges, especially given consideration that the U.S. dollar is the reference asset of choice for the most widely used and popular stablecoins in circulation.

RESPONSES TO WRITTEN QUESTIONS OF CHAIRMAN BROWN FROM HILARY J. ALLEN

Q.1. Stablecoin companies frequently claim that their products are safe because reserves are invested in low-risk, highly liquid assets, such as bank deposits. Very low-risk assets, however, have low or even nominal returns. If stablecoin reserves are invested in these assets, do stablecoin providers face pressure to obtain revenue from stablecoin users in other ways, such as by cross-selling DeFi investments or charging transaction fees? Is there evidence in the market so far that firms face these incentives?

A.1. It goes without saying that firms need to generate revenue; if reserve assets generate insufficient returns, then stablecoin issuers will have to generate revenue elsewhere. If transaction fees are disclosed upfront and not structured to exploit consumers' cognitive biases, there is nothing wrong with charging fees for services that people are willing to pay for. A lack of transparency about revenue sources may be cause for concern, though; it may be that the stablecoin is being financially supported by hidden fees or by arrangements that conceal a hidden conflict of interest (as an analogy, in 2020, the SEC brought an enforcement action against Robinhood Financial LLC for failing to disclose to its customers that its commission free brokerage model was supported by "payments from trading firms for routing customer orders to them").[1]

Circle's Amended S-4 disclosure (filed with the SEC on December 23, 2021) states that for the 9 months ended September 30, 2021, it generated more revenue from what it terms "Transaction and Treasury Services" ($29,108,000) than "USDC interest income" ($21,214,000).[2] Circle projects that by 2023, $622,000,000 of revenue will come from Transaction and Treasury Services while $196,000,000 of revenue will come from USDC interest income.[3] Circle describes Transaction and Treasury Services as including "(1) Transaction Services, (2) Integration Services, and (3) Circle Yield. All three of the services are components of a unified suite of services that are accessed by, and integrated with, the Circle Account by providing customers with the infrastructure required to

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[1] SEC, "SEC Charges Robinhood Financial With Misleading Customers About Revenue Sources and Failing To Satisfy Duty of Best Execution", (Dec. 17, 2020) (available at *https://www.sec.gov/news/press-release/2020-321*).

[2] Circle Internet Finance Public Limited Company, Amendment No. 2 to S-4 Filing, p. 112 (Dec. 23, 2010) (available at *https://www.sec.gov/Archives/edgar/data/0001876042/000110465921153174/tm2124445-4-s4a.htm*).

[3] Id. at 132.

process a wide variety of transactions and support their financial infrastructure."[4] One industry journalist described these transaction and treasury services as "probably the least understood and least detailed part of [Circle's] offerings"[5]—Circle may ultimately face conflicts between the interests of the businesses and financial institutions that utilize these transaction and treasury services on the one hand, and the consumers who use the USDC on the other hand.

Q.2. Major stablecoin issuers, including Circle and Tether, do not allow retail stablecoin users to redeem their coins directly at the issuer. Yet most DeFi arrangements are used extensively or even predominantly by retail consumers, and, as discussed at the hearing, stablecoins are integral to these platforms. Are there risks that arise from the fact that DeFi is accessible to consumers, but important stablecoin redemption processes are not? Please explain.

A.2. Consumers are vulnerable to many new types of scams proliferating in the DeFi ecosystem, including rug pulls.[6] Consumers may also find that the stablecoins themselves become worthless (at least outside of the DeFi ecosystem) if exchanges like Coinbase become compromised and so the stablecoins cannot be converted into cash. If this were to happen, any profits made in the DeFi ecosystem would be unavailable for the purchase of real-world goods and services. I discuss problems associated with exchange outages in more detail in response to the next question.

I would also observe that where stablecoin issuers do not allow retail stablecoin users to redeem their coins directly at the issuer, that calls into question the value of the reserve for consumers. If a stablecoin is backed by a reserve of assets held by the stablecoin issuer AND a stablecoin holder can redeem their stablecoin directly from the issuer, then the reserve inspires confidence that when the time comes for redemption, the stablecoin issuer will be able to honor the request by liquidating reserve assets (if necessary). In this situation, the stablecoin holder is in a similar position to the holder of a share in a money market mutual fund. If, however, there is no direct redemption right, it is unclear what claim stablecoin holders have on reserve assets. Do holders have contractual rights against an exchange that would force the exchange to convert their stablecoins at the expected value? If so, does the exchange have any direct contractual right of redemption against the stablecoin issuer at the expected value? Can these contractual rights be suspended in an emergency? I would humbly submit that the Senator might wish to seek answers to these questions to determine both the value of the reserve for stablecoin holders, and whether there is real run risk associated with stablecoins.

