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EXAMINING DIGITAL ASSETS: RISKS, REGULATION, AND INNOVATION

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COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

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C O N T E N T S

Wednesday, February 9, 2022

EXAMINING DIGITAL ASSETS: RISKS, REGULATION, AND INNOVATION

WEDNESDAY, FEBRUARY 9, 2022

U.S. SENATE,
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY,
Washington, DC.

The Committee met, pursuant to notice, at 10 a.m., via Webex and in room 106, Dirksen Senate Office Building, Hon. Debbie Stabenow, Chairwoman of the Committee, presiding.

Present or submitting a statement: Senators Stabenow, Brown, Klobuchar, Bennet, Gillibrand, Smith, Booker, Warnock, Boozman, Hoeven, Ernst, Marshall, Tuberville, Grassley, Thune, Fischer, and Braun.

STATEMENT OF HON. DEBBIE STABENOW, U.S. SENATOR FROM THE STATE OF MICHIGAN, CHAIRWOMAN, U.S. COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

Chairwoman STABENOW. The Committee on Agriculture, Nutrition, and Forestry will come to order, and good morning. Welcome to today's hearing on digital assets. This is such an important hearing today. Thank you to Ranking Member Boozman and his staff for working so closely with us on this important bipartisan hearing.

Welcome to Chairman Behnam and our witnesses, and we are really looking forward to today's discussion.

Thirteen years ago, Bitcoin was introduced to the world as a new form of digital money that people could exchange online without going through a bank. This novel technology aims to democratize our financial system and offer new tools for those who do not have access to traditional banks and reliable currencies.

Since then, thousands of digital assets, as we know, sometimes called cryptocurrencies, have sprung up. Unlike traditional fiat currencies, however, cryptocurrencies are not backed by the full faith and credit of a central bank, and wild swings in value can make digital assets a risky form of payment and unreliable store of value.

Given its instability, you cannot reliably use Bitcoin or other digital assets to pay your mortgage or other everyday purchases.

This is not to say that digital assets are without promise. Every American, whether or not they have a bank account, should be able to send money to their loved ones quickly and easily, and our financial markets should be accessible to the average investor, not just the wealthy. It is worth pursuing technology that will make the financial system work for everyone, but to truly work for everyone we need to ensure appropriate protections.

Americans are buying and selling digital assets using online exchanges, many of which are unregulated or not held to the same standards as traditional financial institutions. This poses unacceptable risks to consumers and could lead to instability in our financial markets. Fraudsters have already stolen billions of dollars in assets, leaving customers with no recourse, and some platforms fail to prohibit abusive activities like insider trading.

Last month, we saw the value of digital assets plummet, wiping out more than $1 trillion in wealth, and one-third of Americans who have traded digital assets earned less than $60,000 a year.

New technologies are making it easier for Americans to buy crypto with the press of a button. However, this ease of access can backfire when their assets drop in value overnight.

Finally, we cannot overlook the outsized climate impacts of Bitcoin and other digital assets. Astonishing amounts of energy are currently being used to mine certain digital assets. When those sources of energy are fossil fuels, digital assets threaten our progress in fighting the climate crisis. The carbon footprint of this technology must be addressed.

Digital assets may have been designed to democratize the transfer of money, but that does not mean they should operate without rules. History has shown us, time and again, that this is a mistake.

The good news: regulation and innovation are not mutually exclusive. If they were, our financial markets would not be the strongest in the world. We cannot afford to wait until the next crisis. Congress must work with regulators and the Biden administration to design a framework that protects consumers and our environment and keeps our markets fair, transparent, and competitive.

The Commodity Futures Trading Commision (CFTC) will play a key role in that effort. It currently regulates digital asset derivatives and polices fraud in the spot market. I look forward to hearing from Chairman Behnam about the work his agency is doing in this area, the challenges it presents, and what we can do to make these spot markets safer for everyone.

Now I would like to turn to my friend and Ranking Member, Senator Boozman, for his opening remarks.

STATEMENT OF HON. SENATOR JOHN BOOZMAN, U.S. SENATOR FROM THE STATE OF ARKANSAS

Senator BOOZMAN. Well thank you very much, Madam Chair, it is great to be here, and we want to thank the panel for participating. I want all of you all to be extra special nice to Senator Tuberville today. He is kind of grouchy. The coach is grouchy. Arkansas got after the No. 1, Auburn, basketball team yesterday in Fayetteville. I am happy, he is a little grouchy, but he will get over it.

I am pleased to join Chairwoman Stabenow today as we examine the ways in which digital assets and blockchain technology are impacting financial markets. As this industry continues to grow, questions remain as to the proper role the Federal Government and regulators should play in encouraging further innovation in this space while ensuring market integrity and customer protection.

Digital assets and blockchain technology have already, and will continue to, change the way global markets function. Currently,

digital asset spot or cash markets are subject to a patchwork of regulations at the State and the Federal level. It is, therefore, critically important we think carefully about how we move forward in this area.

Last month I was pleased to join Chairwoman Stabenow along with both the Chairman and Ranking Member of the House Agriculture Committee in sending a letter to Chairman Behnam. That letter inquired about the scope and the size of digital asset markets and whether the CFTC is currently working with other Federal financial regulators to both support and police this growing financial ecosystem.

Yes, it is true—bicameral, bipartisan collaboration can still exist, and we are demonstrating that at the Agriculture Committees, despite what else may be going on in Washington. This must be the way we address issues relating to these markets going forward, because they are complicated and they touch so many of us, whether we appreciate it or not.

I hope today's hearing provides an opportunity for both Chairman Behnam and our esteemed industry stakeholders, that are present with us, to weigh in on the questions we posed in our letter. I also believe today's hearing is important because it begins addressing the growing calls for Congress and regulators to work together to provide market participants certainty over which digital assets are securities versus commodities.

Further, we need to assess whether expanding the CFTC's regulatory footprint to overseeing digital asset commodity spot markets is possible or prudent. I am confident the CFTC can rise to the challenge to be the right fit for an expanded role in digital asset spot markets. However, it is imperative that as Congress weighs legislative options we make certain to include exchanges, consumer protection advocates, and other market participants in the discussion to ensure that the rules and regulations work for all stakeholders.

The digital asset market has grown to nearly a $2 trillion global market. That is a staggering number and one which demands our careful consideration. It is unquestionable that digital assets will continue to play an important role in the global economy for years and decades to come.

In closing, I believe it is imperative that both Congress and regulators alike work with the industry and academics to further educate ourselves about these markets. As we develop laws and regulations establishing guardrails and rules of the road for market participants, we do so in a transparent and clear manner so everyone knows what those rules are.

Thank you, Madam Chair. I look forward to today's discussion, and with that I yield back.

Chairwoman STABENOW. Well thank you very much, and welcome back Chairman Behnam, and congratulations on your unanimous Senate confirmation. You are no stranger to the Agriculture Committee, as we all know. Chairman Behnam has extensive experience with financial and agricultural markets. During his tenure as a CFTC chair and commissioner he has been in the forefront of issues critical to global market stability.

Chairman Behnam was one of the first financial regulators to ring the alarm on the climate crisis. He has created a dedicated climate unit at the agency, focused on addressing the significant risks climate change poses to the financial system.

The CFTC also has significant experience regulating digital asset derivatives and prosecuting fraud and abuse in digital asset markets. Given the increasing size and scope of the market for digital assets, many of which are commodities, we are looking to the CFTC to advise us on how to best protect consumers and markets.

I look forward to getting your perspective, Mr. Chairman, on the benefits and risks prevented by these emerging technologies and the role of the Commission in regulating this market.

I will turn it over to you for opening comments and then we will look forward to questions. Mr. Chairman.

STATEMENT OF THE HON. ROSTIN BEHNAM, CHAIRMAN, COMMODITY FUTURES TRADING COMMISSION, WASHINGTON, DC

Mr. BEHNAM. Thank you, Chairwoman Stabenow. Good morning to both you, Chairwoman Stabenow, Ranking Member Boozman, and members of the Committee. I am honored to appear before you today for the first time as Chairman of the Commodity Futures Trading Commission. I appreciate the opportunity to share my views on digital assets and look forward to working with this Committee as we collectively address the many issues related to this emerging technology.

For over a century, the derivatives markets have played an integral role in the U.S. economy, facilitating risk management and price discovery and contributing to financial stability and predictability of prices that impact the daily lives of all Americans.

As part of the CFTC's role in ensuring the integrity of derivatives markets, the agency understands a great deal about underlying reference cash markets, where producers, including farmers and ranchers, manufacturers, institutional investors directly exchange agricultural commodities, energy products, previous metals, and even digital assets.

While the CFTC does not have direct statutory authority to regulate cash markets, it does have fraud and manipulation authority. Accordingly, when the CFTC becomes aware of potential fraud or manipulation in an underlying market, either through regular oversight or surveillance programs, or through other means such as a whistleblower tip or referral, we address the misconduct through our enforcement authority.

This is not to diminish the fact that many cash commodity markets benefit from Federal oversight. However, the digital asset market, which at present is most directly supervised through State money transmitter licenses, is unique and presents many novel issues for the CFTC, given our limited authority to police these volatile markets.

In fact, there is no one regulator, either State or Federal, with sufficient visibility into digital asset commodity trading activity to fully police conflicts of interest and deceptive trading practices that impact retail investors.

Although the CFTC's core responsibility is regulating the commodity derivatives market, there are several unique elements of

the digital asset commodity cash market that distinguish it from other cash commodity markets, suggesting it would benefit greatly from more CFTC oversight.

A few examples. Unlike most cash commodity markets, the cash market for digital assets is currently characterized by a high number of retail investors, mostly engaged in price speculation. Many investors regularly take on high levels of leverage when trading, leading to heightened price volatility, often exacerbated by cascading liquidations during price downturns.

Most investors in the cash market entrust their digital assets to the platforms upon which they trade, failing to differentiate this type of custody agreement from that offered by traditional regulated banking industry participants.

I believe these unique characteristics, combined with the growing size and customer, operational, and potential future financial stability risks associated with the cash market necessitate a proactive Federal regulatory approach to ensure that the standards that American investors have come to expect from our financial markets are equally present in digital markets.

If, in fact, the future of global economy holds a place for digital assets, tokenization, blockchain technology, decentralized finance, and other elements of the fintech ecosystem, then the need to uphold American leadership and stewardship of this technology is clear.

The digital asset industry in the U.S. does not fall under a single, comprehensive regulatory regime. Instead, the CFTC and other Federal agencies and State regulators have all been responsible for collectively establishing the existing and very incomplete regulatory environment.

Since 2014, the CFTC has been aggressive in using its limited fraud and manipulation authority in the digital asset space. The CFTC has brought nearly 50 enforcement actions, overseen an increasing number of registrants offering digital asset-based derivatives products, and established dedicated internal functions to stay abreast of the technical innovations fueling this market.

However, many challenges remain, and the digital sector now demands more and more of the CFTC's attention and time, which I believe necessitates additional resources to adequately address these issues and risks. The CFTC is well suited to play an increasingly central role in overseeing the cash digital asset commodity market. Fundamentally, the CFTC is a market regulator that ensures market integrity and vibrancy aimed at supporting financial stability while ensuring individual customer protections through principles-based oversight of exchanges, clearinghouses, data repositories, and market participants. We now stand ready to do the same within the digital asset commodity market.

As Chairman, I will ensure that the CFTC continues to use our enforcement authority to its fullest extent in the digital asset commodity space to protect customers from fraud and manipulation. The nature of this innovation results in impacts to more than just financial markets. We are seeing several government agencies consider how this technology impacts Federal policy related to payments, custody, illicit activity, national security, and a host of other issues.

Additionally, reports regarding energy usage resulting from mining are staggering, oftentimes being compared to that of entire countries. On this note, I believe any regulatory response to digital assets must include measures to bring additional transparency to the conduct that makes this innovation possible. Internally, I have directed the CFTC's Climate Risk Unit and LabCFTC to examine the climate implications of digital assets.

Since its inception, the CFTC and its markets have been at the forefront of innovation and technological development. We have also been a forceful and disciplined cop on the beat. The continued emergence of digital asset technology presents risks and opportunities, and the CFTC stands ready to leverage its expertise and experience to confront both.

Thank you for your time, and I look forward to answering your questions.

[The prepared statement of Mr. Behnam can be found on page 44 in the appendix.]

Chairwoman STABENOW. Well thank you very much, Mr. Chairman. We will begin five-minute rounds of questioning from the Committee. I do believe we have folks that joining us, members joining us virtually as well, and so we look forward to everyone's questions.

Let me first thank you for your response to the letter that we sent as Chairs and Ranking Members of the House and Senate Agriculture Committees. I think it was important, as Senator Boozman, indicated, this was a significant sign that we had all four corners signing a letter to you and expressing interest in having more discussion with you on what the role is for the CFTC.

I would ask unanimous consent to enter your letter into the record. So ordered, without objection.

[The letter can be found on page 132 in the appendix.]

Chairwoman STABENOW. In the letter I was struck by your statement that it is hard to estimate how many U.S. and retail participants are trading digital assets because the agency has limited visibility into this market. I wonder if you could talk more and describe the CFTC's ability to surveil the digital asset spot market for fraud and manipulation, and what implications this has right now for the agency.

Mr. BEHNAM. Thank you, Senator. You are absolutely right. The authority is limited. It is limited to fraud and manipulation. As I pointed out in my statement, this is a product of the relationship between derivatives markets and cash markets.

We have a number of exchange-traded derivatives on crypto assets, on several registered CFTC exchanges, but the visibility into the underlying market is limited, at most, and we use our existing surveillance tools to work through some of the futures products and see if we can see participants, volumes, volatility.

In essence, this is an unregulated market. As I mentioned, we rely on State money transmitter licenses. There is so much that we are not able to see because of this limited authority. I would point out the fact that the enforcement actions we brought since going back to 2015, have largely relied on tips and whistleblowers. In essence, we are relying on retail customers who are defrauded

through Ponzi schemes or pump-and-dump schemes to bring information to us.

We do not have the regular tools that we, as a market regulator, have in terms of pre-trade transparency, post-trade transparency, a concentrated order book, surveillance tools, market intelligence. We do not have any of these very advanced tools to monitor markets, so it is giving us a very, very narrow lens into what is actually happening in the market. This is why I think, you know, as you contemplate more regulatory authority for the CFTC, bringing this market into the light, so to speak, and more transparency will only allow us to see what is going on underneath the hood.

Chairwoman STABENOW. I could not agree more. This is very concerning to me, at the moment, the lack of transparency and ability to see what is happening.

We are seeing an explosion, also, of advertisements marketing crypto assets to retail investors, and it is getting easier to buy and sell digital assets through apps on our phones. I am concerned we are not doing enough to educate people about the risks of trading crypto assets, particularly under the scenario that you are describing, in terms of limited oversight.

What should Congress consider in terms of customer protections as these technologies reach more people?

Mr. BEHNAM. Thank you, Senator. I would say, you know, at the onset, we are doing what we can with what we have, and in terms of customer protections we are using our Office of Customer Education to put out brochures and pamphlets and mailings and alerts about some of the fraud and manipulation that is occurring but also some of the risks that are involved with digital assets.

More importantly, and to more directly answer your question, the single best action that Congress can take to address customer protections is bringing a regulatory structure to this market. Not unlike any other market, whether it is securities or derivatives, market structure tends to be pretty singular in scope in the sense that, as I mentioned earlier in your previous question, if we can embed pre-trade transparency, post-trade transparency, which is reporting, having this concentrated order book where we can see bids and offers, and then having rules of the road for execution, for custody, for clearing, and for settlement, these are the main foundations and pillars of a well-functioning, transparent market.

In essence, the repercussions and the consequences of this are customer protections, is visibility, is information flow, so investors know how they are allocating their capital, and they can feel confident that as a regulator we have enforcement authority and the rule of law to back us up if there is continued fraud or manipulation or anti-competitive behavior.

Chairwoman STABENOW. Thank you. Listening to, and from a consumer standpoint, as well as everyone involved in the market but from a consumer standpoint, looking at what needs to be done to create the protections and so on, does the CFTC have the resources necessary to take on an additional responsibility with respect to the digital asset market?

Mr. BEHNAM. Senator, the short answer is no. I cannot precisely put a number on it, but I have thought about this quite a bit in the past few months. I think the best sort of benchmark to think

about is what the CFTC went through in the past 10 years, after the financial crisis. As you know well, this Committee gave authority to the CFTC to regulate the then over-the-counter derivatives markets. We now have broad swaps onto exchanges with a series of regulatory changes that have brought, again pre-trade transparency and post-trade transparency to the swaps market. Just looking at numbers, in 2011, our budget appropriation was about $200 million, and now we are just slightly over $300 million. Depending on the size of the registrant pool that we may get if you were to authorize regulation of digital asset commodities, I would think, at a minimum, that $100 million mark is probably a starting point to look at, as a reference.

Chairwoman STABENOW. Thank you very much. Senator Boozman.

Senator BOOZMAN. Thank you, Madam Chair. Chairman Behnam, as you testified both today and during your confirmation hearing, you indicated that if Congress so decided, the CFTC would welcome expanded authority over digital asset spot markets. Why are current State-based regulations inadequate, and why do you believe the CFTC is uniquely positioned to regulate the markets? Why you?

Mr. BEHNAM. Thanks, Senator Boozman. I will tell you, as a former investigator at the Bureau of Securities in the New Jersey Attorney General's Office I will be the biggest advocate of State regulators within financial markets. They serve an invaluable tool for customers at the State level, whether it is customer protections, customer education, and certainly enforcement.

From a market regulatory standpoint, from a market oversight standpoint, I think it is very important that we have as few regulators as possible, we have as little fragmentation as possible, and single points of entry into the market. Fragmentation will likely create price dislocations, will have different sets of rule books, which could, in the end, create risk for investors.

As we think about the role and the coordination between State and Federal, I think there is a strong place for that. As I said, States play a key role in financial market stability and protecting customers. However, from a market standpoint, I think it is important, given if, at a minimum, the national scope of these markets but the international scope that we have, single regulators at the Federal level, to be that single point of entry for market oversight, for surveillance, and for a level playing field so that everyone is playing from the same rules.

Senator BOOZMAN. Should the CFTC be given an expanded role in regulating digital asset spot markets? How would you respond to any concern that this might open the door to future mission creep by the CFTC into traditional commodity spot markets, which I do not think would be appropriate or welcomed by myself or important ag stakeholders.

Mr. BEHNAM. Thank you, Senator. I unequivocally agree with you. I do not mean to suggest at all that this should be the start of the CFTC's role in a larger pool of cash commodity markets. As I said in my statement, many cash commodities, including in the agricultural space and the energy space, have existing Federal regulatory oversight, to some extent. This particular market is so

unique because of the retail-facing element of it and the fact that there is no oversight currently.

I think from a congressional standpoint, as we think about this going forward, there is a way to legislatively limit the expansive or expansion of authority for the CFTC and make very clear that the direction you are giving us is very limited, surgically limited to just digital commodity assets and no other commodities.

Senator BOOZMAN. Very good. Cybersecurity, particularly the safety of customer assets, continues to play a large role in conversations focusing on the digital asset markets. If the CFTC is given more regulatory authority over spot markets, what cybersecurity and customer protection measures could help combat vulnerabilities we have observed in this space?

Mr. BEHNAM. Thank you, Senator. One of the things that I have been most impressed about, as both commissioner and chairman, is the role that we play collectively within the whole government in terms of cyber risks. We certainly take cues from agencies across the Federal Government, most notably DHS. We work together. We have a lot of partnerships to make sure that we are using the same tools and resources to the extent that we can root out cyberthreats. I do not think this would be generally different if you were to give us more authority over the digital asset space in terms of our coordinating effort.

One of the things that does concern me in terms of our current authority, as you pointed out there just seems to be frequent thefts, cyberattacks that are causing coins moving around in significant numbers. We would have to think about the relationship of the CFTC to third parties and the relationship between the registrant and whoever it relates to or enters into a contract with. This is synonymous to a third-party vendor.

I think as we think about potential legislation, ensuring that we have the right amount of authority to look through just the direct registrant and not necessarily only skim what cyber protections or what principles that registrant might be using. Those are risks that I think we would have to be very cognizant of addressing, given the nature of the technology and its international nature as well.

Senator BOOZMAN. Thank you. Thank you, Madam Chair.

Chairwoman STABENOW. Thank you very much. We will now turn to Senator Tuberville.

Senator TUBERVILLE. Thank you very much. Chairman, good to see you back. Congratulations on your confirmation.

I appreciate your reply to my letter on the need to include State securities regulators in the digital asset working group. Thank you very much for that. I also appreciate you taking time to meet with the leadership of the Alabama Securities Commission, which I understand you will be doing later this month. As you know, State regulators have valuable insights to offer.

A question. We have got to make sure the dollar remains the world's reserve currency. Do we need to develop a digital dollar to do that?

Mr. BEHNAM. Senator, I would not want to jump to conclusions about whether or not that is the solution to maintaining the dollar as the reserve currency, but I do think what I am hearing from my

colleagues across the government, most notably the Fed, the Federal Reserve, is that we are in a process of thinking about how we would implement this.

This is, as you would imagine, no simple task, but as with all of this technology we will need to be very deliberate and cautious as we integrate this technology into the traditional financial system.

I certainly support the efforts that are being made. I think the approach and strategy is correct, but I do not think we should rush to anything at this time. Depending on where this technology takes us—and I said this in my comment—we have to be prepared for it being a part of our larger macro and micro economy, and if it is, in fact, going to be that way, in five years, 10 years, or longer, we need to prepare now.

I think the steps that my colleagues are taking over at the Federal Reserve and other agencies are appropriate, but I would just be mindful of the speed with which we do it and not getting into a race where we feel we have to catch up with other countries. As we have done in the past, we have been deliberate, and I think that has proven to be a successful strategy for the United States.

Senator TUBERVILLE. Thank you. You know, I am a believer that every lawful business ought to have access to banking services, and I think you are too, regardless of the type of business they are in. For example, no oil or gas company or firearms manufacturer should be discriminated against when they are trying to open a bank account or get a loan. I have heard reports of regulators pressuring banks to cutoff financial services to legitimate crypto businesses. Are you aware of this, and would you agree that it is wrong if it is happening?

Mr. BEHNAM. Senator, the short answer is I am not aware of this. However, I agree with you that we should not be cutting off certain services from the traditional banking system. However, I firmly believe this. I think the record is pretty clear that I think we need to address the climate crisis as soon as possible, and that is a collective action problem.

As much as we should not cutoff companies or institutions or individuals from traditional banking services, I think we need to make individuals aware of what is coming and what we need to do to manage the transition risk of moving away from carbon-intensive energy sources.

Senator TUBERVILLE. How could foreign adversaries like China, Iran, and Russia use crypto-related cybercrimes to harm our citizens and our national interest, and what is your agency doing to address these threats?

Mr. BEHNAM. Senator, this is a problem. I mean, this is the limited scope of visibility we have into the market. I would just point to, you may be aware but the Justice Department just seized $3.5 billion of Bitcoin yesterday from a hack that occurred in 2016. I think the lessons from that announcement from the Justice Department are that this technology is traceable, that we can work through the web of sources and the movement of these funds, but it takes time, and that the technology is going to be incrementally improving over the next few years.

That said, as we face adversaries across the globe who will use this technology to move money around and to take action that will

negatively affect the United States, I firmly believe that bringing transparency through a regulatory structure to financial markets will only be a positive step in shedding more light and giving our prosecutors, whether it is at Justice Department or at the State level, more access to information of individuals, institutions, and the flow of this digital commodity so that we can root out fraud and bad actors and find these individuals who are trying to do harm to the United States.

Senator TUBERVILLE. Yes. I understand the White House is working on a digital asset Executive Order. Have you or your staff been part of these discussions?

Mr. BEHNAM. They have been a part of the discussions and they have been working with the White House quite frequently over the past several months. I am not aware of the exact timing of the issuance of a potential Executive order, but to answer your question, we have been participating and working with the White House.

Senator TUBERVILLE. Thank you. Thank you, Madam Chair.

Chairwoman STABENOW. Thank you very much. I believe we have Senator Smith with us virtually.

Senator Smith.

[Pause.]

Chairwoman STABENOW. We shall see. Senator Smith, are you with us? Speaking of technology, digital technology.

[Pause.]

Chairwoman STABENOW. We will come back to her, and at this point we will go to Senator Marshall.

Senator MARSHALL. Well thank you, Madam Chair. This morning I am sitting here between an Auburn Tiger and an Arkansas Razorback and I just wanted to congratulate both those teams and remember why we celebrate the thrill of victory and the agony of defeat, and what a great blessing it is to have college sports. Congratulations to both of those teams. A great game last night.

Madam Chair, if I could I just wanted to publicly request that we get Secretary Vilsack in front of us sometime. I am certainly concerned. I think we have some questions that Americans want to ask him about. Back home, the price of fertilizer is certainly an issue, and we would like to ask Secretary Vilsack's opinion on that and how is that going to impact the SNAP budget. The 30x30 program back home certainly has farmers alarmed, so we would love to have him in front of us sometime.

Chairwoman STABENOW. Happy to offer an invitation. Senator Boozman and I will work on that.

Senator MARSHALL. Thank you so much. Chairman, welcome back to the Committee as well.

As I have been allowed to travel and meet some folks in foreign countries and leadership and visit our embassies every one of those visits, at some point in time, talks about their concerns about cryptocurrencies, specifically how it is being used in human trafficking and drug running as well. That is the bad news.

The good news is we have been meeting with companies like Coinbase, who were purchasing CFTC-regulated exchanges to voluntarily be regulated. A little bit of background on the banking industry. I always wonder, well who is our customer? Specifically,

what would the CFTC's role be in helping regulate a company like Coinbase, or, you know, how do we ensure that we know who our customers are right now and what does that look like going forward to you?

Mr. BEHNAM. Thank you, Senator Marshall. You know, with respect to that particular acquisition—and that has not been the only one in the past few years—my understanding is that they will use that entity that has a CFTC license to trade derivatives. I do not know if that will evolve or change, but we do have a number of onboarding processes and requirements in our law and rules that we implemented off of the law to ensure that there are appropriate anti-money laundering, know-your-customer requirements, proper capital requirements, and that as a general matter—and these have developed over decades, as you can imagine—that know your customer both from an individual retailer, institutional investor standpoint, to a broker or an FCM, to the exchanges, the clearinghouses, and the data repositories.

I am confident we have a very robust system in place. We work closely with the exchanges and our SROs, most notably the National Futures Association, to ensure that we are doing our best to identify individuals who may be bad actors or participating in illicit activity.

Senator MARSHALL. Would you agree with me, though, if they are not in an exchange of some sort with monitoring that they do not know who their customer is right now?

Mr. BEHNAM. Absolutely.

Senator MARSHALL. Do you agree with the folks who are telling me that there is a significant concern that this is being used for human trafficking and drug smuggling?

Mr. BEHNAM. I do agree.

Senator MARSHALL. What would the CFTC's role—what would you do to put meat on the bones to make sure that we are able to control that? What could you do if you were given more authority?

Mr. BEHNAM. Senator, I think it is literally bringing this market into the regulatory fold, and it is not unlike what I was saying earlier to Senator Tuberville about the Justice Department case yesterday. If this ecosystem exists out of the regulatory fold, all of these steps, all of these processes that we have built over decades to protect investors, protect individuals from illicit activity are unregulated.

Now to some extent these institutions do these things, but it is not enough. I think we need the full power of the Federal Government, the rule of law and our enforcement authority to send a message to both deter this activity but root it out if it occurs.

I do not think it would require anything new or different than what we do with respect to our regulated entities. We just need to bring it into the regulatory fold.

Senator MARSHALL. Certainly my farmers and ranchers back home are not my grandparents' farm. They use CFTC markets to hedge bets, as a risk management tool. That is the best way to describe it, a risk management tool. Do you see an opportunity for these cryptocurrencies to offer them another risk management tool?

Mr. BEHNAM. You know, some of the coins are stores of value. You know, Bitcoin has been most notably compared to gold or as

a store of value. We have seen a direct correlation between the price movements of Bitcoin and traditional assets as opposed to a safe haven asset.

I do not want to get into too many details there, but I could see, in the future, depending on the development of the coins, that some of these tools could be used as a risk management tool against certain movements in currency or other commodities. We would need a lot more time to see sort of the movement of the coins relative to other commodities or currencies to see how it might be a risk management tool.

Senator MARSHALL. Last question. Bitcoin smells like a commodity, it looks like a commodity, it tastes like a commodity. Is Bitcoin a commodity?

Mr. BEHNAM. Per an Eastern District of New York Federal District Court ruling in 2018, it is a commodity.

Senator MARSHALL. Thank you. I yield back.

Chairwoman STABENOW. Thank you very much. I will now turn to Senator Gillibrand, who I believe is with us virtually, and then we have Senator Hoeven who is with us virtually, and then Senator Klobuchar is here.

Senator Gillibrand.

Senator GILLIBRAND. Hi, Madam Chairwoman. Mr. Behnam, I understand that cryptocurrency exchange markets differ from many commodity markets that the CFTC oversees, in that unlike commodity markets for grain and oil, for example, cryptocurrency exchange markets often welcome individual retail investors.

I am glad to see that these new opportunities will be open to everybody and not just institutional investors. Given this fact that many everyday Americans will become involved in this emerging financial market, I want cybersecurity to remain a priority as we promulgate regulations. Cyberattacks have become a major threat throughout the world and could result in a massive swing in valuation, lost intellectual property, or significant market disruptions through hacks or other targeted cyberattacks.

How do you view the Commission's current ability to effectively oversee the marketplace and prevent cyberattacks?

Mr. BEHNAM. Thank you, Senator. We simply do not have enough authority to oversee the cash commodity digital asset marketplace. I think both regulators and customers would benefit from a traditional market structure, one that we have implemented on the derivatives markets, and that is not dissimilar to what we see on the securities side. More importantly, the marketplace, the institutions, the technologists would benefit from it too.

I do think customers would benefit greatly, as I have said before, transparency would be brought into the marketplace, and individuals who wanted to allocate capital toward digital assets would benefit from the security, the safety, and the comfort of knowing that these are regulated markets, with the rule of law and enforcement authority behind it so that if there are bad actors, which there always are, those individuals or institutions will be held accountable for their actions.

In terms of——

Senator GILLIBRAND. I hear you saying—excuse me—I hear you saying that you do not have the authority to do this. If you did

have the authority can you elaborate on whether CFTC has the ability to manage and guard proprietary information, and what steps, if any, can we in government take to prevent cyberattacks in this sector of the economy if you did have the authority?

Mr. BEHNAM. Senator, it is no different than what we do right now with respect to derivatives markets. We take private information and confidential information very carefully. We handle it very carefully. It is a critical element of our surveillance tools as we overlook a very broad market. We interact with market participants and registrants regularly to ensure that the steps that we are taking to protect information, whether it is PII or data or market information, is held confidential and is held in a safe place.

I do think that this technology poses new challenges and new risks, given the nature of it vis-á-vis traditional markets, but these would be questions that I would certainly welcome the opportunity to talk to you about so that we could see a reduction, hopefully, in these cyberattacks and thefts which, unfortunately, happen all too often.

We need to bring this technology and this market into a regulatory fold, at a minimum to start reducing some of these risks that exist and then take progressive steps forward to ensure that we are if not ahead of the game, at least moving with the marketplace, which, as you know, moves very quickly.

Senator GILLIBRAND. Yes, and I appreciate your answers, but you are not answering the fundamental question of whether you have the ability to guard proprietary information and deal with cyberattacks in this sector, given the differences between your current regulatory framework. It is a very specific question. Do you have the ability and the competency to manage the market for proprietary information but also prevent cyberattacks in the sector? If you answer is you do not know, that is fine. I just want to know, do you have the technical expertise and ability to guard cyber markets?

I sit on the Intelligence Committee and the Armed Services Committee. Being able to subvert and prevent cyberattacks is difficult for every industry. As you are a critical infrastructure I am really pushing down on do you have the technical capability to do this if we give you the authority?

Mr. BEHNAM. The answer is no, we do not have it, because this is——

Senator GILLIBRAND. That is what I wanted to know. Thank you.

Okay. Given how resource intensive the cryptocurrency mining process is, I am particularly interested in promulgating regulations that are consistent with our goals to stem climate change. There is a company in my home State that recently reopened a power plant. That plant used to meet demand surges but this company has connected it to a natural gas pipeline and is planning to greatly expand its historical operating capacity, using it to generate electricity for their cryptocurrency mining operation.

How can we make sure that the correct incentives or regulations are in place so we can simultaneously support the growth of this new technology without sacrificing the important work we are doing to stem climate change?

Mr. BEHNAM. As I mentioned in my statement, I have asked the Climate Risk Unit, which is a group of staff that I formed last year, to look into this issue and see if we can come up with policy directives or ideas for you to consider as well as the agency. I have also asked staff within LabCFTC, which has been our sort of innovative hub for the past few years, to think about this issue. We have been engaging with stakeholders and asking them to bring us ideas.

My gut reaction, without having a conclusive set of ideas for you, but I look forward to bringing those to you, is that something that has served markets well are disclosures, disclosures in both the derivatives markets and securities markets and all other financial markets. If we can continue to raise awareness about this very staggering issue and let end users and consumers know what is happening in the disproportionate demand and need for energy as it relates to mining Bitcoin or other coins, those bits of information, that type of information, that disclosure will hopefully create incentives to move market participants and stakeholders away from that method of mining and toward either renewable energy sources, and most importantly, away from carbon-intensive energy sources.

Senator GILLIBRAND. Thank you so much. Thank you, Madam Chairwoman.

Chairwoman STABENOW. Thank you very much. Senator Hoeven I believe is with us digitally.

Senator HOEVEN. Thank you, Madam Chair, and Chairman Behnam, would you characterize cryptocurrency as a commodity, a currency, or a security, and why?

Mr. BEHNAM. Senator, there are thousands, if not hundreds of thousands of digital assets and cryptocurrencies so I would not want to identify them collectively. There are certainly a large number of coins that are commodities, including two of the biggest which are Bitcoin and Ether, but given the vast number there is no doubt in my mind they are also security coins. This is a big, big issue and one that I think we collectively should work on as we think about the regulatory environment, if at all, is to draw very clear, distinct rules of the road of what might constitute a commodity versus what might constitute a security.

Senator HOEVEN. Should there be a lead agency for regulating cryptocurrency?

Mr. BEHNAM. From a markets perspective I do not think this issue that we are facing is much different than what the CFTC and most notably the SEC have faced for the past 40 to 50 years. There are futures that are regulated by the SEC, a bulk obviously being regulated by the CFTC, the swaps market, which this Committee knows well, when Dodd-Frank was passed we had to create a line between traditional swaps and security-based swaps.

We have a great relationship. I do not think this is any different, it would require a lot of hard thinking, novel questions, legal implications. I certainly think we could end up in a place where both regulators, both agencies have jurisdiction over cash markets, us, the CFTC, having it over commodities, the SEC having jurisdiction over securities.

Senator HOEVEN. CFTC, SEC, Treasury should all be regulating cryptocurrency in different ways, as they do in other financial markets.

Mr. BEHNAM. Well, so from a markets perspective the only market regulators we have within the Federal Government are the Commodity Futures Trading Commission and the Securities and Exchange Commission. I would very clearly say those would be the only two market regulators over digital asset markets. Naturally, given the vast number of issues, whether it is illicit activity, national security issues, trade, and any number of issues that will emerge if this technology continues to take root will require an all-hands-on-deck effort by the government, because it implicates expertise from different agencies.

Senator HOEVEN. What should Congress be doing right now in terms of legislation to help make sure that the right regulatory oversight structure is in place as this industry develops?

Mr. BEHNAM. Senator, given our limited authority, which I have mentioned before is very narrow to fraud and manipulation in cash markets, my recommendation to you and your colleagues is that we need authorization and a regulatory structure over cash digital assets. That will not be structurally much different than the current markets that we oversee.

There will obviously, like I said earlier, be novel issues and questions we have to ask around custody and settlement, given the digital nature of these assets. In terms of general market structure we need to embed core principles like pre-trade transparency, centralized and concentrated order books, post-trade transparency, and clear, consistent rules around custody, settlement, clearing, and other elements of the trading process.

Senator HOEVEN. Given the newness and the complexity of cryptocurrency, is there an understanding in terms of how that should be done and what it should entail?

Mr. BEHNAM. I think there is a general understanding, and this goes to my previous answer, and I say this with a bit of caution, but markets are markets, and what we have observed, to the extent that we can, is that these assets, regardless of the fact that they are so unique from traditional derivatives or securities, they function and trade just like any other asset would on a marketplace.

I do think the decades of experience we have within the United States going back well over 100 years will inform us nicely in terms of what market structure we need to start with, in terms of what the framework would look like. However, time will pressure us to force all of us, collectively, to ask very difficult questions and novel questions about the technology, about the traceability, about the sourcing that will go most notably to custody issues but also what exactly are we identifying as a reportable transaction, what information do we need, and ensuring that it is similar and consistent globally, above all else. These are questions that I am welcome to ask and discuss with you.

Senator HOEVEN. I note my time here. You think that this is going to continue to grow and be a very pervasive source of executing financial transactions?

Mr. BEHNAM. Senator, I would be hard pressed to say no to that question. I am very cautious in what I say about what the future may hold. As the Chairman of the CFTC I do think my responsibility is to assume that it will continue to take root and that this

technology will continue to emerge and wind itself into traditional finance. If we do not approach the technology that way we run the risk of stability and safety and soundness issues, even in a few years, let alone 10 or 20 or 30 years.

I think we have to work under the assumption that it could and it will, and whether or not it does, whether it is parts or the whole sort of concept of digital assets, is irrelevant. I think the important thing is to focus on the assumption that it does and start to build the building blocks of a regulatory structure now so that we do not run into continued problems and risks, whether it is cyber, theft, illicit activity, or financial stability risks in the future.

Chairwoman STABENOW. Thank you very much. Thank you, Senator Hoeven.

Senator HOEVEN. Thank you, Madam Chairwoman.

Chairwoman STABENOW. Senator Klobuchar.

Senator KLOBUCHAR. Well thank you very much, Chairman Stabenow. Thank you, Senator Boozman, for having this important hearing. Thank you, Mr. Chairman. You know what they say in the Senate—everyone has said it but I have not. I am going to ask you a few followup questions that I heard my colleagues, and I appreciate your answers.

As you noted, there is no one regulator at either the State or the Federal level with sufficient visibility and authority into digital asset trading to fully go after some of the conflicts or deceptive trade practices impacting retail customers. Can you speak to the existing gaps between the CFTC and the SEC in the regulation, and do you have recommendations how to bridge that? I know you just gave some recs to Senator Hoeven, but that particular issue. The final thing is, gaps, recs, and do you think the CFTC is well suited to assume a larger role over spot markets for digital assets, and what authorities do you need to do it?

Mr. BEHNAM. Thanks, Senator Klobuchar. In terms of gaps, the most noticeable gap is clarity around what constitutes a security and what constitutes a commodity. I think the Securities and Exchange Commission has more authority than we do certainly in terms of cash market regulation, but the question in terms of defining what and which of these digital assets are securities becomes the hardest question for both the agency and also market participants.

For us, the bigger challenge, obviously, in addition to find out what and which coins constitute commodities is this cash market regulation, which segues nicely into your second question. We are a derivatives market regulator. We do not regulate cash markets. We would need more congressional authority to regulate cash markets. I firmly believe we are well suited to do this. We have a long history of looking into, examining, and working with the digital asset marketplace. At its core, we are a market regulator.

As I have said several times this morning, the core principles of a market are similar across all assets, and we are well suited. We have great expertise. We would certainly buildup expertise to the extent we need it in certain places, referencing Senator Gillibrand's question, but I do think we are well suited to do it, and we are prepared as well.

Senator KLOBUCHAR. Are there parallels between how Dodd-Frank established a split regime for swap instruments and the need for regulation of digital assets today?

Mr. BEHNAM. Absolutely, and it is a perfect example and a perfect analogy, because this was, you know, a point of friction 12, 15 years ago, but we figured it out. Congress helped us figure it out. You gave us clear directives, and the two agencies did that over a number of years. I could say pretty confidently that the market is well functioning and each of the agencies have relative jurisdiction over different types of swaps, and we can do the same thing here.

Senator KLOBUCHAR. We know, and I know there have been discussions about this, we have seen exponential growth arising from a market capitalization in cryptocurrency from $1.6 billion in 2013 to nearly $2 trillion today. The popularity of these assets has been attributed to their ability to diversify investment portfolios. We know about hedge against risk.

With the growing popularity, as I mentioned, of spot market trading, how does the CFTC go about disseminating information to the general public about scams and things, and getting it out there, because this is a brand-new frontier for many people, and my past experience as a prosecutor I know when there are brand-new frontiers the scammers are there.