Q.3. When stablecoin issuers preclude retail users from redeeming directly, consumers can convert stablecoins into fiat currency by selling the tokens for dollars on exchanges. But as we saw on the day of the hearing—when major crypto exchanges experienced

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[4] Id. at 107; see also id. at 182.

[5] Brady Dale, "USDC Is Only Circle's Second-Biggest Business", SPAC Filing Shows, *Coindesk* (Jul. 8, 2021) *https://www.coindesk.com/business/2021/07/08/usdc-is-only-circles-second-biggest-business-spac-filing-shows/*.

[6] Marco Castrovilli, "How To Spot a Rug Pull in DeFi", *Cointelegraph* (Nov. 11, 2021) (available at *https://cointelegraph.com/news/how-to-spot-a-rug-pull-in-defi-6-tips-by-cointelegraph*).

glitches in their price quote systems—exchanges have been prone to outages and malfunction. Please discuss how exchange outages or errors can affect stablecoin markets and stablecoin holders. Are there scenarios involving exchange failures that give rise to particular concern?

A.3. When a stablecoin is designed so that a holder has no direct right of redemption, holders are entirely reliant upon exchanges like Coinbase to "cash out" of their stablecoin. Because stablecoins aren't readily accepted by sellers of goods and services outside of the DeFi ecosystem, exchange outages can obviously cause real harm for a holder who needs to convert their stablecoins to cash to make time-sensitive purchases of real-world goods and services.

At a systemic level, this kind of outage can damage confidence in the convertibility of stablecoins more generally, which could even cause runs on stablecoins through unaffected exchanges (assuming that stablecoin holders have a contractual right to compel those exchanges to convert their stablecoins, which they might not). During a panic, unexpected volumes of conversions could stress the infrastructure of exchanges, causing more operational problems and potential shutdowns, which would further damage confidence in a vicious cycle.

Q.4. Please describe any risks and benefits that you believe are presented by smart contracts. In what contexts, if any, are smart contracts a valuable tool? Could smart contracts create systemic risks? As compared with traditional contracts, are smart contracts useful in consumer or small business contexts?

A.4. I believe there are significant systemic risks associated with smart contracts, because of their automated execution. Rigid execution often seems appealing to parties in good times because it creates more certainty and the increased efficiency reduces transaction costs. However, in bad times, this can create systemic problems, as I explain in the following excerpt from my forthcoming book *Driverless Finance: Fintech's Impact on Financial Stability* (OUP 2022):

> because the future is inherently uncertain, no contract (paper or smart) will ever be able to cater for every possible eventuality that a financial asset might be confronted with. With paper contracts, though, the parties have opportunities to amend their contracts or agree not to enforce them. Courts can also intervene to fill in the blanks in paper contracts: law professor Katharina Pistor has observed that "the elasticity of law has proved time and again critical for avoiding a complete financial meltdown." In a financial system dominated by smart contracts, though, these kinds of interventions may come too late to prevent runs, fire sales, and other destabilizing harm. These problems arise because, even if the parties agree among themselves not to enforce a smart contract or a court issues an injunction preventing them from carrying out a smart contract, the parties can't effect this on their own. The execution of a smart contract can only be paused, changed, or undone with the consent of whoever controls the relevant distributed ledger, and where the ledger is de-

> centralized and permissionless (like the Ethereum ledger) there is no single individual who can coordinate the process-even if the parties to the smart contract (as well as the public interest) all support it.
>
> Instead, any pause, change or reversal of a smart contract will require the consensus of all the nodes in the distributed ledger supporting the smart contract, which will take time. To give some context, after the DAO was hacked, it took over a month for the nodes of the Ethereum distributed ledger to coordinate their response. It seems highly unlikely that this kind of consensus could ever be achieved before the smart contract executes; undoing the transaction will probably be the only alternative. Undoing a transaction requires either a change in the ledger's underlying software, or what is known as a "hard fork," where the ledger is split in two with one version of the ledger not recognizing the problematic transaction. Identifying, contacting, and convincing a majority of the nodes of a decentralized ledger to accept either of these approaches would not be a quick process, and the run or fire sale we are trying to prevent could be over—and the damage done—long before the transaction were reversed.