Mr. BEHNAM. They are, and we are seeing the traditional methods used, whether it Ponzi schemes, pump-and-dumps. I will note that we even put out a notice earlier this week or late last week about dating apps and scams happening through dating apps. It is no different than what we have seen. They are just using this new asset class as a tool to prey on vulnerable individuals. We are using our Office of Customer Education and Outreach to do as much as we can with what we have to let the public know about the risks associated both with the assets but also with the scams that are happening.

You know, as you would know as well as anyone, we have to rely on tips and whistleblowers to bring some of these fraud and manipulation cases, which is extremely helpful but it is so limited. I fear that there is a well of fraud and manipulation happening and individuals losing money that we are just not aware of because this market is very opaque.

Senator KLOBUCHAR. Thank you.

Chairwoman STABENOW. Thank you so much. I believe we have Senator Booker with us virtually.

Senator Booker.

Senator BOOKER. Yes, you have me. Thank you very much. This is a really exciting hearing. I want to thank our Chairwoman for hosting it.

I actually believe there is some urgency that we act in this space. I think that we can create a more sensible regulatory framework. I have always been concerned about the technology moving. The lack of government's ability to move at the speed of technology undermines the ability for Americans to apply this technology.

I came into the Senate on the Commerce Committee, and I remember the FAA was regulating drones in such a horrible way that other countries like France were using drones for dangerous missions, from fixing poles and wires to doing mining work, where

we in the United States were still seeing death rates that could have been avoided with technology but the FAA was so overregulating this new technology. I said to the then chairperson of the FAA that if you were around during the time of Orville and Wilbur Wright we would have never gotten off the ground.

This is one of those cases where we are already seeing some of the hopeful, optimistic possibilities in cryptocurrency. It has a democratizing of force. Minorities are overrepresented in using that, and obviously it represents, with traditional banking or underbanked traditional.

For me these intermediation possibilities, the democratizing possibilities offer a lot of hope, but I do think this Committee has a bit of some urgency to act in this space and create some frameworks and guardrails to protect against the things some of my colleagues have already brought up like fraud.

I would like to ask the chairman right away, what makes you hopeful and optimistic in this space, one, and then two, can you State quite clear—because I believe you are, this agency is—why is this the best agency to provide that needed framework and the right regulation to allow this space to potentially thrive and achieve that vision that you might have about the possibilities of this area?

Mr. BEHNAM. Thank you, Senator Booker. Answering your first question about my optimism or what the technology holds, I do not view this any differently than the series of milestones we have seen over the past 100 years in terms of technological development, and this is creating a potential avenue for quicker, better, more efficient access to capital and the transfer of value between individuals at a peer-to-peer level.

We have to be very careful and cautious and deliberative as we approach this technology, as you pointed out, both from a regulatory standpoint but I think from a market standpoint. There are shifts in terms of market structure and how folks access capital and how they transfer capital that disintermediate the guardrails that have been built up over decades to protect customers, whether it is AML, money laundering, or know-your-customer, and other very, very beneficial attributes of our financial system and the guardrails that have been built up over time.

I think this is naturally just the next steps. It provides a lot of opportunity for our country to take a leading role, but we have to be deliberate and cautious as we approach it, and be patient so that we do it right and that we do not have any unintended consequences.

Regarding your second question, you know, I will just lean on the fact twofold is one, we are a market regulator. We have been doing this for many, many years, and regardless of the fact that we oversee derivatives assets we know market structure. We know surveillance. We know enforcement. We know the core components and foundations and pillars of what makes markets work, what makes markets transparent, and most importantly, what protects customer money. We will continue to use that as the foundation to push forward on a potential marketplace, a regulated marketplace, for this technology.

The second element of that question, or response to your question, is we have been uniquely exposed to digital assets for over five or six years, which does not seem like a lot of time but relative to other agencies is actually quite long. It is because of our role as a commodity regulator, because of the emergence of regulated futures products that reference digital assets, it is the creation of our LabCFTC many years, and then as Senator Marshall mentioned earlier, it is what we are seeing in the marketplace in incumbent digital asset companies starting to purchase traditional CFTC entities or license entities.

I think we are well positioned. We have a lot of experience. We have great enforcement lawyers and surveillance attorneys, market intelligence experts, and I think we are a few steps ahead and ready to run with this if that is what this Committee and Congress desires.

Senator BOOKER. Well, I appreciate those sage and wise words from another bald New Jerseyan.

I do just want to say thank you again to the Chairwoman. I do believe we really need to move quickly to control for some of the worries that we have, but also to seize upon a regulatory framework that will help this. As I said earlier, if you just look at the demographics it is already having a bit of a leveling field. This is an area where 16 percent of all Americans are involved in crypto, and that is growing. Already you see 18 percent of African Americans, 20 percent of Latinos, you see the majority of crypto owners do not have college degrees and they are engaging in this space.

I just think this is a time for us to act, act quickly, and I am excited to do that in a bipartisan way, through this Committee that I believe has real jurisdiction in this space.

Thank you, Chairwoman.

Chairwoman STABENOW. Well thank you, Senator Booker. We do have a real bipartisan opportunity to do something I think is important and urgent at this time. Thanks very much.

I am going to say thank you, Chairman Behnam, and I know we have other members that will be submitting questions to you in writing. As usual, there are multiple hearings going on today at the same time, but much interest in working with you and getting your thoughts on an area that needs a lot of thoughtfulness and careful discussion about how to move forward.

Thank you very much. I look forward to working with you.

I am going to call forward our next panel. We have four witnesses who we are anxious to hear from. I am going to also just indicate that, as usual, we are going to be running up against some votes that are scheduled to start at 11:30, two votes. We will just be flexible here on how we move forward.

As you come to sit down I am going to begin introductions, in the interest of time.

I want to welcome the four members of our second panel. All four of you are leaders and educators in the digital asset marketplace, and we look forward to hearing from you about this market, including the current regulatory landscape as we consider what the future might look like, should look like.

First of all, Ms. Sandra Ro, CEO of the Global Blockchain Business Council. With her experience in investment banking, currency

markets, and digital assets, Ms. Ro is a frequent university guest lecturer and educates lawmakers, businesses, and the media on blockchain technology. Ms. Ro is an appointee to the New York State Digital Currency Task Force and serves on various international advisory councils, including the World Economic Forum's Digital Currencies Governance Consortium. While at the CME Group she led the exchange's work on developing a Bitcoin futures contract and filed CME's first crypto derivatives patents.

Second, Mr. Sam Bankman-Fried is the Co-Founder and CEO of FTX, one of the world's largest digital asset trading platforms. He co-founded the company in 2019, and formed FTX.US in 2020, to service U.S. customers. Its affiliate, FTX.US Derivatives, is one of the first crypto-based exchanges to be registered with the CFTC to offer digital asset derivatives.

Prior to his involvement in the digital asset space, Mr. Bankman-Fried was a quantitative trader at Jane Street Capital.

Mr. Kevin Werbach is a professor at The Wharton School and the Director of the Wharton Blockchain and Digital Asset Project. He is the author of a book titled "Blockchain and the New Architecture of Trust." As an educator, he focuses on the business, legal, and public policy implications in emerging technologies, including digital assets.

Mr. Werbach participated in the development of technology policy initiatives as part of the Obama Administration's Presidential transition team, and he served as counsel for new technology policy at the Federal Communications Commission.

Now I am going to turn to Ranking Member Boozman for our fourth witness introduction.

Senator BOOZMAN. Thank you, Madam Chair. It is a pleasure to introduce Ms. Perianne Boring. Ms. Boring is the Founder and Chief Executive Officer of the Chamber of Digital Commerce, the world's largest trade association representing the blockchain industry. The chamber's mission is to promote the acceptance and use of digital assets and blockchain-based technologies. Working with policymakers, regulatory agencies, and the industry, the chamber advocates for a pro-growth environment that fosters job creation, innovation, and investment.

Perianne was named one of America's Top 50 Women in Tech by Forbes and one of the 10 Most Influential People in Blockchain by CoinDesk. She appears regularly in the financial media to share insights on digital asset and blockchain innovations and is an active participant in public policy discussions.

Prior to forming the chamber, Perianne served as a television anchor for an international finance program that ran in more than 100 countries and reached over 650 million viewers. She began her career as a legislative analyst in the U.S. House of Representatives, advising on finance, economics, tax, and health care policy.

Thank you again for joining us today.

Chairwoman STABENOW. Well thank you again to each of you. You clearly have a tremendous amount of experience and knowledge in this space. We will ask each of you to give five minutes of opening testimony and then we will go to questions, and we will start with Ms. Ro.

STATEMENT OF SANDRA RO, CHIEF EXECUTIVE OFFICER, GLOBAL BLOCKCHAIN BUSINESS COUNCIL-USA, POTTSTOWN, PA

Ms. RO. Thank you. Thank you, Chair Stabenow, Ranking Member Boozman, and members of the Committee. Thank you for inviting me to testify.

My name is Sandra Ro, and I am the CEO of the Global Blockchain Business Council, the leading not-for-profit industry association for blockchain technology ecosystem, representing nearly 400 institutional members.

I began my career as a financial engineer at Deutsche Bank and Morgan Stanley. Subsequently, I led CME Group's digitization team where we pioneered some of the earliest regulated cryptocurrency products, for example, the CME Bitcoin futures today on which U.S. Bitcoin ETFs trade.

At CME, my team worked together closely with the CFTC, and these close relationships were critical to our ability to innovate effectively and responsibly.

Today I will share three blockchain use cases that are moving our society in a more secure, transparent, and equitable direction. First, as requested by the Committee, I will start with some basics.

The Bitcoin whitepaper, published in 2008, outlined a peer-to-peer electronic cash system using a consensus mechanism known as Proof of Work. On the Bitcoin ledger, transactions are arranged in consecutive blocks. Simply put, Proof of Work requires members of a network, known as miners, to solve a mathematical puzzle to secure the network. Once a miner solves and confirms a transaction, it is assigned to a block. The block is time-stamped and added linearly to the blockchain. For this work, the miner that first solved the puzzle receives compensation in the form of a block reward.

Since Bitcoin's creation, a variety of other consensus mechanisms have been created, most popular among them something called Proof of Stake. Proof of Stake is a consensus mechanism where users offer their digital assets as collateral for a chance to validate a transaction. It is estimated that the energy required to participate in a Proof of Stake network is roughly equivalent to the energy required to operate a home computer.

Each consensus mechanism has benefits and drawbacks. Regardless of the consensus mechanism, most blockchains share the following attributes.

Blockchains help us move "data as value" in a secure, lower-cost, peer-to-peer model. Blockchains necessitate to collaboration. Blockchains facilitate a permanence of records, which makes cooking the books or tapering with records extremely difficult. Finally, blockchain transactions are traceable. Most ledgers are pseudonymous, making it possible to track the flow of funds.

What does this look like in practice? The First National Bank of Omaha is working with a consortium of partners to create Cattle ID, a system that uses blockchain to create unique digital identifiers for cattle, and enables cattle ranchers to add health and treatment records to each animal.

Another company, Circular, is tokenizing critical mineral and metals to track their journey from mine to factory to recycling.

These materials are essential to the technology and automotive industries. Enhanced tracking and tracing of these materials could increase accountability and reduce the exploitation of people and planet.

Finally, the InterWork Alliance, Microsoft, and others, are working to create transparent and functional voluntary carbon credit markets by creating common standards that are helping markets reduce fraud, improve discovery, and create more accurate calculations of carbon offsets and credits.

Harnessing this technology to solve real-world problems and expand economic opportunities will be a generational effort. It is not too late for the U.S. to lead.

I look forward to answering your questions today.

[The prepared statement of Ms. Ro can be found on page 49 in the appendix.]

Chairwoman STABENOW. Thank you very much. Next, Sam Bankman-Fried. Welcome.

STATEMENT OF SAMUEL BANKMAN-FRIED, FOUNDER AND CHIEF EXECUTIVE OFFICER, FTX-US, CHICAGO, IL

Mr. BANKMAN-FRIED. Thank you, Chair Stabenow, Ranking Member Boozman, and members of the Committee. Thanks so much for having me here today.

I am Sam Bankman-Fried, the CEO and Co-Founder of FTX. We are a global digital asset exchange. We were founded in 2019, and today we have roughly $15 billion of volume that trade daily on the platform.

One of the big things that I want to point to in the digital asset industry is the equitable access that it provides to users, which is somewhat unique to this industry. Traditionally, in order to get access to market data, you need to pay millions or tens of millions of dollars per year, often separately to each venue, such that only the largest and most sophisticated trading firms are even allowed to see the order book that they are sending their orders to. Intermediaries obscure the data, obscure the transparency.

In the cryptocurrency industry and on FTX in particular, all of our market data is 100 percent free for everyone. It is available on our website for users, for regulators, for press, and any other interested parties. We do not charge licensing fees. We do not charge registration fees. We do not charge data fees. It is all available for free.

In addition to that, in traditional market structures most consumers do not have the same access to liquidity that the most sophisticated investors do. While the largest trading firms can go straight to an exchange, sending orders directly into the best price matching engine, most consumers are forced to go through many different intermediaries, each of which add latency, increase fees, reduce transparency, reduce the flexibility of the orders that they can send, and result in a very different market structure and a less-favorable market structure that the less sophisticated members are allowed to access.

On FTX, and in general in the digital asset ecosystem, everyone who is registered is allowed to send orders directly to our exchange in the same way. Whether you are doing it through our mobile app

or website or our API, they all have the same access directly to our matching engine, and every user, from the consumer to the sophisticated trading firm, gets equitable access to our liquidity.

Talking a little bit about what our U.S. business looks like today, we have a spot or cash market that offers digital asset commodity transactions, for instance, a Bitcoin versus U.S. dollar spot marketplace. We also have a CFTC license digital asset derivatives exchange, formerly LedgerX, now FTX US Derivatives, which has numerous licenses from the CFTC to offer futures and options on digital assets and follows the same general model as the rest of our systems do, with equitable access and free market data.

The spot business, as has been mentioned here earlier today, is not chiefly overseen by a Federal markets regulator, although the CFTC does have some amount of anti-fraud investigative authority. It is instead overseen by a patchwork of State money transmitter and money service business organizations.

Looking at the regulatory landscape today for digital assets, there are some holes, and one that I want to point to in particular, which has been brought up earlier today, is around spot commodity transactions. With commodity futures, the CFTC unambiguously have regulatory oversight and authority. With securities markets, the SEC clearly has authority.

With cash commodity markets, it is substantially less clear, and those are the markets that spot Bitcoins trade on today in the United States, without a clear Federal regulator. This leads to all the standard risks with having not enough Federal oversight, risks to consumers, potential systemic risks, and a lack of clarity for the industry.

This has led to the State we are in today, where despite the majority of the intellectual property for the digital asset industry originating from the United States, 95 percent of volume occurs offshore. The majority of assets are not accessible at all from the United States. It would be great to be able to move that liquidity, that business, back onshore, and providing Federal oversight and clarity would be great for that.

I think that the CFTC is in a very strong position to do this. The CFTC has extensive experience regulating digital asset markets through their cryptocurrency futures markets that they list. They have extensive markets regulatory activity, they understand the cash markets, and they have extensive experience monitoring the cybersecurity of their registrants. We, and other registrants, go through very extensive protocols by them to ensure the safeguarding of assets. I would love to see that jurisdiction expand to be able to provide Federal oversight for the cash markets, similar to how they do for derivatives markets today, both to provide consumer protection, protecting systemic risks, and to provide a clear and consistent framework for the industry to be able to bring much of this back onshore.

Thanks, and I am excited to answer any questions that you guys have for me today.

[The prepared statement of Mr. Bankman-Fried can be found on page 58 in the appendix.]

Chairwoman STABENOW. Thank you very much. Ms. Boring, welcome.

STATEMENT OF PERIANNE BORING, FOUNDER AND CHIEF EXECUTIVE OFFICER, CHAMBER OF DIGITAL COMMERCE, WASHINGTON, DC

Ms. BORING. Thank you for inviting me to participate in today's hearing.

I first learned about Bitcoin right here when I was working as a congressional staffer in 2011. After seeing the financial crisis of 1908 rock my community, I left my home State of Florida to work on public policy for a more sound and inclusive financial and monetary system. I am convinced that this technology is our best hope for achieving that.

Bitcoin, other digital assets, and blockchain technology represent American values like democratization at its core. Its distributed nature should be embraced, not feared. These technologies will play a key role in the financial services industry and will soon be considered critical infrastructure as we move toward a digital economy. Many nations around the world understand this, and they are competing to be leaders of exponential technologies like blockchain. As we look across the global stage, we see many nations, most notably the Communist Party of China, who have made blockchain technology a top national priority.

We find ourselves in a new space race. It is the cyber space race of controlling the systems and the governance that will power the digital economy, and I fear that we are so far behind that we have not even acknowledged that there is a race underway. As the world's largest economy, the stakes cannot be higher.

With that said, our Nation has experienced these challenges before, whether it was the space race or internet innovation, and our experiences show us that we do best when we recognize the private sector is our greatest strength. As the first and the largest blockchain policy organization, we have over eight years of experience in understanding the nuances and the complexities of digital asset policy frameworks. It is from this position that I urge the Committee to consider two key issues: regulatory clarity and regulatory cohesion.

Digital asset innovators have been operating in an unclear regulatory environment for far too long. In order for American businesses to be able to compete on the global stage they need to know what the rules of the road are.

Today our regulatory structure is fragmented. There are regulators that police fraud and market integrity such as the CFTC and the SEC. There are consumer protection regulators, including the CFPB and the FTC. There are prudential and monetary bank policy regulators, such as the Fed, the OCC, and the FDIC. There is another category of regulators that consist of financial policy and anti-crime orgs, including FinCEN and the Department of Justice. Then, on top of all of this, there are a number of State-level regulators that have a purview over digital assets as well.

This fragmentation has led to a lack of regulatory clarity and is hampering innovation and impacting American global competitiveness. We have members who have been waiting for action by the regulators for over five years, only to take their products elsewhere. It is time for the U.S. and for this Committee to begin put-

ting in place policies that create clarity and spur innovation and blockchain and economic growth and opportunity for all.

We urge this Committee to work with other policymakers to first adopt the chamber's 2019 National Action Plan for Blockchain, which proposes that U.S. blockchain policy should take a holistic government approach, with clearly articulated support for the private sector development of innovation required to grow emerging industries.

Second, provide regulatory clarity by identifying a lead regulator. We believe the CFTC is well positioned to assume that role. The CFTC is a market regulator that has a long history of taking on the regulation of new and innovative products with a strong track record of enforcing cases of fraud, market manipulation, and other illegal activity. The CFTC already regulates Bitcoin and Ether, which accounts for about 60 percent of the market today. It has spot market anti-fraud and manipulation enforcement authority, and it has a history of vetting and approving new types of innovative products, and most recently digital assets.

Finally, the CFTC's principles-based regime has a mandate to promote responsible innovation. A principles-based model is effective in the regulation of new assets classes because it allows the regulator to set desired outcomes but gives the market the flexibility to innovative on how those outcomes are achieved. I am confident a similar policy framework will achieve the same results for blockchain and for our country.

Thank you. I look forward to your questions.

[The prepared statement of Ms. Boring can be found on page 97 in the appendix.]

Chairwoman STABENOW. Thank you very much. Last but certainly not least, Mr. Werbach.

STATEMENT OF KEVIN WERBACH, PROFESSOR, THE WHARTON SCHOOL, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA

Mr. WERBACH. Chair Stabenow, Ranking Member Boozman, members of the Committee, thank you for the opportunity to testify before you. I will discuss four issues which are addressed at greater length in my written statement: first, what digital assets; second, how should we think about regulating them; third, what are some of the major risks; and fourth, what can we learn from the development of internet regulation?

Digital assets have the potential to increase efficiency, improve equity, promote privacy and individual freedoms, and broadly, create more competitive, fair, and transparent markets. I emphasize, though, the word "potential." The vision of a decentralized Web3, replacing centralized platforms, is a beautiful dream that many are passionately working toward, but we must separate dreams from present reality.

While the technical foundations are complex and important, the basic concepts here are straightforward. Most people do not understand how the internet actually works either. Digital assets are simply things of value represented through digital tokens used in valid transactions on a blockchain ledger. Blockchain diffuses the trust that previously resided in central entities.