Turning from systemic risk to the consumer/small business context, Professor Katharina Pistor has emphasized the hardships consumers faced because of the limited contractual relief available to them during the 2008 crisis. Pistor pointed out that the more rigid the contract, the more difficult the consumer's position:

> Consider the different fates of homeowners in the context of plummeting real estate markets in countries around the world. Homeowners in the U.S. may be on the periphery of the U.S. financial system.: While major financial intermediaries received emergency liquidity support from the Fed or Government bailouts, homeowners faced personal bankruptcy and foreclosure in accordance with the law. However, they are still better off than their counterparts in Hungary or Spain. The debt of Hungarian homeowners, for example, was compounded by the fact that two-thirds of mortgages were made in foreign currency—the euro or Swiss franc—and these currencies appreciated in the midst of the crisis (by 40 percent) relative to the domestic currency. Moreover, in Spain (and most other countries), mortgage-backed loans are full recourse loans (whereas in many States in the U.S. they are not. If property value is under water, homeowners still carry the burden of the entire amount they had contracted for. [7]

Self-executing smart contracts are more rigid than any contractual structures adopted before the 2008 crisis. For this reason, I would be very concerned by the mass adoption of smart contracts in consumer or small business contexts.

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[7] Katharina Pistor, "A Legal Theory of Finance", 41 *J. Comparative Econ.* 315, 320 (2013).

Q.5. Some stablecoin providers and commentators believe that Congress should create a new form of financial institution charter, specifically for stablecoin issuers. In a recently released framework for stablecoin legislation, Senator Toomey has also adopted this view.[8] From your perspective, would a novel stablecoin charter be preferable to requiring firms to follow existing law and conform to the regulatory categories it creates? Could new regulatory carve-outs incentivize regulatory arbitrages or otherwise undermine key existing rules?

A.5. From my perspective, it is preferable to require stablecoin issuers to follow existing law; a specialized charter for stablecoins is undesirable for a number of reasons. Creating specialized regulatory regimes often leads to duplicative regulatory efforts and turf wars on the one hand, and on the other hand, issues falling through regulatory gaps as private sector entities arbitrage the definitional boundaries of the specialized regime. Also, as I noted in my written testimony, "the more specialized the regulator, the more opportunities there are for the industry to 'capture' the regulator." Capture could become a serious problem if a cadre of regulators were dedicated solely to a specialized stablecoin charter.

Speaking more specifically about regulatory arbitrage, any regulatory regime that is devised to apply to a particular technology at a particular moment in time is going to be particularly vulnerable to arbitrage by private sector entities (who can refine their technology to fall outside the regulatory definition). Legal tests that are more functional and technology-neutral (like the Howey test for what constitutes an "investment contract", and therefore a "security") are harder to arbitrage, and more like to withstand the test of time as technology evolves. As I concluded in my written testimony, the SEC (and the CFTC) should continue to oversee the stablecoins under their jurisdiction.

Q.6. In Senator Toomey's framework, he also suggested that some stablecoin issuers could, "based on their business models," choose to be regulated by "[r]egister[ing] as a money transmitter under the existing State regime and as a money services business under FinCEN's Federal regime." Are State money transmitter and Federal MSB rules adequate for managing the risks to consumers and the economy created by stablecoins? Please describe the strengths and limitations of these regimes, as applied to stablecoins.

A.6. As discussed during the hearing, stablecoins pose issues for consumers/investors, and for the stability of the financial system, and so any proposal that limits stablecoin regulation to State money transmitter rules and FinCEN will be inadequate. FinCEN is a financial intelligence unit, and has no consumer/investor protection or financial stability mandate. Instead, FinCEN's mission "is to safeguard the financial system from illicit use and combat money laundering and promote national security through the collection, analysis, and dissemination of financial intelligence and

[8] See "Toomey Outlines Stablecoin Principles To Guide Future Legislation", (Dec. 14, 2021), *https://www.banking.senate.gov/newsroom/minority/toomey-outlines-stablecoin-principles-to-guide-future-legislation.*

strategic use of financial authorities."[9] State money transmitter laws may involve consumer/investor protections, but they vary significantly by jurisdiction, which will provide consumers/investors with uneven protections. In addition, State regulators generally do not pay much attention to financial stability issues, because financial stability is a borderless public good that will accrue largely to persons residing outside of their State.[10]

Q.7. Senator Toomey's framework further proposes that "[c]ommercial entities should be eligible to issue stablecoins, provided they choose one of these regimes [i.e., a bank charter, a special purpose stablecoin charter, or money transmitter and MSB rules]." Please discuss whether, in your view, it would be prudent to allow large, nonfinancial companies like Amazon or Alphabet to issue stablecoins.

A.7. In my view, allowing Amazon, Alphabet, or Meta/Facebook to issue stablecoins would be a worst-case outcome. To explain why, I excerpt here a few paragraphs from my forthcoming book *Driverless Finance* (in which I use the term "techfin" to refer to these tech firms):

> A payments service is . . . likely to be many tech firms' first foray into finance, but they won't necessarily stop there. As more users adopt the payment service, more user data is generated (about the customers and their transactions), which the tech firm can use not only to target advertising or identify potential customers for its nonfinancial services (which will yield yet more data) but also to expand into financial services that involve some data-dependent risk assessment (such as making loans or offering insurance). Offering more types of financial services will create new networks and generate yet more user data in a cycle that is virtuous for the tech firm, but not necessarily for a competitive marketplace or stable financial system.
>
> The techfins have a potential advantage over even the largest banks here, because they can exploit large troves of customer data (like social media posts or search histories or shopping patterns) that they have collected through their nonfinancial activities. In the United States, banks are prevented from engaging in nonfinancial activities, so the types of data that banks can collect are more limited (Goldman Sachs can't purchase a search engine, and Citibank can't start up an e-commerce platform). Because of the competitive advantages that come from their data supremacy (and because they are already huge), Google, Amazon, Facebook, and Apple could quickly become "too big to fail" providers of financial services. "Too big to fail" is used to describe a firm that is so critical to the provision of financial services (because of factors like its size, a lack of substitute providers, or interconnections with other parts of the financial system) that a Govern-

[9] FinCEN, "What We Do", (available at *https://www.fincen.gov/what-we-do*).

[10] Daniel Schwarcz and Steven L. Schwarcz, "Regulating Systemic Risk in Insurance", 81 *U. Chi. L. Rev.* 1569, 1628 (2014).

ment simply will not allow it to fail. Unfortunately, firms that recognize that they are "too big to fail" are perversely encouraged to take extra risks: they will profit if those risks turn out well, but they know that any disastrous failures will probably be covered by a Government bailout. Profit therefore comes at the expense of the public, which is left holding the bag if the firm's risks don't pan out. And in some ways, that's a best-case scenario. What if a Government bailout isn't actually feasible?

Google, Amazon, Facebook, and Apple are so big that in many ways, they make our existing notions of "too big to fail" seem quaint. A recent Government report concluded that Facebook and Google have monopoly power in their defined markets, and that Amazon and Apple have "significant and durable market power." If any of these behemoths were to add payments or lending services to their existing markets, they could outcompete many of the alternatives, leaving few substitutes if they were to fail. In the absence of substitutes, a bailout seems inevitable—but what would a bailout on this scale look like? For example, might the Government have to bailout Amazon's e-commerce business as well as any lending arm? And which country's Government would be responsible? Some smaller countries (like Iceland and Switzerland) have already had to grapple with the issue that their banks might be too big for them to bail out, but when it comes to the techfins, even large countries like the United States might find them "too big to save."

Q.8. Finally, Senator Toomey's proposal states that "[r]egulation should protect the privacy—and confidentiality of individuals using stablecoins." Could creating carve-outs for stablecoins from existing know-your-customer or BSA/AML rules raise national security concerns? If so, how?

A.8. National security issues are largely beyond my expertise, but I see no reason why stablecoins should be treated differently from any other payment method when it comes to BSA/AML rules.

RESPONSES TO WRITTEN QUESTIONS OF SENATOR MENENDEZ FROM HILARY J. ALLEN

Q.1. The defining feature of stablecoins versus other types of crypto is that they are backed by assets such as fiat currencies or commodities. However, without proper transparency this feature only provides the illusion of stability.

Are market participants able to easily verify the portfolio holdings backing the stablecoins they invest in?