However, this does not mean trust goes away. Having confidence that a digital representation on a public shared ledger is actually worth something, potentially millions of dollars in the cases of certain non-fungible token, is fundamentally an exercise in trust. Moreover, the absence of centralized trust creates burdens as well. If you lose the cryptographic keys associated with your digital assets, they are effectively gone. Platforms such as Coinbase and FTX generally take custody of users' assets, similar to traditional exchanges, because they are efficiencies of central intermediation. Decentralized finance, or DeFi, which removes these custodial relationships, raises its own challenges. We must examine carefully where risks and opportunities for abuses arise.

Too much of the conversation around digital assets started with a mistaken assumption they are currently unregulated. Just because something is a new kind of derivative or security does not mean those frameworks no longer apply. Addressing digital assets will not be the task for any one regulator any more than internet policy is. The CFTC should be given authority where the market activity involved is something it is well suited to address.

Even more important, the divide between agencies should not be a reason for gaps in the regulatory regime. Someone needs clear authority over spot markets and digital assets that are not considered securities over exchanges that are now among the most valuable and prominent firms and financial services, including some that are nominally offshore, and stablecoins that claims reserves in the tens of billions. The only way, over the long run, to promote trust in legitimate firms is to distinguish and take down the bad actors.

According to Chainalysis, cryptocurrency crime reached an all-time high in 2021, with $14 billion sent to known illicit addresses. It is worth nothing this represented only 0.15 percent of transaction volume. However, $14 billion is not a small number, and hacks draining tens or hundreds of millions of dollars, such as the recent Wormhole attack, are distressingly common.

Moreover, practices that are routinely banned for other asset classes, such as wash trading, pump-and-dump schemes, fake assets, and hidden conflicts such as exchanges listing tokens they previously invested in, are widespread. The stablecoin Tether continues to play an outsized role in the digital asset world, despite having been found to have lied about its backing and engage in other illegitimate practices.

There is something wrong when sizable attacks and fraud are so common. Yet investors and major firms appear to shrug them off entirely. Failing to lose trust in untrustworthy platforms suggests investors may not rationally be assessing risks. That could be a recipe for disaster.

I helped develop the U.S. approach to internet regulation in the 1990's, in the Clinton Administration. The policy then was to avoid unnecessary restrictions on innovation while critically addressing the policy issues that arose. Most internet activity then did not involve regulated activities. When it did, such as communication services under the jurisdiction of the FCC, regulators took action to avoid situations where quirks in technology would undermine legitimate public policy goals.

Many times I have heard that regulatory hurdles and digital assets would cause the U.S. to fall behind. Yet here we are, 2022, the U.S. is home to a large, diverse, and growing industry of digital asset and blockchain firms and investors, thanks to the dynamism of our economy and also to the trust in our markets.

That said, the sooner the gaps in legal authority or ill-fitting rules can be addressed, the better. This is already a $2 trillion market. This Committee should ensure the CFTC has the legal authority and resources to engage in active fact-finding, rulemaking, and enforcement in the digital asset space, in concert with other regulators at the Federal and State level.

I look forward to your questions.

[The prepared statement of Mr. Werbach can be found on page 115 in the appendix.]

Chairwoman STABENOW. Thank you very much. We appreciate the testimony of all of you. Let me start with questions and ask Mr. Bankman-Fried, you have supported increased regulation for the spot digital asset market. One of the concerns that I have is that without additional resources this will put the CFTC in a situation where they are being pulled away from its traditional areas of responsibility, regulating the derivatives markets including the markets critical for our agricultural producers.

I wonder if you might speak to how Congress should ensure that the CFTC has adequate resources to continue to oversee the markets at its core of its jurisdictions while expanding their responsibilities.

Mr. BANKMAN-FRIED. Thank you, Chair Stabenow. I completely agree. I would love to see the CFTC play a more active role in licensing and regulating the digital asset space, and I agree that that will likely involve increasing its scope and an increased need for resources.

There are, of course, a lot of ways to address that. You can imagine addressing it through appropriations, through other means.

I think one way could be contributions from the digital asset industry as well. If that were the preferred approach, I know that we would be completely comfortable participating in that, so long as it was a reasonable framework. Obviously, we do not want it to be a blank check of infinite size. You know, assuming that it is a well thought out and reasonable framework for supporting the licensing activity of the CFTC in the digital asset ecosystem I think that would be healthy, and I think we would be happy to play a part, and I suspect that other members of the digital asset industry would as well.

Chairwoman STABENOW. All right. Thank you very much. I think this is going to be important, and certainly as in other areas and financial entities and so on where there are fees, something where folks are contributing. I think that is going to be important to be able to give the CFTC the additional resources to do what you and others are suggesting. I appreciate that.

Ms. Ro, Bitcoin mining is, as we have talked about, extremely energy intensive. The United States is now home to one-third of the world's Bitcoin mining, much of which is powered by fossil fuels. I am concerned this is going to threaten our ability to combat

the existential threat of climate change and strain our electrical grid.

Can mining become more sustainable, and if so, what can Congress do to encourage this transition?

Ms. RO. Absolutely. Thank you very much for that question, Chair Stabenow. First, if we go back five, six years, we had a different challenge in the crypto mining sector. Most of crypto mining occurred in places like China and Russia, where we had very little visibility around what was going on in the mining sector, and often, also, not good energy sources, or dirty energy sources.

What we have today is actually an opportunity. Most of the mining has shifted to the U.S., to Canada, and to the Nordic countries. Why? Because people will go where they can find energy at the cheapest level possible, and when you think about the bans that have occurred in China and in Russia and various other places, that is actually a net positive, especially for the U.S.

What we should do is to encourage the crypto mining firms to set up, in an observed and obviously having proper oversight environment, where we champion the move toward increasing renewable usage, but we bring this industry to the U.S., and to Canada and to other peers. Why? Because we need that oversight and that visibility of what is going on in such an incredibly important sector.

There are a few things going on right now that policy can accelerate. Private sector is already looking to adopt more renewables. Private sector is also agreeing with States on caps. Meaning if there is a peak load occurring in any given State that mine shut down. They no longer mine, and they wait until the peak load has come down. These are creative and very sensible, practical ways of then transitioning to a place where we are mostly renewable.

I really encourage a rethink around how we embrace this sector and encourage the positive use of renewable energy.

Chairwoman STABENOW. Thank you very much. Ms. Boring, what is the Chamber's view of this issue?

Ms. BORING. First and foremost, all industries and all technologies use energy. We have very good visibility into the energy uses of Bitcoin today. Bitcoin mining consumes about 0.12 percent of the world's energy production. If this went away we would still have very significant conversations and issues to work out as it relates to climate change and energy usage.

Two differences between Bitcoin mining and other energy producers are, one, we have very strong visibility into the energy and the cost and the resources based on the transparency of the blockchain. Second, this energy—this sector of Bitcoin mining is leading the transition to renewable energy sources. Today the industry is powered 59 percent by renewable sources. It is one of the most sustainable, if not the most sustainable industries in the world today.

Chairwoman STABENOW. Thank you very much. I see my time is up. Senator Boozman has gone to vote as we are taking turns back and forth here, so I am going to turn to Senator Sherrod Brown, who has multiple hats, including chairing the Banking, Housing, and Urban Affairs Committee. Welcome.

Senator BROWN. Thank you, Madam Chair, and I really appreciate your question about the environment. Saying that, well, we

do not do it in China anymore, that is what makes us environmentally principled and conscious, does not really take us really take us where we need to. Thanks for raising the issue, Madam Chair.

We hear a lot about innovation. I am concerned that digital assets create big risks for consumers, and our committee, the Banking and Housing Committee, we have been looking at cryptocurrency for years. We are going to continue to make sure consumers are protected in these markets. Next week, Under Secretary of the Treasury Liang will testify about their resident President's Working Group report on stablecoin. I look forward to coordinating with Chair Stabenow, and Senator Booker is very interested in this, and a number of others. Senator Smith and Senator Warnock sit on both committees, so we have work to do there.

A question, Mr. Werbach, and then a question, Mr. Bankman-Fried. Mr. Werbach, digital assets make it easier to conduct transactions outside the regulations that keep criminals and terrorist from using our financial system. Yesterday, the Justice Department announced an investigation into two individuals that allegedly tried to launder more than $3 billion of stolen Bitcoin.

Big risk here. How do we approach bringing digital assets within a BSA/AML, anti-money laundering framework?

Mr. WERBACH. Thank you, Senator. It is a very important question. There are all sorts of illicit activities that happen using digital assets, and there is a need to bring this whole ecosystem within the frameworks that we have established for illicit finance and to figure out new technological means to do that. Much of this involves finding mechanisms for entities to know their customers and to communicate that information and to provide surveillance capabilities for regulators.

Now the exact way that this happens may be different for digital assets, but in recent years there has been movement in this direction. The Financial Action Task Force globally has adopted something called a Travel Rule for communicating information between virtual asset exchanges, and industry has started to work on coming up with the technological means to implement that in a way that is not inconsistent with regulation.

Ultimately it comes back to the fundamental issue that regulators need to have oversight. These need to be exchanges and other entities that are subject to market regulators like the CFTC and the SEC, that can figure out how to implement those kinds of requirements, because there is no question, there is far too much financial crime going on. There is financial crime outside of crypto, of course, as well, but there is far too much going on using these assets.

Senator BROWN. Thank you, Professor.

Mr. Bankman-Fried, if we turn on the TV these days there are ads for crypto everywhere. I understand this Sunday FTX will have an ad in the Super Bowl. I heard they are not cheap. There is no question that crypto companies want working people to put money on the line—that is who you are reaching out to. Last week, hackers stole $320 million from a crypto platform, Wormhole. In this case, investors got lucky. The trading firm behind it came to the

rescue. We know we cannot always count on those trading firms. There just is not that much money.

Crypto.com—that is the one we see if you watch college football; you see Matt Damon on just about every college football broadcast—crypto.com lost $30 million last month. Scams and hacks are everywhere in crypto.

Mr. Bankman-Fried, is it reckless for crypto companies to get rich by selling Americans such a dangerous, risky product?

Mr. BANKMAN-FRIED. Thank you, Senator Brown, for the question. I think what this highlights is the need for Federal oversight of the cryptocurrency industry, and as you pointed out there have been a number of hacks and scams historically. Most of this has happened on unregulated venues.

There are really sophisticated tools that the CFTC and other Federal agencies have to help mitigate this risk. The CFTC has a really extensive cybersecurity and anti-hacking program that all of their registrants go through, and there has been a very good track record of those companies. I think that, you know, digital assets exchanges being subject to that level of oversight would be entirely appropriate and would help to mitigate the exactly risks that you are pointing to there.

I think that when you look at the sort of another instance of this that you brought up, which is scams, often on rather than the platform side but the asset side, the individual assets, that moving toward a world where there is a Federal registration regime for digital assets, that involve the same level of disclosure and anti-fraud protection that we see for securities today, would be entirely appropriate, and would help to protect against scams, Ponzi schemes, pump-and-dumps, and other similar activity there.

I think that it will have to be a little bit different than any registration forms that currently exist because there are some nuanced differences between digital assets and current assets, but many of the same anti-fraud principles apply in exactly the same way. I think that having a Federal oversight through that system could help address that piece of it as well.

Senator BROWN. Thank you. Madam Chair, thank you.

Chairwoman STABENOW. Thank you very much. I look forward to working with you on this. Senator Boozman.

Senator BOOZMAN. Thank you, Madam Chair.

Ms. Boring, there are over 17,000 digital assets. Can you briefly explain what digital assets are generally used for and how they are regulated? Further, what is the real-world application of digital assets, particularly Bitcoin and Ether, which represent about 60 percent of the digital market? We are hearing a lot about the potential for fraud, the fraud that is going on, and this and that, but tell us, so many people are confused as to what this really represents.

At the hearing today we are digging a little bit deeper, but for a lot of our colleagues this is something that, you know, they have heard about but they do not really understand. What is the real-life purpose of getting these things on the market?

Ms. BORING. Yes, so to really understand the purpose of this technology you have to understand the problem that it solves in internet architecture. The internet was supposed to be a place for

peer-to-peer transfers. It works for communications. It works for media. It does not work for things of value.

For example, if I take a picture on my cellphone and I go to send it to you, peer-to-peer, directly, so we are not using an intermediary for me to deliver that to you, like the Postal Service. When I send it, there will be a copy of that picture on your device and there will still be a copy of that picture on my device.

Okay, great. That works for photos but does not work for money. If I am sending you money it is really important that when I send it to you it leaves my control and it is only in your custody. That is the innovation that Bitcoin solves. That problem is called the double-spending problem, and it was not until 2009, with the launch of Bitcoin, that we knew how to do that.

Previously, financial services were being retrofitted to sit on top of the internet. You can think about this in a way of taking a picture of the front page of The Washington Post, for example, and just hosting that picture on a website. Is the news online? Technically, but are we using that infrastructure and that architecture to transform the way that we are sharing that information? No. Financial services is just now starting to see that technological boom in peer-to-peer direct transfers.

What is this used for today? There are many different cryptocurrencies, as you noted. Bitcoin has the largest market cap out of all of them, and it is used as a digital store of value. The Chairman of the Fed, Jerome Powell, has testified in Congress before comparing it to a digital gold. That is its main purpose.

Other cryptocurrencies, like Ether and Proof of State networks are smart contracts applications. Those are two very different things, a store of value versus smart contracts.

Senator BOOZMAN. Very good. Thank you. If each one of you all would—this is a question for all of you, but you have only got about 30 seconds to answer it or the Chairwoman will yell at me, which is not a good thing.

I guess the question, or the heart of the matter is, do you believe it is necessary for Congress to provide market participants greater certainty when it comes to regulation of digital asset, spot markets, and if so, what should be considered as that framework is developed?

We will start with you.

Ms. RO. Ranking Member Boozman, thank you very much for that question. In terms of what we have talked about today, I think the urgent first step is to provide the CFTC with the authorization and the resources and funding needed to oversight certain parts of the market, and it is pretty clear that derivatives and crypto derivatives fall in that that, but then the next question is the spot markets, with relation to what is identified and defined as commodity within the digital assets. I am going to emphasize that again—not all digital assets would be commodities. It would be subset. Making very clear what that is and that demarcation will be very important to the markets.

Senator BOOZMAN. Okay.

Ms. RO. That first step alone will do wonders to really help move forward on the clarity point.

Senator BOOZMAN. Very good.

Mr. BANKMAN-FRIED. I think that it would be great to have congressional action here, and I think providing clarity on the regulatory framework would be appropriate and helpful for the industry and for oversight.

I also think that there is some actions that could be taken without a new bill passing. I think that when you look at retail commodity spot transactions with some amount of financing, that is an example of an area where I think the CFTC already has some regulatory authority. I think for cash markets more generally, it would be great to get congressional action and clarity on that point.

Senator BOOZMAN. Go ahead.

Ms. BORING. Our ask, in terms of what this Committee can do, and the biggest issues impacting our space, as I Stated in my oral regulatory clarity and regulatory cohesion. To start, a good first start would be to create a joint working group between the CFTC, the SEC, and the industry. We are pleased to see that there has been bipartisan support for that, and we would further encourage that here on the Senate side as well.

I mentioned the National Action Plan for Blockchain. We have eight regulatory principles that we outline in the National Action Plan. We would be happy to collaborate with that on you further. We also think that the CFTC is well positioned to a lead regulator in this space.

Senator BOOZMAN. Good. Go ahead, sir.

Mr. WERBACH. I would agree, Senator, with what everyone else has said, that spot market authority for crypto commodities is essential. More broadly, Congress needs to look to where there are gaps in the regulatory structure. Not all of them are within the purview of this Committee, but stablecoins are one that have been identified, central bank digital currencies, some of the energy and climate-related issues where tax policy or other methods may provide incentives, and more broadly tax issues around digital assets or situations where it has become clear that the existing legal frameworks need some updating.

Over the long term, this is the future of financial services. There certainly is an urgency to make these kinds of modifications, but I think Congress needs to start the process of thinking about how might we restructure fundamentally our financial regulatory system, given the kinds of innovations and changes that these technologies herald.

Senator BOOZMAN. Thank you, Madam Chair. Thank you.

Chairwoman STABENOW. Thank you very much. Senator Booker.

Senator BOOKER. Thank you, Chairwoman. I agree with so much of what is being said on both sides of the aisle about the concerns and the worries and about the urgent need for a clear regulatory framework. I want to try to highlight right now some of the things that I think are important to drive home.

Ms. Boring, Mr. Bankman-Fried, could you both comment on why America right now, if we were just unfurling our patriotism, is losing out on a lot of opportunity that this industry right now is mostly overseas and not here at the center of the global markets? What are the opportunities that are missing out and the dangers, in fact, of not creating a clear regulatory framework that would have these

transactions and more being done here in America? If the two of you could address that.

Ms. BORING. America, global competitiveness is a huge concern of mine. This technology, the digital technology, does not see national borders. It is a global technology, by its nature. Companies are going to operate in areas where they have legal certainty. We have members today, started by Americans, U.S. small businesses, they are not comfortable operating here because they do not understand the rules of the road, and they are going overseas.

Having legal certainty and regulatory certainty is absolutely essential, and this Committee has a key role to play in that conversation. Then as I mentioned earlier, you have this issue of regulatory fragmentation. The issue is not a lack of regulation. It is that you have so many cooks in the kitchen, and stakeholders, all pulling to have purviews over different areas of this asset class, and it adds a lot of bureaucracy and red tape to running a business here, particularly a small or medium-sized business, in these digital assets in the United States.

Regulatory clarity and having a cohesive strategy for businesses is essential to promoting economic growth here in the United States.

Senator BOOKER. Thank you.

Mr. BANKMAN-FRIED. I agree with most of that. Thank you for the question, Senator. I think, you know, first, briefly, you know, 95 percent of volume is offshore. Most tokens are traded exclusively offshore, because of the lack of clarity today. That poses a real threat to the States. I would love to see that come back onshore.

You look at the majority of digital asset transactions are conducted by U.S. dollar-backed digital assets right now, stablecoins. That could change to a different currency if the United States does not take a lead on providing a clear pathway and oversight for digital asset transactions. You could see the center of the digital economy being somewhere other than the United States, unlike the center of most other marketplaces and economies.

In terms of what I think the promise is, I think there is a ton. You look at the unbanked, the underbanked, it is not shocking that minorities disproportionately use digital assets. It is not shocking that those who do not have equitable access to our current financial infrastructure disproportionately use digital assets. It is one of the first times that people have direct access to their own finances, that people are not forced to wait five days for a transfer to clear, getting overdraft charges every day along the way. It is one of the first times that people can get clarity on what is going on without having to hire lots of accountants to keep track of their own ledger.

It is also, I think, something that provides a lot of hope for other areas of our economy and of our Nation. I think when you look at social media, I think one thing that has become clear are the dangers of having really any approaches to centralized social media control and censorship, and there are no right answers sometimes.

One thing that I would be really excited to see would be blockchain technology providing an agnostic messaging protocol, which would allow interoperability between different social media platforms, break down some of the network effects, break down some of the barriers, and allow competition and allow different

types of moderation to play on the same messaging protocol without holding captive the users and the content. I think that is another area where we could see real good produced by——

Senator BOOKER. Mr. Bankman-Fried, I am going to interrupt you because I have only got 30 seconds left, and I am offended that you have a much more glorious afro than I once had.

Really quick, I got into politics because, as a city councilman in a neighborhood I still live in, low-income Black and Brown community, and I was appalled at the banking industry. When I was mayor we did a lot to try to disintermediate the banks. We brought Kiva into Newark to try to get direct loans. They had better repayments to Kiva loans than the banks but they did not use their same opportunity. I see what overdraft fees have done, and we fought with our local banks to get them to eliminate these fees.

You are right that Black and Brown people right now are overrepresented in this space. I have concerns, whenever you have large money, large industry getting into something, but you could close me out by saying to me that the best view of the future, and how this could really empower the communities that all of us on this Committee probably are really focused on, and that I got in politics to make sure I serve?

Mr. BANKMAN-FRIED. Absolutely. I completely agree with that, Senator. I think that it could help provide direct, clear, equitable access to financial services to minorities, to economically disadvantages, to the underbanked. It could help get them, for the first time, in an area without discrimination from the underlying technology and also where they have just clear transparency on what their finances are, on what their assets are, where they have control but they are not beholden to institutions who are charging them fees while delaying on providing services. I think you could do a lot to help serve those communities, and I think I am really excited for that vision of the future.

Senator BOOKER. Mr. Chairman, thank you very much, Sir.

Senator BOOZMAN.

[Presiding.] Thank you.

Senator BOOKER. I hear rumors that you had a great afro back in your day too, sir.

Senator BOOZMAN. Lots of hair. Senator Thune.

Senator THUNE. Thank you, Mr. Chairman, and I assume that all of you are going to be the life of the Super Bowl party, because when Matt Damon comes on and says "Fortune favors the brave" you can start riffing about cryptocurrencies.

You know it is mainstream when professional athletes, some of whom will be participating in this weekend's Super Bowl, like Odell Beckham, are getting their compensation, or at least part of their compensation in the form of crypto.

I am interested, obviously, as most of my colleagues are, in what is the best approach to make sure that we are not stifling innovation but that we are regulating digital asset technology in a way that appropriately reflects the risks.

Mr. Werbach, in your view, what would a risk-based approach of digital asset regulation look like?

Mr. WERBACH. Thank you, Senator. That is a very healthy way to look at this, because there are a variety of technologies here, and

any entity involved needs to think about what are the different kinds of risks. There were some questions before about the banking system and the way that certain banks have been unwilling to take on cryptocurrency clients. Fundamentally that should be a risk-based process in terms of assessing what are the concerns, what are the dangers here, and what are the mechanisms for addressing those kinds of concerns.

It is easier to do all of that within an overarching structure where regulators provide some level of general guidance, provide some oversight and surveillance of markets, but then allow entities to devise the risk-based structures that make the most sense for them.

This is actually a very diverse market with different kinds of assets, different kinds of exchanges. It is changing very fast. A very specific, prescriptive approach, requiring one set of requirements may not work, but there needs to be some encouragement and some guidance about what a risk-based approach would look like. Again, that is starting to happen, bottom up, in certain areas where regulators are pushing, but it needs to start with that requirement that will get participants in the industry to move forward.

Senator THUNE. Mr. Bankman-Fried and Mr. Ro, you both make it sound like the United States is not particularly competitive when it comes to attracting the digital asset industry, which begs the question about what other countries are doing and how the U.S. regulatory framework of digital assets compares with that of other countries. Could you talk about why other countries are more attractive and why the United States is not particularly competitive, and does it have to do with a regulatory framework in those countries?

Mr. BANKMAN-FRIED. Yes. Thank you, Senator, for your question. I completely agree.

Now it is worth noting there are a lot of countries in the world. Each has a different approach, and many other countries are also not competitive on this, but many of them are. I think the big differences that you see, it is not on whether regulation is stringent or lax. It is on whether regulation is clear or unclear.

The biggest thing that we see with countries that have done a really good job at attracting the digital asset industry is having clarity from the regulators about what licenses one should be pursuing, about what the oversight is on those, who the overseeing body is, about how one registers and things that need to be registered.

Providing a pathway forward with sufficient oversight is the hallmark of the countries that have done very well at this, and I think the biggest problem in the United States, I think "patchwork" has been a word that has been used a few time here, it is the patchwork of regulation, that there are simultaneously too many sort of cooks in the kitchen, and yet not enough oversight, because there is a diffusion of responsibility. I think having a clear framework with clearly communicated—you know, whether they are prescriptive guidelines or maybe more appropriately sort of principles-based guidelines, but a clear regulator in charge of those or clear cooperation between regulators on it, clear licensing and registra-

tion pathways that are not lax but that are clear I think is the single biggest thing that is missing.

Ms. RO. If I may add to that—thank you, Senator—there are two countries I want to highlight that we may want to borrow part of their playbook, maybe not all their playbook. Switzerland. FINMA is a regulator that has been very early, to be very clear about how things are defined, whether something is a utility token or a security token. Whatever token it is, whey have made very clear definitions.

Further, they have come out in front on how they deem different classifications of activities and what falls under their oversight or not. They were also one of the first to come out with a licensing regime for these crypto funds, and this is what happens when you do that. There is a little town called Zug. Crypto valley. It has that name—no one ever heard of Zug eight years ago, but it is now home to hundreds, if not thousands, of crypto companies. These people do not all live there but they have set up shop there. I think that is something we should think about.

Estonia. I will leave you with Estonia. That was an interesting one as well. They have an E-resident program, and they have digitized a large chunk of their government services. What is interesting, as an entrepreneur, about setting up in Estonia, I do not need to go there either. I need to prove my identity. I need to obviously have the requisite capital to invest. Everything else I can do digitally. I can even have encrypted signatures for legal documents.

It is a very interesting model, and so we should be looking at those types of things to encourage business to come here. They do not necessarily physically have to come here, but to set up shop and to create jobs here.

Senator THUNE. Thank you. Mr. Chairman, if I could just have Ms. Boring take this one for the record, because my time has expired and I have to run over and vote. You mentioned examples of blockchain technology in use today, and in particular I appreciate you pointing out applications in agriculture.

You mentioned livestock ownership, recordkeeping use, and I would like to have you, if you could for the record, tell us more about that use and how it affects American farmers and ranchers.

Ms. BORING. Yes, happy to, and thank you for the question. Blockchain technology is providing security and transparency to supply chains, and it is ultimately arming our farmers, ranchers, as well as consumers with better information and data about agriculture products.

One example of this is a company called BeefChain. They are based in Wyoming. They are a small business here in the U.S., and they are a pioneer of this technology. Cattle is tagged with an RFID and given a unique digital identifier. That cattle's unique ID, as well as other information that is collected throughout the supply chain, such as where it was born, has it received hormones or not, when it was sold, where it was sold, all that information is collected, secured, and stored using blockchain technology.

Blockchain technology is bringing other benefits to supply chains, such as making them more efficient. It is helping increase trust in different brands, especially small farmers and ranchers here

throughout the U.S. It is helping with sustainability goals, food freshness, food safety. It helps prevent fraud as well as food waste.

Senator THUNE. Thank you, and thank you, Mr. Chairman. Thank you all for being here. I appreciate your insight.

Senator BOOZMAN. Senator Braun.

Senator BRAUN. Thank you, Mr. Chairman. As an entrepreneur and business owner, probably most fresh off the street here in the Senate, this is an interesting area to me. I also came from the world of economics so long ago.

We talk about a lot of that stuff, including our budget that is now the worst it has ever been in the history of our country, $1.5 trillion a year, gives a lot of fuel for non-sovereign currencies. Some of the stuff that anybody would be worried about, where we have been the reserve currency for so long, due to some of the predictability when we used to balance our budgets, when we used to not have inflation. I will not get into that. It would take up too much time.

I have got a question about the new technology—I will start with Ms. Boring—when it comes to Elon Musk, who loves the idea of all of this but quit accepting cryptocurrency due to the environmental impact. Is there something down the road that would, through economy of scale make the energy use less, you know, for all the benefits that it looks like it may give us someday, because that is going to be an increasingly significant issue. What is your take on that, and do you believe Elon Musk had something there, in citing how energy intensive and expensive it is to establish blockchain?

Ms. BORING. Yes, thank you for that question. It has been interesting to see Elon Musk's stance of digital assets. While they decided to stop accepting certain digital assets, they still own it and it is still sits on Tesla's balance sheet. Think actions speak as a part of the approach as well.

Specific to energy concerns, we have seen a number of groups and people and Members of Congress express concerns about the energy uses of certain digital assets, specifically those that use Proof of Work. The point that I made earlier is what is important about what we are seeing in the Bitcoin mining industry and other Proof of Work blockchains is that this industry is leading the transition to renewables.

We represent companies that are publicly traded and listed here in the United States that are partnered with renewable plants like solar and wind, throughout the U.S. These partnerships between the renewable industry and the Bitcoin mining industry is bringing new investments and innovation into renewables, and that needs to be an incredibly important part of the conversation as we look at policy responses to those concerns.

Senator BRAUN. I think when you look at what a small percentage it is currently of transactions, and with the increasing emphasis on maybe the cleanest, least expensive fuel, I think down the road, hopefully, both of those converge in the right direction. I think there is going to be plenty of demand for something in addition to sovereign currencies that look a little shaky and risky for, you know, what the dependability was there in the past.

I have got a question for Mr. Werbach. When it comes to this emerging technology, kind of analogous to the internet. We did not

know where that was going to go, and look where it has come. Now its biggest susceptibility is from cyber thieves. I think many would wonder about using blockchain and cryptocurrencies, you know, when it is in that realm of can it be hacked. Is it something that can give you peace of mind and security for all the reasons I have mentioned already?

How do you draw a comparison between this and the internet in terms of concerns, fledgling industry, and then what about its long-term safety and security when it based upon a technology that many of us do not know much about?

Mr. WERBACH. Senator, that is a very important question, and we forget that back in the 1990's, people said, "How would you buy something on the internet? You mean you are going to type in your credit card number to a computer and it is going to go off somewhere in the ether, and you are going to believe that someone is not going to steal your credit card?" Americans were worried about e-commerce for exactly that reason, and to some extent for good reason.

What happened? Part of what happened was technology evolved. There were various technical mechanisms to ensure that your credit card was protected. Part of it is regulation, that there is oversight of the credit card industry, so if, in fact, your credit card is stolen, your entire balance is not at risk. It is capped by the issuers. Part of it had to do with regulation and oversight of these industries as a consumer protection matter.

Ultimately people got confident. I focus on the idea of trust. That is the title of my book, and that is the similarity. People learned to trust the internet as they had good experiences with it, and the same thing is possible here.

The ironic thing is that the blockchain technology itself is incredibly secure. It is cryptographically secure. Bitcoin is a trillion dollars at its peak in assets, and no one has successfully been able to hack that ledger because it is so secure, based on the underlying cryptographic structures.

The problem, though, is that you are holding keys at the edge of the network, you have to secure your own keys. You cannot rely on the bank or the intermediary providing all that security, and that is what has opened up the opportunity for all these hacks.

Again, we need to move forward with industry working and identifying technologies and best practices as well as having oversight and regulatory mechanisms to ensure that there are basic standards.

Senator BRAUN. Thank you. Interesting new horizons, I would say.

Senator BOOZMAN. Senator Tuberville.

Senator TUBERVILLE. Thank you, Senator Boozman. Thanks for being here today. I think you will all agree that it is critical for the United States to be the undisputed leader in the digital asset game. Up to this point we have led the world in financial innovation. Under the previous administration, regulators understood the importance of encouraging innovation and took a light-touch regulatory approach to the digital assets industry.

We have seen a dramatic shift over the course of the past year, and I am concerned about the regulation of enforcement mentality

that is starting to take hold. If this keeps up, innovators are going to leave the U.S. and move overseas to places like the UK and Singapore. We cannot let that happen, and we certainly cannot allow China to get ahead of us in the financial innovation.

Sam, you built a great company and had tremendous success. I am a free market guy who happens to think that is a good thing. What do regulators and those of us serving in Congress need to do to keep companies like yours operating in the United States, and how can we encourage more innovation here?

Mr. BANKMAN-FRIED. Thank you, Senator, for the question and for the kind words. I completely agree that it is imperative that we allow the current industry to stay here, and hopefully much of the current offshore industry to move back into the United States as well. Again, we are in a situation where 95 percent of volume is offshore today, and it would be great to see a lot of that move back into the United States.

The biggest things that we need are regulatory clarity, and again, it not so much a matter of are regulations stringent or lax. It is much more a question of are they clear, and is there a regulatory pathway forward for registration and licensing?

To maybe name a few specific areas there, getting clarity on the cash cryptocurrency markets, the spot markets, would be really great for the industry. Much of the institutional capital is sitting on the sidelines waiting for that. I think the CFTC would be an appropriate regulator for spot digital commodity transactions.

I think a second thing, and this is one of the bigger things, is on the token registration. A lot of activities taking place outside of the United States right now is because there is not a clear registration process for tokens in the United States. I think it is appropriate to have a registration process, to have anti-fraud controls and other similar things that we see in other marketplaces. You know, you cannot just exactly copy-paste the registration process for a security or something like that to a digital asset because there are some differences, even if many of the same principles do still apply.

I think a similar principles-based system but one which acknowledges the unique aspects of digital assets and can provide that same clarity but allow them to actually register in the United States and be offered on U.S. platforms would be really important for bringing a lot of the industry back onshore, because again, most tokens are not accessible at all in the United States because there is no clear registration pathway today.

I think that those are two of the biggest things to address, and I think addressing those two, plus a regulatory framework for stablecoins, which I think is going to be coming to a head soon, and I think having some sort of auditing framework for it as well would do an enormous amount to provide clarity, so that people could get licensed in the United States, could get registered here, and could conduct their business activity here rather than going to jurisdictions outside of here who had developed frameworks for it.

Senator TUBERVILLE. Thank you. Of the thousands of digital assets out there, what percentage would each of you say are commodities versus securities, and I would like for everybody to just give an estimate. Ms. Ro?

Ms. RO. There are so many that are out there, I think the digital asset definition basically means any asset that is digitized. If we take a subset of the different classifications, you have to put aside all of the CBDCs, central bank digital currencies—that is another category—you have got your tokenized physical things, as I like to call them. When you tokenize or digitize real eState or gold or actual physical things, that is its own subcategory, and they have their own kind of demarcations, depending on what physical thing they are.

Some of the rest could actually probably fall under the commodities bucket, and that is where it gets complicated.

I cannot give you an exact percentage, but I would start classifying things into sub-buckets, and then we will be able to parse out how much of that is actually commodities.

Senator TUBERVILLE. Sam?

Mr. BANKMAN-FRIED. If you weight by volume or market cap I think the vast majority of activity is in commodities. If you instead weight by number of tokens, I think that some of them are clearly commodities. I think some of them are unclear and have some properties of a number of different asset classes and do not fit into any bucket. I think it is sort of a split by those, if you look at number of tokens rather than market cap or volume.

Senator TUBERVILLE. Ms. Boring?

Ms. BORING. I agree with Mr. Bankman-Fried. If you go by market cap, the vast majority are commodities. Bitcoin and Ether today compose over 60 percent of the market capitalization of the entire digital asset ecosystem, and they have been defined as a commodity by the CFTC today.

There are other categories. We kind of talked about categories of digital assets. Another one is intentional digital asset securities. That is another area that is a nascent and emerging piece of the ecosystem but has yet to really fully be realized because of the lack of regulatory clarity by the policymakers.

Mr. WERBACH. Digital assets do not have a fundamental attribute. The question is how they are used. It is true—the vast majority of digital assets are used in investment schemes, are used as a form of fundraising, which is the attributes under the Howey Test of a security. There are situations that are in the middle. Ether, the SEC has suggested is a commodity today but may well have been a security when it was originally issued back in 2014–2015. Bitcoin, because there is no entity that is issuing Bitcoin that is raising money, it makes sense to think about it as a commodity. You are not contributing to some investment scheme through the efforts of others. It is a decentralized network.

I would agree with what the other speakers have said about if you just look at the market today, but the important question is really what is going on. What is the nature of the activity that is involved? That is going to change and develop. The same asset may, in different circumstances, be in more than one category.

Senator TUBERVILLE. Thank you. Thank you for such a complex issue that we are all heading toward, and your expertise, and thanks for coming here today. Senator Boozman.

Senator BOOZMAN. Thank you very much, and again, a special thanks to all of our witnesses and our Committee members and

staff for really a very informative hearing that I think has helped us as we go forward.

On behalf of Senator Stabenow and myself, as you can see there is no shortage of questions on this issue. We appreciate your testimony, which will help us get a better grasp on the potential and the risk of digital assets. As of now, there is a gap in the oversight of digital assets. This poses a danger to the American consumers and could threaten the resiliency of our financial markets if left unchecked.

I want to reiterate that regulation and innovation are not mutually exclusive, and that is what we are all working to achieve. We have an opportunity here to broaden participation in our financial markets, but this must be paired with consistent rules of the road that protect investors and their markets.

You have given us a lot to consider, and we look forward to further discussions in this Committee, and with that, that concludes our hearing today. The record will remain open until tomorrow at 5 p.m. for members to submit additional questions or statements.

With that the hearing is adjourned.

[Whereupon, at 12:26 p.m., the Committee was adjourned.]

A P P E N D I X

FEBRUARY 9, 2022

Testimony of Rostin Behnam
Chairman, Commodity Futures Trading Commission
"Examining Digital Assets: Risks, Regulation, and Innovation"
U.S. Senate Committee on Agriculture, Nutrition, and Forestry
February 9, 2022

Good morning Chairwoman Stabenow, Ranking Member Boozman, and members of the Committee. I am honored to appear before you today for the first time as Chairman of the Commodity Futures Trading Commission (CFTC). I appreciate the opportunity to share my views on digital assets, and look forward to working with this Committee as we collectively address the many issues related to this emerging technology.

The CFTC's Role as a Market Regulator

The CFTC is the primary regulator of the U.S. derivatives markets in which commodity futures, swaps and options are traded. For over a century, the derivatives markets have played an integral role in the U.S. economy, facilitating risk management and price discovery, and contributing to financial stability and predictability of prices that impact the daily lives of all Americans. Through the Commodity Exchange Act, Congress both mandates and empowers the CFTC to implement rules and regulations aimed at fostering open, transparent, competitive, and financially sound markets; to prevent and deter misconduct and disruptions to market integrity; and to protect all market participants from fraud, manipulation, and abusive practices.

Part of our role in ensuring the integrity of derivatives markets demands that the agency understand a great deal about underlying reference cash markets – where producers, including farmers and ranchers, manufacturers, and institutional investors directly exchange agriculture commodities, energy products, precious metals, and even digital assets. As history demonstrates, the potential for fraud or manipulation in these underlying markets often poses the most immediate threat to the integrity of derivatives markets.

While the CFTC does not have direct statutory authority to regulate cash markets, it does have fraud and manipulation enforcement authority. Accordingly, when the CFTC becomes aware of potential fraud or manipulation in an underlying market, either through regular oversight and surveillance programs, or through other means such as a whistleblower tip or referral, we address the misconduct through our enforcement authority.

The Commission's exercise of its enforcement authority as applied to both the derivatives and underlying reference cash markets and resulting judicial interpretation has provided an effective means of protecting customers and market integrity for decades. It is a feature of the system created in our statute, providing legal certainty within jurisdictional markets that are constantly evolving against a regulatory system that may not always keep pace. And while the crystallization of our enforcement authority through judicial interpretation has proven an effective means of

uncovering and addressing some of the regulatory gaps presented by innovation and evolution in the financial markets with respect to digital and related assets, it cannot be viewed as a viable substitute for a functional regulatory oversight regime for the cash digital asset market.

This is not to diminish the fact that many cash commodity markets benefit from federal oversight. However, the digital asset market, which at present is most directly supervised through state money transmitter licenses, is unique and presents many novel issues for the CFTC, given our limited authority to police these volatile markets. In fact, there is no one regulator, either state or federal, with sufficient visibility into digital asset commodity trading activity to fully police conflicts of interest and deceptive trading practices impacting retail customers.

The Digital Asset Market

There are now hundreds of thousands of unique digital assets in circulation with a combined market capitalization of approximately $2 trillion. At the center of this burgeoning industry are the trading platforms where most investors access this market. Several of these platforms operate on a global scale and host marketplaces for trading both in the underlying digital assets, as well as derivative contracts referencing those assets. According to public data, every month in 2021 except one saw over $1 trillion in monthly trading volume in the digital asset cash market, with a high of $2.23 trillion in trading volume in May 2021.[1] And the derivatives market is even larger, with notional exchange volumes in just bitcoin futures surpassing those numbers.[2]

Although the CFTC's core responsibility is regulating the commodity derivatives market, there are several unique elements of the digital asset commodity cash market that distinguish it from other cash commodity markets, suggesting it would benefit greatly from CFTC oversight. For example:

- Unlike most cash commodity markets, which are dominated by wholesalers and large financial institutions facilitating the transfer of commodities for commercial use and consumption, the cash market for digital assets is currently characterized by a high number of retail investors mostly engaged in price speculation.
- The speculative fervor around digital assets, frequently feeling like a modern gold rush, has led many investors to regularly take on high levels of leverage when trading, leading to heightened price volatility, often exacerbated by cascading liquidations during price downturns.
- Most investors in the cash market entrust their digital assets to the platforms upon which they trade, failing to differentiate this type of custody arrangement from that offered by the traditional regulated banking industry. The technical complexities around securing and

[1] Cryptocurrency Exchange Volume, The Block (https://www.theblockcrypto.com/data/crypto-markets/spot/cryptocurrency-exchange-volume-monthly).
[2] Volume of Bitcoin Futures, The Block (https://www.theblockcrypto.com/data/crypto-markets/futures/volume-of-bitcoin-futures-monthly)

transacting in digital assets, particularly issues around custody, have resulted in numerous platforms losing funds to hacks, exploits, and poor cyber security.