A.1. Generally speaking, there are no disclosure requirements pertaining to stablecoin reserves (although Tether is required to provide reports on the composition of its reserves pursuant to its settlement with the New York Attorney General).[1] However, an in-

[1] Letitia James, New York Attorney-General, "Attorney General James Ends Virtual Currency Trading Platform Bitfinex's Illegal Activities in New York" (Feb. 23, 2021) (available at *https://*

Continued

dustry standard is starting to evolve where some stablecoin issuers make voluntary disclosures known as "attestation reports," where "the stablecoin issuer attests to its auditor how many reserves it has, and the auditor examines this claim for validity. The auditor's findings then get posted for the public to see."[2] While better than no disclosure, such periodic voluntary disclosures are suboptimal because they only describe the reserve at a particular moment in time, and investors are forced to rely only on the information the stablecoin issuer chooses to disclose. Bad information may be omitted, insufficient detail may be provided, and disclosures will potentially be inconsistent as between stablecoin issuers, making comparisons difficult for investors.

Also, I would add that (as I noted in a response to Question 2 from Senator Brown (see above)), even with full disclosure, the value of the reserve assets to consumers is questionable if stablecoin issuers do not allow retail stablecoin users to redeem their coins directly from them.

Q.2. Transparency is a cornerstone of the economy. Consumers make the best decisions when they have the all of the necessary information, which is why I have always advocated for robust disclosure rules in across the financial system.

How can we increase transparency to ensure market participants properly disclose the value of stablecoins and other cryptocurrency so that the average investor is able to understand the true risks associated with such assets?

A.2. Unfortunately, it is hard to convey the true risks associated with investing in cryptocurrencies because we lack methodologies for valuing them. Nobel Prize-winning economist Robert Shiller has said that Bitcoin "has no value at all unless there is some common consensus that it has value. Other things like gold would at least have some value if people didn't see it as an investment,"[3] and that "no one can attach objective probabilities to the various possible outcomes of the current Bitcoin enthusiasm. How can we even start estimating the fundamental value of Bitcoin . . . ? Any attempt will soon sound silly."[4] In the absence of appropriate valuation methodologies, there is no metric that can convey to investors the true risks associated with most crypto assets.

Valuation of stablecoins is potentially more effective, to the extent that their value depends on the composition of their reserve assets. The danger here is that people will believe that the assets backing a single stablecoin will always be worth exactly $1, even though their value may fluctuate in reality. Investors in money market mutual funds face similar issues, and so some people have argued that all money market mutual funds should be required to

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ag.ny.gov/press-release/2021/attorney-general-james-ends-virtual-currency-trading-platform-bitfinexs-illegal).

[2] For more on stablecoin attestation reports, see J.P. Koning, "The Race for Stablecoin Transparency" (Aug. 16, 2021) (available at *https://www.coindesk.com/markets/2021/08/16/the-race-for-stablecoin-transparency/*).

[3] William Suburg, "Yale Prof. Shiller Thinks Bitcoin's 'Bubble' Could Actually Linger 100 Years", *Cointelegraph* (Jan. 19, 2018) (available at *https://cointelegraph.com/news/yale-prof-shiller-thinks-bitcoins-bubble-could-actually-linger-100-years*).

[4] Robert J. Shiller, "What Is Bitcoin Really Worth? Don't Even Ask", *N.Y. Times* (Dec. 15, 2017).

have a floating value (to prevent investors from being misled about the stability of money market mutual fund share prices).

Blockchain Transaction Fees ("Gas") on FTX

This post describes and explains how FTX handles transaction fees charged by blockchains. To summarize, FTX absorbs and subsidizes fees charged by efficient, environmentally friendly blockchains. FTX absorbs almost all fees charged by other blockchains. However, FTX reserves the right to pass-through some or all of high per-transaction fees charged on some transfers on less efficient blockchains.

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Exchanges like FTX must integrate with a variety of different blockchains so that customers can transfer cryptocurrencies in and out of the platform. Although each of these blockchains (Bitcoin, Ethereum, and Solana, just to name a few) have unique characteristics, they all share one common feature: all users of a given network must pay transaction fees to incentivize network participants to do the "work" (i.e., mining) required to add that transaction to the blockchain's distributed ledger. These fees are known as "gas" on the Ethereum blockchain, and are colloquially referred to as such in other contexts.

So how does FTX deal with blockchain transaction fees (which, as a fact, must be paid by someone)? When are such fees necessary to interact with FTX? What does FTX ultimately charge the customer, and why?

First, some background:

The "Deposit, Trade, Withdraw" Life Cycle

Cryptocurrency exchanges perform three primary functions necessary to facilitate customer transactions:

1. Accepting deposits of crypto and fiat currencies
2. Matching buy and sell orders (exchanging one currency for another)
3. Processing withdrawals of crypto and fiat currencies

Here's an example of what this life cycle might look like for a user: Alice sends 1 Bitcoin to her FTX wallet. FTX, which listens to all transactions happening on the Bitcoin blockchain, recognizes her deposit and credits her 1 Bitcoin in her FTX account (1). Later on, Alice decides to exchange her Bitcoin for Ether. She sends an order to buy 12 Ether for a price of 1 Bitcoin, and FTX matches her buy order with a seller and a trade occurs (2). Finally, Alice wants to withdraw her Ether from the exchange, and instructs FTX to withdraw her 12 Ether to her private wallet on the Ethereum blockchain (3).

For step 1, Alice had to pay a fee to the Bitcoin blockchain so that her deposit to FTX could be processed (she sent 1 Bitcoin from her BTC wallet to her wallet at FTX, and a small portion of that was deducted from the total transfer amount to pay the fee; the BTC network of miners only "confirm" or "do" this transfer if paid a transaction fee). Step 2 requires no blockchain fees, because trades on FTX occur entirely off-chain (one of the

benefits of a "centralized" exchange such as FTX). Step 3 however, will require FTX to send a transfer request to the Ethereum blockchain, and therefore FTX will be required to pay gas fees on Alice's behalf.

The Size of Blockchain Fees

The actual amount that a blockchain requires to send a transaction differs widely based on the underlying structure of that blockchain. Platforms like Bitcoin and Ethereum are known as "Proof of Work" blockchains, where the "work" required to add that transaction to the blockchain uses a large amount of computing time and energy. On such platforms, average transaction fees are quite high: around $2 per transaction for Bitcoin, and around $40 per transaction on Ethereum! (again, even these figures can vary widely based on network demand, etc.)

There are other blockchains that use much more efficient means of validating transactions. Solana, Cardano, and Polkadot use variations of an algorithm known as "Proof of Stake." On Solana, for example, the average transaction fee is $0.00025.

FTX Withdrawal Fees

In practice, FTX does not charge fees for withdrawals on Proof-of-Stake blockchains, and it subsidizes about half of the blockchain fees for Proof-of-work blockchains (requiring the user to pay the other half). However, FTX reserves the ability to charge withdrawal fees, on small transactions especially (and particularly where there is a perception that a series of small withdrawals or other transactions are done in an abusive or otherwise unnecessary manner).

There are a few important considerations behind this approach:

Environmental Impact

Proof-of-work networks require substantially larger energy consumption than proof-of-stake networks. We aim to incentivize our customers to utilize blockchain technology with the lowest energy usage and therefore the smallest impact on the environment. A single Solana transaction requires about the same amount of energy as two Google searches. Empirically (based on our analysis of our customers' actual activity), more than 80% of the blockchain transactions originating from FTX occur on proof-of-stake blockchains.

Public Blockchain Usage

Blockchains are open-access public goods. It is therefore up to the users of these networks, especially large users such as exchanges, to encourage fair usage.

Imagine someone has $100 worth of Bitcoin they want to withdraw from FTX to their private Bitcoin wallet. They could instruct a single transaction for the full amount. They could also try and send 10,000 transactions for $0.01 worth of Bitcoin. FTX reserves the right to charge for small transactions to incentivize the former and disincentivize the latter, so that we are putting as little pressure on network bandwidth as possible, mitigating unnecessary and redundant costs, and ultimately mitigating unnecessary and redundant energy usage.

Business Costs

FTX wants to encourage users to bring their assets to our exchange for trading, because we believe we have the best approach to customer safety, technological robustness, and regulatory compliance. This is part of why we wish to subsidize blockchain transaction fees. However, with high-fee networks such as Ethereum, if we didn't pass some cost onto the user, then a customer could abuse the system by requesting lots of small transactions, which could become a prohibitive cost for FTX to do business (though a lesser concern than the environmental impact and network congestion effects of such behavior). Similarly, FTX does not charge fees to users for costs related to wire-transfer activity for transferring fiat onto or off of our platforms, which also can be quite costly. But FTX reserves the right to assess fees for wire-transfer activity if the amount of such activity becomes abusive, or to otherwise encourage users to employ more efficient methods for transferring their fiat. In practice, FTX only rarely passes along wire-transfer fees to our users.

Blockchain Choice

Finally, with advances in blockchain technology and interoperability, many cryptocurrency tokens can be transferred on multiple different blockchains. For example, on FTX you can withdraw Tether to an Ethereum wallet (where Tether originated), but you can also withdraw Tether to a Solana wallet. The latter is free on FTX, which we want to strongly incentivize our users to take advantage of given all the above considerations.