I believe these unique characteristics, combined with the growing size and customer, operational, and potential future financial stability risks associated with the cash market necessitate a proactive federal regulatory approach to ensure that the standards that American investors have come to expect from our financial markets are equally present in digital markets.

I also believe that in order to reach the lofty goals that many of the technology's most ardent proponents advocate, it is important that we find ways to sensibly bring this emerging market within the regulatory fold. If in fact the future global economy holds a place for digital assets, tokenization, blockchain technology, decentralized finance, and other elements of the FinTech driven ecosystem, then the need to uphold American leadership and stewardship of this technology is clear. Critical issues, such as national security, trade, and effectively addressing climate change risks, to name a few, will also be at stake.

The CFTC's role in the Digital Asset Commodity Market

The digital asset industry in the U.S. does not fall under a single comprehensive regulatory regime. Instead, the CFTC and other federal agencies and state regulators have all been responsible for collectively establishing the existing, and very incomplete, regulatory environment. And while our oversight capabilities are generally complimentary, market regulation and financial supervision often rely on the development of cooperative arrangements. This is made more difficult by the rapid emergence and development of the digital asset market which, by design, has largely taken place on the outskirts of the traditional financial market structures. While it cannot be said that the industry is completely unregulated, there are important principles missing from this framework that we see in other federally regulated markets, particularly ones that primarily cater to retail investors.

Since 2014, the CFTC has been aggressive in using its limited fraud and manipulation authority in the digital asset space. The CFTC has brought nearly 50 enforcement actions, overseen an increasing number of registrants offering digital asset based derivative products, and established dedicated internal functions to stay abreast of the technical innovations fueling this market.

However, many challenges remain, and the digital sector now demands more and more of the CFTC's attention and time, which I believe necessitates additional resources to adequately address these issues. We are past the stage where digital assets and decentralized financial technologies are a research project, sandboxing what may come in the future. The issues are at the front and center of our thinking at the Commission in addition to our traditional regulatory, oversight, and enforcement responsibilities.

The CFTC is well situated to play an increasingly central role in overseeing the cash digital asset commodity market. Fundamentally, the CFTC is a market regulator that ensures market integrity

and vibrancy aimed at supporting financial stability, while ensuring individual customer protections through principles-based oversight of exchanges, clearinghouses, data repositories, and market participants. This flexible approach has allowed the CFTC, with authority from Congress, to evolve along with the derivatives markets from their historical roots in overseeing agricultural markets to now overseeing markets in everything from energy and precious metals to financial indices and swaps. And we now stand ready to do the same within the digital asset commodity market.

The Road to Come

As Chairman, I will ensure that the CFTC continues to use our existing enforcement authority to its fullest extent in the digital asset commodity space to protect customers from fraud and manipulation. However, it is important to recognize that the challenges in this space going forward are likely to extend beyond the confines of the Commodity Exchange Act.

The nature of this innovation results in impacts to more than just financial markets. We are seeing several government agencies consider how this technology impacts federal policy related to payments, custody, illicit activity, national security and a host of other issues. Additionally, reports regarding energy usage resulting from mining are staggering, often times being compared to that of entire countries. On this note, I believe any regulatory response to digital assets must include measures to bring additional transparency to the conduct that makes this innovation possible. Internally, I have directed the CFTC's Climate Risk Unit and LabCFTC to examine the climate implications of digital assets. Staff have also begun initial communications with other federal agencies to ensure the knowledge and expertise of the whole federal complex is brought to bear on this challenge.

I wrote in 2019 that "where the technology could become a common and social good rather than a significant threat to financial stability, the regulatory patchwork is our greatest hurdle to mainstreaming integration and adoption."[3] As a result, I expect there will be an increasing need to ensure a coordinated federal approach in this area, and I plan to have the CFTC be a proactive participant in this process, whether building on the strong relationship the CFTC shares with the Securities and Exchange Commission, or contributing to broader efforts like the recent President's Working Group report on stablecoins.

I believe many of the CFTC's regulatory principles that have made the U.S. derivatives markets the strongest in the world can also serve to aggressively address many of the risks of digital assets. Since its inception, the CFTC and its markets have been at the forefront of innovation and technological development. We have also been a forceful and disciplined cop on the beat. The

[3] Push Us Past Inertia—How the White House Can Help Mainstream FinTech (https://news.bloomberglaw.com/us-law-week/insight-push-us-past-inertia-how-the-white-house-can-help-mainstream-fintech).

continued emergence of digital asset technology presents risks and opportunities, and the CFTC stands ready to leverage its expertise and experience to confront both.

Thank you for your time and I look forward to answering your questions.

WRITTEN STATEMENT OF

SANDRA RO
CHIEF EXECUTIVE OFFICER
GLOBAL BLOCKCHAIN BUSINESS COUNCIL

BEFORE THE
UNITED STATES SENATE COMMITEE ON
AGRICULTURE, NUTRITION, AND FORESTRY

Examining Digital Assets: Risks, Regulation, and Innovation
February 9, 2022
10 AM EST

Introduction

Chair Stabenow, Ranking Member Boozman, and Members of the Committee, thank you for inviting me to testify today.

My name is Sandra Ro, and I am a founding Board Director and the CEO of the Global Blockchain Business Council, the leading not-for-profit, global industry association for the blockchain technology ecosystem. We work with our nearly 400 institutional members, including corporations, NGOs, government agencies, law firms, blockchain protocols and foundations, and academic institutions, to scale and build a sustainable, responsible, multi-trillion-dollar industry. I began my financial services career as a financial engineer, creating and pricing derivatives solutions in foreign exchange (FX) markets at Deutsche Bank AG, and later as a Vice President within Mergers & Acquisitions, FX and Interest Rates Hedging Advisory at Morgan Stanley Global Capital Markets.

My journey in digital assets trading and research began in 2011 as Executive Director and Head of FX Research & Product Development at CME Group. In the early years, most of our work was research, patent filings, and internal experiments. By 2016, I led a newly-created group, Digitization, where we developed the Bitcoin Real Time Index, the Bitcoin Daily Reference Rate[i], the first USD cash-settled Bitcoin futures, blockchain pilots related to post trade and clearing house solutions, and a digital gold asset called Royal Mint Gold (RMT) with UK's Royal Mint.[ii] The Digitization team pioneered some of the earliest regulated cryptocurrency products, many of which still trade today; the first Bitcoin ETFs in the U.S. and Brazil are based on CME Bitcoin products. During this early innovation, we frequently worked and communicated with the CFTC, developing positive trusted relationships and pioneering together.

[i] https://www.cmegroup.com/markets/cryptocurrencies/bitcoin/bitcoin.html
[ii] http://investor.cmegroup.com/news-releases/news-release-details/royal-mint-and-cme-group-launch-royal-mint-gold

Since then, I have dedicated my time to education - separating hype from reality, mapping standards work[iii] that needs to be done, and answering the perennial question: what are the real-world applications and benefits of blockchain and digital assets?[iv] Progress has been made by the private sector to create innovative solutions, but we need more collaboration between government agencies and innovators to foster sound financial products, fair markets, and resilient market infrastructure, be it centralized, decentralized, or hybrid.

I am here to support this Committee's work to better understand the risks and benefits of digital assets and blockchain technology. I hope this is the beginning of a long and fruitful dialogue.

Blockchain Basics

As requested by the Committee, I will commence with some basics.

The Bitcoin whitepaper, published in November 2008[v], outlined a peer-to-peer electronic cash system using a consensus mechanism known as Proof of Work (POW). On the Bitcoin ledger, transactions are arranged in consecutive blocks. In its most basic sense, POW requires members of a network (known as "miners") to solve a mathematical puzzle to secure the network. Once a miner solves and confirms a transaction, it is assigned to a block. The block is time-stamped and added linearly to the blockchain. For this work, the miner that first solved the puzzle receives compensation in the form of a block reward. Anyone with the requisite hardware, technical know-how, and access to energy can set up a mining operation, which makes the network decentralized and extremely secure. The network itself has yet to be hacked. Bitcoin is the first open source,

[iii] https://gbbcouncil.org/gsmi/
[iv] https://gbbcouncil.org/wp-content/uploads/2022/02/GBBCs-2021-Annual-Report.pdf
[v] https://bitcoin.org/en/bitcoin-paper

permissionless blockchain network. With a fixed supply of 21 million tokens, it remains the largest cryptocurrency by market capitalization. Both the token and the blockchain are called bitcoin.

The next major public blockchain launch was Ethereum in July 2015[vi]. This enabled smart contracts, which essentially automate actions and processes. Smart contracts are the basis of decentralized finance (DeFi) and non-fungible tokens (NFTs). The Ethereum blockchain is open source, permissionless and popular amongst users and developers. Ether is the token and Ethereum refers to the blockchain. Ethereum currently functions as a POW blockchain, though a transition to Proof of Stake is in progress.

Proof of Stake (POS) is a consensus mechanism whereby users offer their digital assets as collateral to validate a block. It is estimated that with POS, "the energy expenditure of Ethereum will be roughly equal to the cost of running a home computer for each node on the network."[vii] Other blockchains that currently use POS include Algorand, Cardano, Cosmos, Terra, and more.

There are additional consensus mechanisms, including Proof of Authority, Proof of Capacity, Proof of History, Proof of Storage, and more; they each offer different ways of achieving agreement on a transaction.

Attributes of Blockchain Technology

Databases have long served as digital repositories of information, so what is it about blockchain technology that makes it different and special?

Blockchain technology allows us to do several things better.

[vi] https://ethereum.org/en/history/
[vii] https://ethereum.org/en/energy-consumption/

Blockchain technology helps us move 'data as value' in a secure, lower-cost, peer-to-peer model. It permanently records the transaction on a real-time ledger viewable by everyone in the network. Some blockchains are open source and permissionless, others are closed and invitation-only (or "permissioned"). We are seeing a trend towards open source blockchains, with a mix of permissioned and permissionless blockchains.

Blockchain technology's unique features necessitate collaboration, sometimes between participants who may be competitors, unknown to each other, and not geographically proximate.

Blockchains facilitate permanence. Information on a blockchain is permanent once confirmed and recorded, which makes 'cooking the books' or tampering with records extremely difficult. Not impossible, but very difficult.

Blockchain transactions are traceable. Most ledgers are pseudonymous, allowing for easy tracking of funds; this has been demonstrated in the successful recovery of the Colonial Pipeline ransom[viii] and similar events.

As blockchain technology evolves and more digital assets trade in markets, each with their own purpose and value, it is critical that stakeholders work together to develop prudent guardrails.

Why Blockchain Technology and Digital Assets?

Along with digitization, the growth in blockchain and digital assets is the natural progression of decades of technological advancement. I would like to share some of the blockchain-based use cases that are moving our society in a more secure, transparent, and hopefully, equitable direction. Digital assets are used in each of these scenarios - facilitating troubleshooting in supply chains, commodities

[viii] https://www.reuters.com/business/energy/us-announce-recovery-millions-colonial-pipeline-ransomware-attack-2021-06-07/

tracking and tracing, funds flow accountability, and quality improvement for an array of products, from food and livestock to raw materials.

Tracking and tracing commodities

First National Bank of Omaha (FNBO), the fourth largest agriculture bank in the U.S., is working with a consortium of partners to create Cattle ID[ix], a system that uses machine learning to create unique digital identities for individual cattle. Using these identities, cattle producers can add health and treatment records to each animal. Data is private by default, but easily shareable on the Cattle ID blockchain.

Circulor, a UK-based company, alongside the UK Critical Minerals Association, is tokenizing rare and critical minerals to track their journey from mine to factory to end-of-life recycling. Lithium, cobalt, tungsten, copper, nickel, and other minerals and metals are essential to the technology and auto industries. Enhanced tracking and tracing of these materials can increase accountability and reduce negative impacts.

Improving fragmented commodities markets and price transparency

NGOs and large corporations are leveraging blockchain to create more transparent and functioning voluntary carbon credit markets. The InterWork Alliance, a GBBC initiative, is leading work[x] with Microsoft and other stakeholders, to create common taxonomy, frameworks, and carbon product classifications to connect marketplaces, reduce fraud, improve price discovery, and create more accurate calculations of carbon offsets and credits for financial and non-financial reporting purposes.

[ix] https://gbbcouncil.org/wp-content/uploads/2022/02/GBBCs-2021-Annual-Report.pdf
[x] https://interwork.org/

Record keeping of transactions and auditing

Blockchains remove single points of failure, ensuring decentralized backups of critical data, and creating clear audit trails. For example, BitGive Foundation, the first and oldest crypto-based charity, developed a donation tracking tool called GiveTrack.[xi] Using blockchain, GiveTrack tracks project donations through the lifecycle of the funds as they are spent by project beneficiaries. Heifer International used the platform to raise funds to help small rural Arkansas farmers lease or buy farming equipment. By using GiveTrack, donors can monitor their donations and see records of disbursement allocations. This concept can apply to governments' foreign aid disbursements, budgets, taxation revenues, and beyond.

Enabling financial inclusion and access

In our banking system, it has always been expensive to be poor. With blockchain, fees on remittances and overdraft charges are nonexistent. The United Nations' World Food Programme is currently running "the largest implementation of blockchain technology for humanitarian assistance" to distribute funds to refugees in conflict zones.[xii] In the initial program, more than 100,000 refugees were given encrypted IDs and blockchain wallets, to which the UN WFP was able to distribute funds for use in refugee camps. This allows the refugees and WFP to bypass potentially unreliable local financial institutions, while providing greater security than distributing cash, and a clearer path towards corruption-proof aid delivery.[xiii]

[xi] https://www.givetrack.org/
[xii] https://innovation.wfp.org/project/building-blocks
[xiii] https://www.ledgerinsights.com/un-world-food-programme-uses-blockchain-for-direct-payments/

The United States' Role

The United States has historically been a hub for innovation. It is not too late for the U.S. to lead in digital assets and blockchain technology. The U.S. has all the ingredients for success: talent, a deep knowledge base, financial capital and resources, a trusted legal system for doing business, and a robust entrepreneurial spirit.

Many governments and companies look to the U.S. government as the leader on regulation, frameworks, and standards. Other countries have recognized our reticence on blockchain and digital assets as an invitation to occupy that space.

The CFTC, as the regulator of U.S. derivatives markets, has an important role[xiv] to play in establishing the guardrails and market environment for blockchain and digital assets, especially as the volume of crypto-related futures and options markets has expanded.[xv] We expect the derivatives on digital assets to expand significantly over the next few years, with leveraged products entering the markets, similarly to existing derivatives markets. Though market infrastructure services and innovation have matured over the past decade, we still see gaps. For example, for a $2-3 trillion cryptocurrencies market, there is an estimated $5-8 billion of crypto insurance coverage, which may not provide comprehensive coverage against risks, such as theft and hacking.[xvi] To date, only a handful of companies, including a Chicago-based start-up, are partnering with traditional insurance brokers and underwriters to provide the needed insurance coverage.

[xiv] https://gbbcouncil.org/wp-content/uploads/2021/11/Derivatives_Regulatory_GSMI2_Standalone.pdf
[xv] https://gbbcouncil.org/wp-content/uploads/2021/11/GSMI-2.0-Introduction-to-Crypto-Derivatives.pdf
[xvi] https://www.blockdata.tech/blog/general/crypto-custody-the-gateway-to-institutional-adoption

Conclusion

After a decade, we have only scratched the surface of digital assets' and blockchain technology's potential – harnessing this technology to solve real-world problems and expand economic opportunities will be a generational effort. We are encouraged by increased communication between the government and private sector aimed at creating and implementing policies that foster growth and create jobs in the blockchain and digital assets space.

It is possible to find a balance in which the government works with stakeholders to simultaneously mitigate risks, implement prudent regulation, and nurture the rapid growth of a multi-trillion-dollar industry.

Thank you for your time; I look forward to answering your questions.

Testimony of Sam Bankman-Fried
Co-Founder and CEO of FTX

"Examining Digital Assets - Risks, Regulation, and Innovation."
Hearing Before the U.S. Senate Committee on Agriculture, Nutrition and Forestry

February 9, 2022
10:00am ET

Introduction

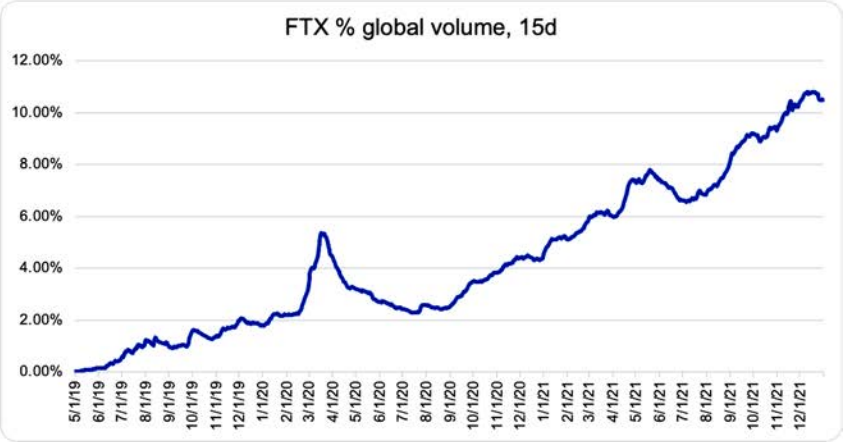
Chair Stabenow, Ranking Member Boozman, members of the committee and distinguished guests, thank you for inviting me to testify before this committee today. It is an honor and a privilege to be before you to share some information and insights into the digital-asset industry as this committee, this chamber and the Congress as a whole deliberate on a variety of key topics stemming from this exciting space. Along with my colleagues and teammates at FTX, I am pleased to provide you with as much information as you need in order to ensure a fully informed and robust conversation around whether and how this committee could address some of these key topics.

Background on FTX

The FTX group of companies (FTX Group or FTX) was established by three American citizens, Samuel Bankman-Fried, Gary (Zixiao) Wang and Nishad Singh, with international operations commencing in May 2019 and the U.S. exchange starting in 2020. The business was established in order to build a digital-asset trading platform and exchange with a better user experience, customer protection, and innovative products, and to provide a trading platform robust enough for professional trading firms and intuitive enough for first-time users. In the U.S., the company operates a federally regulated spot exchange that is registered with the Department of Treasury (via FinCEN, as a money services business) and also holds a series of state money transmission licenses. Our U.S. derivatives business is licensed by the U.S. Commodity Futures Trading Commission (CFTC) as an exchange and clearinghouse. FTX US also holds a FINRA broker dealer license. FTX's international exchange, which is not available to U.S. users, holds a series of marketplace licenses and registrations in many non-U.S. jurisdictions.

The core founding team had unique experience to develop an exchange given their experiences in scaling large engineering systems at premier technology companies, combined with trading experience on Wall Street. This brought to the effort an understanding of how to build the best platform from scratch, as well as what that platform should look like, unencumbered by legacy technology or market structure. ***FTX has aimed to combine the best practices of the traditional financial system with the best from the digital-asset ecosystem.***

Early International Success. The international FTX.com exchange has been extremely successful since its launch. This year around $15 billion of assets are traded daily on the platform, which now represents approximately 10% of global volume for crypto trading. The FTX team has grown to over 200 globally, the majority of whom are responsible for compliance and customer support. The FTX Group's primary international headquarters and base of operations is in the Bahamas, where the company is registered as a digital asset business under The Bahamas' Digital Assets and Registered Exchanges Act, 2020 (DARE).



In addition to offering competitive products, the FTX platforms have built a reputation as being highly performant and reliable exchanges. Even during bouts of high volatility in the overall digital-asset markets, the FTX.com exchange has experienced negligible downtime and technological performance issues when compared to its main competitors. We believe the dual-track focus on customers and reliability, plus compliance and regulation, are key reasons why FTX has also experienced the fastest relative volume growth of all exchanges since January 2020.

The core product consists of the FTX.com web site that provides access to a market place for digital assets and tokens, and derivatives on those assets. Platform users also can access the market through a mobile device with an FTX app. The core product also consists of a vertically integrated, singular technology stack that supports a matching engine for orders, an application programming interface or API, a custody service and wallet for users, and a settlement, clearing and risk-engine system. In a typical transaction, the only players involved are the buyers, sellers, and the exchange, without any other intermediaries.

The FTX Group has operations in and licenses from dozens of jurisdictions around the world, including here in the U.S and in Europe. At the time of this writing the FTX platforms have millions of registered users, and the FTX US platform has around one million users. For FTX.com, roughly 45 percent of users and customers come from Asia, 25 percent from the European Union (EU), with the remainder coming

from other regions (but not the U.S. or sanctioned countries, which are blocked). In comparison to the international exchange, nearly all users of FTX.us are from the U.S.

U.S. Operations. FTX services U.S. customers through the FTX US businesses, which includes the spot exchange, FTX US Derivatives, the NFT marketplace, and a soon-to-go-live FINRA broker dealer (FTX Capital Markets). FTX US is housed under a separate corporate entity from FTX international and is headquartered in Chicago, IL. It has a similar governance and capital structure to the overall corporate family, and also has its own web site, FTX.us, and mobile app. As with FTX.com, the core product is an exchange for both a spot market for digital assets as well as a market for derivatives on digital assets. Like other crypto-platforms in the U.S., the spot market is primarily regulated through state money-transmitter laws.

The U.S.-derivatives-market product is provided by FTX US Derivatives, which was formed through the acquisition and re-branding of LedgerX and is being integrated with the overall FTX US platform. The product offers futures and options contracts on digital assets (or commodities) to both U.S. and non-U.S. persons. FTX US Derivatives operates with three primary licenses from the U.S. Commodity Futures Trading Commission (CFTC): a Designated Contract Market (DCM) license, a Swap Execution Facility (SEF) license, and a Designated Clearing Organization (DCO) license. Prior to its acquisition, this business was the first crypto-native platform issued a DCO license by the CFTC in 2017, which was a milestone for the agency and the digital-asset industry. That license was later amended in 2019 to permit the clearing of futures contracts on all commodity classes and not just digital assets.

Commitment to a Diverse Workforce. We are proud of our workforce at FTX and believe that one of our key strengths is a culture of mutual respect and cooperation. This type of culture is borne from the diversity of our team, which necessitates a spirit of empathy, understanding and humility. These traits in our workforce are good for business and are much of the reason we have been successful at understanding our customers and their needs, and executing on products that meet their needs. FTX has employees from all over the world with diverse ethnic backgrounds, and 60 percent of women in our workforce are in senior management positions. The majority of our global leadership comes from diverse backgrounds.

Commitment to Mitigating Climate Impacts. FTX is very serious about minimizing our impact on the global environment where we live and work, and as a company we have taken several important steps to ensure this. Here, I would like to share several key points to explain why FTX's environmental impact is *de minimis*, but nonetheless explain the additional steps the company has taken to reduce even further this impact. *First*, FTX has no factories or physical products and therefore does not leverage global shipment networks, a substantial source of energy consumption. FTX has a small workforce with a small physical-office footprint, renting only a few small offices spread out around the world, and operates online. FTX corporate operations, therefore, do not have direct impacts on climate change at a globally relevant scale.

Second, while digital asset deposits to and withdrawals from FTX platforms unavoidably require some energy consumption as public blockchains facilitate and record those transactions, on FTX over 80 percent of deposits and withdrawals use low-cost, carbon-efficient Proof of Stake (PoS) blockchains. These PoS networks contrast with Proof of Work (PoW) blockchains such as the Bitcoin (BTC) blockchain, which consume significant amounts of energy to maintain the network. By using PoS blockchains for the vast majority of FTX deposits and withdrawals, FTX massively reduces the overall climate impact of blockchains. To facilitate the

remaining approximately 20 percent of deposits and withdrawals, energy consumption is relatively small, but FTX subsidizes the blockchain network fees to share in paying the costs of that energy consumption. Separate from deposits and withdrawals, transactions and transfers on the FTX exchanges themselves (which is the overwhelming majority of our user activity - 100% of our $15 billion in average daily trading volume occurs on the exchange itself) do not require public blockchain activity and require only the amount of energy needed to run a cloud-based trading venue.

Third, FTX also has endeavored to take ownership of our portion of the environmental costs of mining associated with public blockchains and has purchased carbon offsets to neutralize those costs. Estimating the costs of energy consumption and carbon output associated with blockchain mining is difficult because mining is decentralized, and discerning how much energy is coming from which source is elusive. Nonetheless, FTX estimates that it costs $1 million per year to take ownership of those costs, and has purchased a total of 100,000 tons of carbon offsets through two providers for $1,016,000. Additionally, FTX through its affiliated arm, FTX Climate, created a comprehensive program to focus on the most impactful solutions to climate change possible. In addition to achieving carbon neutrality, our initial program funds research that we believe can have an outsized impact, as well as supports other special projects and carbon-removal solutions. FTX plans to spend at least $1 million per year through FTX Climate. Those interested in learning more about these initiatives can find more information at https://www.ftx-climate.com.

Fourth, FTX believes energy consumption by PoW blockchains and its impacts should be assessed within the appropriate context, which we believe should include consideration of their benefits, an understanding of their differences with PoS networks and how each type of network is being leveraged and growing, as well as a comparison to other energy-consuming activities or even industries. For example, BTC has delivered benefits to many as measured by access to financial products, asset transmission, and wealth creation, which should be weighed against the network's energy costs.[1]

Additionally, while PoW networks attract attention for their energy consumption, transactional activity on PoS networks is growing substantially due to their ability to process a greater number of transactions in a shorter period of time at a lower cost. FTX believes these PoS networks will become increasingly important over time, which will continue to minimize the overall climate impact of blockchains. And finally, the energy consumption by PoW blockchains is relatively small when compared to other industries to which the BTC network in particular is often compared.[2] Of assets whose futures trade on CFTC-regulated venues, BTC actually ranks fairly low in terms of environmental impact, relative to traditional, physically mined commodities, oil, livestock, and other environmentally impactful assets.

Commitment to Giving Back. FTX is committed to improving the lives not just of our customers through superior products, but also the lives of those in the broader global community. Toward this end, FTX created the FTX Foundation, which was founded with the goal of donating to the world's most effective

[1] See "Everything We Want Costs Energy, Including Bitcoin," by Benjamin Powers, *Coindesk*, Apr. 22, 2021; https://www.coindesk.com/tech/2021/04/22/everything-we-want-costs-energy-including-bitcoin/; see also "The Bitcoin Mining Network: Trends, Average Creation Costs, Electricity Consumption & Sources," *CoinShares Research*, June 2019 Update, https://coinshares.com/assets/resources/Research/bitcoin-mining-network-june-2019-fidelity-foreword.pdf

[2] See "On Bitcoin's Energy Consumption: A Quantitative Approach to a Subjective Question," *Galaxy Digital Mining*, May 2021, Rachel Rybarcyzk, Drew Armstrong, Amanda Fabiano. https://docsend.com/view/adwmdeeyfvqwecj2.

charities. FTX has pledged to donate one percent of net revenue from fees to the foundation, and its founders have pledged to donate the majority of what they make. FTX, its affiliates, and its employees so far have donated over $50 million to help save lives, prevent suffering, and ensure a brighter future.

Discussion

At the committee's request, in this discussion I will address the following topics: (1) an overview of the products offered by FTX; (2) the current U.S. regulatory landscape and existing regulatory gaps; and (3) a vision for the CFTC as a digital-assets market regulator for the U.S. Throughout this discussion I distinguish our non-U.S. and U.S. businesses by referring to FTX International and FTX US, respectively, where relevant. Furthermore, I will use 'digital assets' generally to refer to digital asset tokens that are generally considered to be a commodity rather than a security.

1. FTX Products and Their Role in the Digital-Asset Economy

Core Product: Digital Asset Exchange. As briefly explained above, FTX's core products are its digital asset exchanges, FTX.com, FTX.us and FTX US Derivatives (https://derivs.ftx.us/) – FTX.us and FTX US Derivatives are being integrated into one user-experience platform and web site. While FTX.com offers both spot market and derivatives trading, those two categories are separated in the United States, with spot market trading on FTX.us and derivatives trading offered through FTX US Derivatives.

On FTX.com and FTX.us, users can trade digital assets with other users for cash, stablecoins and other digital assets. On the spot markets, users can set a variety of different order types on a central limit order book (CLOB). Users are able to offer orders at a specific price (limit order) or trade on the book at the best price shown. A robust price and time priority matching engine sits in between these orders to connect buyers and sellers and display the best available prices.

Futures and volatility contracts related to digital assets also are listed on the platforms as well, with or without leverage. On FTX.com, leverage is limited to a maximum of 20x (i.e., minimum margin of 5%), and much less in most cases; as of now leveraged trading is not available to users of FTX.us (although there is facilitation of other forms of credit to Eligible Contract Participants -- see below). The FTX.com platforms have listed quarterly-settled (as well as perpetual) futures contracts that are cash settled. Additionally, MOVE volatility contracts are offered on FTX.com and are similar to futures except, instead of expiring to the price of a digital asset, they expire to the USD amount that the price of BTC has moved in a day, week or quarter. FTX.com also offers BTC options for trading. Finally, FTX US Derivatives offers to U.S. users both BTC and Ethereum (ETH) derivatives.

To cover initial and maintenance margins, derivatives and leveraged-product users can post collateral in the form of cash, stablecoins or other digital assets held in their account. The exchanges also have integrated risk-management and back-office systems to perform clearing and settlement of trades, which includes updating records of ownership of the digital asset or digital asset futures and options contracts traded (clearing), and transferring value between users' accounts (settlement), using either delivery versus payment or delivery versus delivery. Importantly, FTX's risk model avoids the systemic warehousing of such risks over a weekend or other

period of market closure, and instead addresses at-risk positions and accounts immediately, in real time, 24/7/365.

Off-exchange Portal for Arranging and Matching User Orders. FTX also offers an off-exchange portal that enables users to connect with other, large users, enabling them to request quotes for spot digital assets and trade directly. This facility forwards requests for quotes to large users, returning prices offered and enabling users to then place an order. The portal is similar to other facilities found in traditional markets where a central limit order book is not used to match trades.

Third-Party Lending. FTX platform users can lend their digital assets to those who seek them for spot trading. Users (including eligible users on FTX.us) wishing to trade digital assets they do not have may borrow them from users willing to lend them by posting collateral in the form of cash, stablecoins or other digital assets held in their account. The FTX platform maintains a borrow/lending book and matches users wanting to borrow with those willing to lend.

NFT Marketplace. FTX operates a marketplace for users to mint, buy and sell non-fungible tokens (NFTs). NFTs are tokens that are not fungible with any other tokens. They can take a number of forms and, for example, can be redeemed for a physical object, or an experience (such as a movie or phone call), or can be linked to a digital image, etc. FTX's NFT marketplace is conducted through an auction system. Alternatively, users can purchase directly at the prevailing selling price set by the seller. Users can choose to display their NFT collection on the FTX NFT marketplace portal, and/or to continue to buy or sell on the NFT marketplace.

FTX Pay. FTX Pay is a service offered to merchants to accept payments in digital assets or fiat. Users have the option to top up their FTX accounts with ACH or credit cards, which are then used to make payments to enrolled merchants. For digital asset payments, the relevant user's FTX account would be debited by an amount in the chosen digital asset that is equivalent to the amount that is payable to the merchant. FTX facilitates the payments to the merchant by providing the payment infrastructure. This allows merchants to accept digital asset payments, without having to assume any volatility risk for the assets.

Staking. FTX.com offers the ability for users to "stake" certain supported digital assets on the platform. By staking such digital assets, users can earn staking rewards; in addition, for some tokens, users can receive and unlock certain benefits on FTX, such as reduced trading fees, withdrawal fees, as well as other rewards. Generally, users can "unstake" their digital assets at any time, subject to an unstaking or unbonding period.

Types of Digital Assets on FTX Platforms. FTX has developed listing standards and a framework for determining which digital assets to list on the platforms. Part of that framework entails evaluating the assets to assess factors such as security, compliance risk, legal risk, technological risk and other factors. ***On FTX.com***, which again is unavailable to U.S. users, FTX has listed approximately 100 stablecoins and other digital assets on its spot exchange. Digital assets include tokens such as Bitcoin (BTC), Ether (ETH), Uniswap Protocol Token (UNI), Chain Link token (LINK), Solana (SOL), and Aave (AAVE).

On FTX.us, the company has taken what we believe to be a conservative approach to listing digital assets for trading. Consequently, there are far fewer tokens listed for trading on FTX.us due to much stricter listing standards for this platform. Care has been taken to avoid listing assets with features viewed to be similar

to securities in the U.S. The assets and tokens listed more closely resemble BTC and ETH, two tokens expressly addressed by the CFTC to be commodities subject to its jurisdiction.

On FTX US Derivatives, users can trade a Bitcoin Mini Option or Ethereum Deci Option, a Next-Day Bitcoin Mini Swap or Next-Day Ethereum Deci Swap, and a Bitcoin Mini Future. All of these contracts are fully collateralized. FTX is in discussions with the CFTC about expanding our derivatives offerings to U.S. customers.

In sum, the products available now in the digital-asset economy and on the FTX platforms are very similar to ones found in the traditional finance space. A key differentiator from traditional finance is that investors can get access to all of them without going through multiple intermediaries. FTX believes the market structure for digital-asset platforms is risk reducing compared to others because it facilitates more effective risk management and eliminates unnecessary points of failure. In addition, all market data is made public and free -- all users are given full knowledge of the orderbook and trades. Easy access to financial products and solutions on one, easy-to-use platform is a powerful feature that empowers investors, consumers and entrepreneurs. By simplifying access to these tools, users of the products can focus more on the core of their everyday financial goals and needs while making more informed decisions -- ultimately this is what FTX believes will promote financial inclusion and economic security for more people.

2. Current Regulatory Landscape for Digital Assets and the Role of the CFTC

The current U.S. landscape for the regulation of the trading of digital assets is a patchwork of federal market regulations and state-level money-transmission laws. As explained above, FTX US offers "cash" or "spot" markets as well as derivatives markets through FTX US Derivatives,[3] but the regulatory treatment of each type of market is different. ***For cash markets*** in the U.S., if a digital asset is a security as defined by the Securities Act of 1933, then the digital asset is subject to the jurisdiction of the SEC, and the asset as well as any platform that lists it for trading generally must be registered with the SEC. A digital asset that does not meet the definition of a security under U.S. law would generally still meet the definition of a "commodity" under the Commodity Exchange Act (CEA).[4] Historically, the CFTC generally has not exercised jurisdiction over the operation of spot markets for commodities (with few exceptions), but FTX believes the CFTC could assert jurisdiction over digital-asset spot markets under certain circumstances,[5] even where the agency has not done so to date – more on this below.

In any case, there are no U.S. platform operators of only ***cash markets*** for digital assets supervised by the SEC or the CFTC at the moment. Many states have taken the view that their money-transmission laws

[3] Cash or spot markets are markets where the asset being purchased is delivered immediately. Derivatives markets are ones where contracts or agreements between two parties are traded, and the contract's value is based upon an agreed-upon referenced asset or set of assets, like an index.

[4] "The term 'commodity' means . . . all . . . goods and articles, except onions (as provided by section 13–1 of this title) and motion picture box office receipts (or any index, measure, value, or data related to such receipts), and all services, rights, and interests (except motion picture box office receipts, or any index, measure, value or data related to such receipts) in which contracts for future delivery are presently or in the future dealt in." See CEA section 1a(9).

[5] *See Retail Commodity Transactions Involving Certain Digital Assets ("Actual Delivery Guidance")*, 85 Fed. Reg. 37734 (June 24, 2020), https://www.cftc.gov/sites/default/files/2020/06/2020-11827a.pdf .

apply to digital-asset platforms that have customers in their states, which requires state licensure, but these laws do not possess the hallmarks of federal market regulation and their market-integrity and investor-protection principles.[6] At the time of this writing, FTX US and the other largest U.S. digital-asset platforms offering cash markets have many state money-transmission licenses and continue to pursue others. A money-transmission business also implicates the U.S. Bank Secrecy Act and by doing so must register with the U.S. Department of Treasury via FinCEN, unless otherwise exempted; FTX US is so registered.

For derivatives markets in the U.S., if the digital asset referenced in the contract is a commodity and not a security, the trading of derivatives on that digital asset is subject to the jurisdiction of the CFTC. The CFTC today oversees the trading of BTC and ETH derivatives on multiple U.S. trading platforms, including FTX US Derivatives, which as mentioned lists futures, swaps and options on these digital assets. FTX believes that there are many other digital assets that are not securities, and so derivatives on those digital assets would fall under the CFTC's jurisdictions as well and could be listed by appropriately registered platforms such as FTX US Derivatives.

This patchwork of regulations increases the operational complexity of digital-asset platform operators, decreases capital efficiencies for customers, and hampers the ability of platform operators to optimize their risk-management programs. It also reveals gaps in ***federal market oversight*** due to the interplay of the CFTC and SEC regimes:

- First, the scope of the CFTC's jurisdiction does not indisputably apply to all ***cash markets*** for (non-security) digital assets, and consequently U.S. customers of the operators of these markets do not have the benefit of legally enforceable, market-integrity and investor-protection requirements of those markets enforced by a federal market regulator; and
- Second, not all digital assets indisputably meet the definition of a security under U.S. law, and consequently there are not clear, consistent and enforceable disclosure standards to inform investors about key information to assess risk relating to those digital assets.

As such, there is *no* clear market oversight for spot trading of (non-security) digital commodities.

Additionally, along with the unclear application of the "securities" definition as it applies to some digital assets, these gaps to date have discouraged participation by many in the U.S. digital-asset markets, including entrepreneurs, institutional market participants and other investors. In part due to these points, the vast majority of trading volumes in digital-assets markets (which FTX estimates to be roughly 95% of global volume) takes place on non-U.S. trading platforms, even though much of the human and intellectual capital driving the industry comes from U.S. persons – many of whom have left the U.S. to build and grow their businesses.[7] FTX believes this current state is harmful to U.S. competitiveness and is denying our country many of the benefits from the growing digital-asset industry, including attracting to the U.S. more capital formation, the best of the global workforce, intellectual property and tax revenue. In addition, hundreds of billions of

[6] FinCen defines money transmission as "the acceptance of currency, funds, or other value that substitutes for currency from one person and the transmission of currency, funds, or other value that substitutes for currency to another location or person by any means." See 31 C.F.R. § 1010.100(ff)(5)(i)(A).

[7] See https://ftx.com/volume-monitor for data on trading volume on offshore versus US platforms.

dollars of digital asset stablecoins are currently backed by the USD dollar, a state that clear and consistent regulatory guidelines could help maintain

U.S. Retail Commodity Transactions and the CFTC's Actual Delivery Guidance. Another piece of the U.S. regulatory patchwork for digital assets is the CFTC's treatment of retail commodity transactions. The CEA provides that a commodity transaction (including one involving a digital asset) must be listed on a CFTC-registered market, and is subject to CFTC's anti-fraud authority, if (1) it involves a retail participant, and (2) leverage, financing or margin is offered or used, *unless* the sale "results in actual delivery within 28 days".[8] The CFTC provided guidance to the public about how to interpret "actual delivery" under the statute – thus, there are circumstances when a retail, digital-asset transaction ***would*** fall under the CFTC's jurisdiction, and others when it would not.[9] I discuss below FTX's views about how bringing all retail commodity transactions involving (non-security) digital assets under CFTC jurisdiction would be beneficial to the public.

The Regulation of Stablecoins. Another important part of the digital-asset ecosystem globally and in the U.S. are stablecoins, which are frequently used as a means to transfer collateral to and from digital-asset platforms, and used as collateral once on the platform. Their regulatory treatment also is part of the overall patchwork of regulations that apply to the digital-asset ecosystem. There are several stablecoins used on U.S.-based digital-asset platforms that have been issued by U.S. state-regulated trust companies, and thus have the benefit of state-level prudential supervision.[10] Other stablecoins, some widely used, are not issued by a U.S. institution licensed at the federal or state level. The ***President's Working Group on Financial Markets'*** recently released "Report on Stablecoins" ("***PWG Report***") provided a number of recommendations for the regulatory treatment of stablecoins, and FTX has shared its own recommendations for how to ensure the safety and soundness of stablecoins (included here as an exhibit), the core of which is a robust auditing and registration framework overseen by a federal agency.[11]

There are other regulatory issues affecting the digital-asset industry in the U.S., but the foregoing are the most relevant to this committee. Next I address how this committee, the Congress and the CFTC could rationalize the regulatory framework for digital assets and pursue policies that would better protect investors and increase U.S. competitiveness.

3. A Vision for the CFTC as a Digital-Asset Supervisor

The CFTC already has considerable experience and expertise in the regulation of digital assets, and FTX believes the Congress would be wise to leverage that expertise for the benefit of the public as well as the digital-asset industry. The CFTC authorized the first BTC-derivative-contract listing in 2014, nearly 8 years ago,[12] and the FTX US Derivatives business – the first crypto-native platform approved by the CFTC – has been

[8] See CEA section 2(c)(2)(D).

[9] *See id.* at n.5.

[10] Paxos Standard ("PAX"),issued by Paxos Trust Company, and the Gemini Dollar ("GUSD"), issued by Gemini Trust Company, are issued by Trust companies regulated by the New York State Department of Financial Services ("NYDFS").

[11] See Exhibit A to this testimony; FTX's recommendations also can be found at https://www.ftxpolicy.com/stablecoins.

[12] See TeraExchange, LLC's Filing under CFTC Regulation 40.2, Certification of BTC Swaption Contract, April 24, 2014; https://teraexchange.com/style/images/rnd/instr/Tera%2040.2%20Filing%20-%202014-22%20Listing%20of%20Swaption.pdf.

licensed and supervised by the CFTC for nearly 5 years.[13] The CFTC-licensed, more traditional exchanges with some of the largest global volumes of derivatives-trading activity have had digital-asset derivatives trading on their platforms for more than 4 years, all under active supervision by the exchanges themselves as self-regulatory organizations, in addition to the oversight of the CFTC.

These facts show that there has been substantial capacity building at the CFTC over years regarding digital assets. No other market regulator from a mature, major global economy can make this claim of experience from and expertise about the digital-asset ecosystem, and the Congress should actively consider how the agency can build on this to better deliver market-integrity and investor-protections goals to the public and ensure the benefits of the industry's growth can be maximized in the U.S. The following are recommendations for this committee that would achieve those goals.

Expand the CFTC's Jurisdiction over Digital-Asset Spot Transactions. FTX recommends broadening the CFTC's jurisdiction to include, at a minimum, all spot transactions in (non-security) digital assets involving retail investors, regardless of whether the transactions currently fall within CFTC's jurisdiction under CEA section 2(c)(2)(D). This recommendation is consistent with relatively recent steps the Congress has taken to expand the CFTC's jurisdiction over retail cash markets, including through the passage of the Dodd-Frank Act in 2010. This could be accomplished in several specific ways.

First, Congress should encourage the CFTC to work with industry to permit retail commodity transaction contracts related to digital assets to be listed on boards of trade registered with the CFTC, pursuant to the agency's existing authority over these transactions as established by CEA section 2(c)(2)(D) and as affirmed in the 2020 Actual Delivery Guidance. This would clearly promote the public interest and would not require further legislation, being consistent with the current authority of the CFTC.

Second, Congress could eliminate the 28-day "actual delivery" period in the CEA as it relates to digital-asset transactions, on the basis that doing so would clearly bring to more of these retail transactions the full panoply of protections from the CEA, which FTX believes also would clearly promote the public interest.[14]

Third, Congress could more broadly amend the CEA so that the CFTC has jurisdiction over all (non-security) digital-asset spot trading activity, not just retail commodity transactions under CEA section 2(c)(2)(D), and derivatives involving (non-security) digital assets. Such a step also should involve a consideration of the appropriate disclosure regime for digital assets that ensures investors are adequately informed of their risks.[15]

In the meanwhile, the Congress in general should actively encourage the CFTC to appropriately broaden its interpretation of its authority over digital-asset spot transactions in order to better rationalize and condense the patchwork of regulations governing U.S. digital-asset activity, facilitating the offering of both market types on one platform. In my prior congressional testimony and in ***FTX's Key Principles for the***

[13] See CFTC Orders Granting DCO, SEF and DCM licenses to LedgerX.

[14] This approach would encompass those crypto transactions that, per the 2020 Actual Delivery Guidance, are not offset in any way, and whose proceeds are fully withdrawn to external, customer-controlled wallets within 28 days.

[15] See 'Token Issuances' at https://www.ftxpolicy.com/areas-for-crypto-regulation for a sketch of a possible disclosure regime for digital asset issuances.

Market Regulation of Crypto-Trading Platforms (Market Regulation Key Principles), FTX explained the benefits to offering these two market types under one unified system, with one rule book and one technology platform to manage risks related to all trading activity in customer accounts.[16] This approach facilitates one collateral and risk-margin program for customer accounts holding both cash and derivatives positions, allowing the platform to better manage market risk, and reducing operational risk owing to a single technology stack for the front end (the user interface) to the back end (settling and risk managing positions). Public policy should permit this one-rule-book model due to its risk-reducing and customer-protection attributes.

Fourth, as recommended in ***FTX's Market Regulation Key Principles***, Congress, the CFTC and the SEC should pursue a scheme where a digital-asset platform operator could opt into a program of joint supervision by the CFTC and SEC when there is joint jurisdiction over digital assets listed on the platform (e.g., when listings include non-security digital assets as well as digital assets that are securities). Under these circumstances, FTX recommends that one of the market regulators serve as the primary regulator, and the other as the secondary regulator, for market oversight. This type of paradigm is familiar to market regulators globally and also could include the accommodation of one rule book, one matching engine and risk engine supported by one technology stack. FTX believes this approach could largely be created under existing CFTC and SEC authorities, but Congress should encourage the agencies to leverage their authorities today with these goals in mind, and consider legislating such an approach when feasible.

Embrace the Direct-Membership Market Structure of Digital-Asset Platforms. The CFTC should continue to permit and embrace a market structure that allows investors to become direct members of the CFTC-licensed exchanges and clearinghouses that offer digital assets, without the need for intermediation. FTX's CFTC-regulated business has been operating with this type of market structure for nearly 5 years, without any loss of customer funds or significant platform outages, and has demonstrated that such a business model can comply with the CEA and continue to deliver on important investor protections embodied by the CEA. U.S. policy should remain market-structure neutral and allow non-intermediated markets for digital-asset products, so long as key investor protections can be adequately ensured. Every major incumbent U.S. derivatives trading venue offers a direct member clearing solution, and certain incumbent platforms have the majority of their users as direct members–this is not a new concept for the CFTC and its surveillance and risk teams.

FTX released this week ***FTX's Key Principles for Ensuring Investor Protections on Digital-Asset Platforms ("Investor Protection Key Principles")***, where we identified the most important components of an investor-protection regime (which the CEA and CFTC rules also reflect), and how FTX offers those protections today with the direct-membership model.[17] These components include:

- maintaining adequate liquid resources to ensure the platform can return the customer's assets upon request;
- ensuring the environment where customer assets are custodied, including digital wallets, are kept secure;
- ensuring appropriate bookkeeping or ledgering of assets and disclosures to protect against misuse or misallocation of customer assets;

[16] See Exhibit B to this testimony, and https://www.ftxpolicy.com/.
[17] See Exhibit C to this testimony, and https://www.ftxpolicy.com/investor-protections.

- ensuring appropriate management of risks including market, credit/counterparty, and operational risks; and
- avoiding or managing conflicts of interest.

While the CFTC's rules reflect these important principles today, they often contemplate an intermediary such as a "futures commission merchant" bearing the responsibility of those protections to the investor. The CFTC wisely has allowed the more-modern market structure so long as those investor protections are ensured and enforced.

The ***Investor Protection Key Principles*** touch on two key points that I reiterate here and the CFTC has recognized. *First*, technology advances have enabled a non-intermediated market structure that, combined with effective platform operations, can provide the above-identified protections more effectively, ultimately leading to an overall risk-reducing market structure, for the benefit of investors. *Second*, to the extent that legacy regulations or policies would assume or require an intermediary to provide these protections, that approach often imposes unnecessary burdens and costs (including fees and both capital and operational inefficiency) on investors and markets and obscures market-data without corresponding benefit. The CFTC and Congress should address and update any such rules through continued, appropriate interpretations in the case of the CFTC, and refinements to corresponding legislation in the case of Congress, to ensure equitable access to financial markets.

Ensure the Safety and Soundness of Stablecoins. Stablecoins have become a critical component of the digital-asset ecosystem, and policy makers have raised concerns about their growing market size and whether the lack of uniform federal oversight presents systemic concerns. While the ***PWG Report*** investigated bank-like supervision for ***all*** stablecoin issuers, such an approach might not be necessary so long as the core requirements of stablecoin oversight are met. These include:

- Daily attestations of what assets (cash, bonds, etc.) are backing a stablecoin;
- Periodic audits to confirm the asset backing is as claimed;
- Federal oversight and ability to inspect the assets;
- Haircuts for assets with moderate risk; and
- An open line for law enforcement to blacklist addresses and persons associated with financial crimes.

The CFTC could play an important role in creating a workable framework with these requirements.

First, the Congress could give the CFTC authority to license stablecoin issuers and subject them to these core requirements, perhaps by creating and authorizing a new registration scheme for stablecoin issuers or by otherwise allowing them to seek an existing CFTC license with new commiserate authorities, such as a DCO license. Indeed, a DCO is well accustomed to taking custody of assets, providing relevant reports to ensure their safekeeping, undergoing related audits (see ***FTX's Investor Protection Key Principles***), and managing risks

through appropriate collateral management and marking to market. The appropriate duties and responsibilities of a stablecoin issuer are much the same.

Second, the CFTC without any new legislation could require DCOs providing settlement and clearing services for digital-asset platforms to condition the acceptance of stablecoins as collateral by the DCO on the stablecoin issuer meeting these same core requirements, and the stablecoin issuer providing the needed attestations and audits to verify they are being met. The CFTC could require this through review and enforcement of DCO policies and procedures related to the DCO's approved risk-management program. To be sure, considerable public policy could be made through creative use of the CFTC's existing authorities as suggested, leading to standardized practices for stablecoin issuers that would protect the safety and soundness of the broader financial system.

We believe there is some urgency to create a practical regulatory solution that promotes disclosure and transparency, but that does not inhibit the value that stablecoins provide to markets and market participants. All aspects of digital asset regulation will be iterative and done in phases. For stablecoins, getting a general principles-based disclosure and transparency requirement in place now (perhaps via CFTC guidance, as a follow-on to certain CFTC stablecoin enforcement initiatives), while deferring a decision on the approach to some of the broader questions (such as whether "registration" is required and which agency should oversee that registration), would deliver a substantial amount of regulatory value.

Adequately Fund the CFTC to Ensure Resources to Protect Digital-Asset Investors. Finally, the successful implementation of most of the foregoing recommendations would depend on the CFTC having adequate resources to do so. FTX supports reasonable steps to provide those resources, including by contributing its own fair share of funds for use by the CFTC to expand its purview over digital assets. A program for generating and conveying such resources to the CFTC could be designed in a variety of different ways, and FTX stands ready to engage with this committee and the Congress more broadly to assist in designing and contributing to such a program.

Conclusion

FTX is grateful to this committee for the opportunity to share information about the digital-asset industry, our business, as well as the recommendations for how the CFTC in particular can contribute to the industry's growth. FTX believes the CFTC and this committee could play an even more prominent role in the digital-asset ecosystem and bring greater investor protections by closing some of the regulatory gaps identified in this testimony. FTX believes that such efforts would combine the best aspects of traditional finance and digital-asset innovations, one of our primary goals, and further empower investors and consumers by consolidating access to the tools they seek for economic security, all in one place, and from a singular, risk-reducing platform.

Exhibit A

Stablecoin Regulation

Note: As global regulators continue to consider whether and how to regulate various components of the digital asset ecosystem, we think it is important to share our perspective on how a practical, responsible, and thoughtful approach to regulation might look. This post is not a comment on the current regulations surrounding stablecoins, a legal interpretation of them, or advice on the suitability of transacting in or owning a given stablecoin. This post is an exploration of what a hypothetical new regulatory framework for stablecoins could look like, engineered towards solving for key regulatory priorities and preserving critical usability features.

Context on stablecoin regulation

As the cryptocurrency industry matures, it's vital that a robust regulatory regime grows alongside it which takes seriously its duty to protect consumers, ensure transparency, and prevent illicit activity, while still allowing for innovation and growth.

Stablecoins play a crucial role in the cryptocurrency ecosystem; the majority of all transactions in crypto are settled via stablecoins, and they are one of the most promising payment tools for the broader financial sector. It is also, as of now, unclear exactly what regulatory regime stablecoins will end up being placed in.

What is a stablecoin?

Let's start with the core question: what exactly is a stablecoin?

There are a wide variety of stablecoin designs that have been utilized in the cryptocurrency ecosystem. For illustrative purposes, in this article we will assume a stablecoin on the US Dollar, although parallel assets do exist on EUR, GBP, and other currencies. We will also imagine that it is 1:1; that is, 1 token represents 1 US Dollar. We will imagine that the token's ticker to be STBC.

In this construct, this imaginary stablecoin, STBC, is a blockchain-based asset that can be exchanged for a US Dollar. That would typically be accomplished through the following mechanics and arrangements:

Reserves: typically a stablecoin is backed by one or more USD accounts or other similar assets, generally held at a bank, in an account under the name of the stablecoin sponsor, issuer, or other similar body. The USD value of the assets should be at least the supply of the stablecoin.

Token: a blockchain-based token, STBC, where one token represents $1 (as supported by the creation / redemption process, described below). These could be issued by a private company, a central bank, or a decentralized protocol.

Creation/Redemption: In order to create 1 STBC token, an eligible user must send $1 to the reserve account. In return, the protocol mints 1 new STBC token and sends it to the user.

Similarly, an eligible user may send 1 STBC token back to the protocol to redeem it for $1. The protocol destroys the token and sends $1 back to the user.

What are the benefits of stablecoins?

We believe that stablecoins are one of the most important innovations of the cryptocurrency industry.

Let's say you want to send $20 to a friend. What are your options?

a) You could hope that both you and your friend use the same peer-to-peer transfer app (e.g. Venmo), and then separately each of you figure out how to send money to/from that app.

b) You could send a $20 wire transfer to your friend. This would likely take a day and cost $5+ in fees; and if it's international, it might take a week and cost substantially more in fees.

c) You could send $20 via ACH, if both you and your friend use US-based USD bank accounts. Then, the transfer would not fully settle for months, exposing both parties to "chargeback risk".

d) You could go to an ATM, withdraw $23 paying a $3 fee, and hand $20 to your friend, who would then have to find a way to use the physical dollar bills.

e) You could send 20 STBC to your friend's cryptocurrency wallet; if you use an efficient blockchain (or both use the same exchange), it will arrive in less than a minute, costing a tiny fraction of a penny in fees.

Option (e), the stablecoin, has a compelling case here as an efficient means of transfer.

Taking our real world use case a step further, consider that a user wants to build a blockchain based application. How should the application's users contribute and withdraw assets?

Here, the users face the same potential options and cost structures as before; once again, stablecoins are the cheapest, safest, fastest way for a user to engage with that application.

What are the risks of stablecoins?

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There are three major intertwined risks associated with stablecoins.

Reserve volatility risk

If the stablecoin is backed by something other than US Dollars in a bank account, the asset might depreciate against USD. If, for instance, you were to back a stablecoin with 1,000,000 tokens issued with $1,000,000 of the SPY (S&P500) ETF, and stock markets decreased 5% in price, you would be left with only $950,000 backing 1,000,000 stablecoins–meaning that the "stable" token had in fact fallen in value, at least in regards to the reserves it is purported to be redeemable for!

Unlike investment products where customers gain from appreciation in the assets backing the product, there is generally no way for a stablecoin to be worth more than $1, as customers can always create more for $1 each. This means that the core philosophy behind the assets backing a stablecoin should be to focus on assets with low volatility which are very similar to USD. US Treasury bonds may be an appropriate asset for a stablecoin's reserves; if Bitcoin is used, it has to be overcollateralized to an extent that there is very little risk of loss to the stablecoin holders. Backing 100 stablecoins with $101 of BTC is untenably risky: a mere 2% decrease in bitcoin markets would cause the stablecoin to be under-backed and no longer fully redeemable for $1. Backing 100 stablecoins with $400 of BTC, on the other hand, is substantially more defensible, as there is very little risk of a 75% move before the reserves would have a chance to de-risk. Any stablecoin issuer or designer must have a transparent, robust risk model to mitigate the volatility of its reserves, including determining which assets are appropriate for its reserves.

Redemption risk

A related worry is that a user might own 1,000 STBC, go to the issuer to redeem their STBC, and be denied.

This might happen if the reserves had in fact run out of dollars and so there was nothing left to redeem STBC for; this would likely imply the reserves had not been in USD, and had fallen in value.

Alternatively, this could happen if the issuer arbitrarily decides to block your redemption, possibly to try to keep more impressive metrics for STBC.

Either way, the lack of ability to redeem (or a lack of transparency related to redemption process and requirements) presents a risk to the user.

Financial crimes

One final risk of stablecoins is that they could be used for financial crimes, or to finance illicit activities.

Any stablecoin issuer or designer must include creation, redemption, and use mechanics that, in harmonization with regulation, address and avoid this use case.

What is a sensible stablecoin regulatory framework?

As noted above, we believe that stablecoins have presented a significant positive use case to the world, and they continue to hold the potential to revolutionize the payments and remittances industry. Stablecoins could in the future revolutionize the payments industry, drastically reducing friction and transaction costs, delivering to many around the world the benefits that come with having access to reliable and usable value transmission. As such, we think it is important to ensure that the ongoing regulatory discussions around the approach to a framework for stablecoins be based on a practical structure that solves equally for usability, reliability, transparency, consumer protection, and the identification and prevention of financial crimes.

We look forward to engaging with regulators on examples of what such a framework might look like. There are many different approaches and we remain open and excited for feedback and engagement from regulators and from other participants in the cryptocurrency industry.

As outlined above, there are real risks associated with stablecoins, and any framework should work to mitigate those.

As such, while we look forward to continuing dialogue on the details, we would be in favor of a proposal for a transparency-based reporting and registration regime for stablecoins.

A proposed framework might look like the following:

a) All stablecoins issued to US users must be registered on an official list of "regulated stablecoins" under the oversight of one or more US regulatory department(s).

b) The registration itself would be focused on transparency and reporting, on a notice filing basis, coupled with clear obligations on recordkeeping, reporting, and regular examination. The regulatory departments authorizing the program would have the ability to decertify registered stablecoins.

c) The registration would involve publishing a daily Reserves List which details what the total net value of the stablecoin's reserves are, and breaks that down into exact quantities of specific categories (e.g. "100 USD in Bank XYZ; $95 of short-term US treasury bills; $50 of Tier-1 commercial paper of US companies; $30 of Tier-1+ commercial paper of European companies; $10 of [other suitable assets as permitted by the regulation and by that stablecoin's registration document]")

d) The registration would require that the issuer maintain "sufficient" reserves. This could be defined by a set of haircuts on various types of reserves. E.g., perhaps a 0.10% haircut on USD in an FDIC insured bank account; a 1% haircut on short-term US treasury bills; a 10% haircut on Tier-1+ commercial paper; a 15% discount on Tier-1 commercial paper; a 20% haircut on EUR, GBP, JPY, CHF, CAD, AUD, SGD, HKD, etc.; and a 50% haircut on bitcoin.

e) The registration would require semi-annual audits by an accounting firm to confirm that the reserves are as represented.

f) The registration would require stablecoins to have clear and transparent redemption requirements (e.g. based on Know Your Customer documentation) and a clear customer complaint process if a redemption is denied.

g) To address financial crimes, all registered stablecoins would have to be on a public ledger, and the creation and redemption process must be sufficiently structured in order to ensure that stablecoins associated with illegal activity (as observed via on-chain surveillance and analytics tools, via a suite of standard blockchain surveillance software) cannot be redeemed.

As noted above, this is a basic strawman framework for how the key components of a potential stablecoin registration program might look. Each of these points are designed to preserve the usability of stablecoins while solving for regulatory considerations that need addressing. If designed in the right way, this framework could enhance the ultimate usability of stablecoins. We very much look forward to engaging with policymakers, regulators, and market participants on these concepts.

Exhibit B

FTX's Key Principles for Market Regulation of Crypto-Trading Platforms

In this piece we identify a series of ten principles (and in some instances, proposals) that should guide policy makers and regulators as they build the regulatory framework for spot and derivatives crypto markets. FTX does not propose specific legislation here but rather principles and proposals that could be reflected in policy making, whether in the form of legislation, rulemaking or other regulatory action. Many of these principles are familiar to traditional securities and derivatives markets, but some of the principles reflect market-structure choices made by FTX and other crypto-platform operators that we believe lead to superior outcomes for investors and, indeed, the public. FTX therefore believes public policy should not only permit these choices but promote those that lead to such outcomes. Some of the discussion here focuses on the U.S. marketplace but the principles and proposals are applicable in any jurisdiction globally. FTX appreciates being able to engage in this dialogue with policy makers and regulators, and we are always happy to pursue follow-up discussions with interested parties. See our prior policy blog posts at https://www.ftxpolicy.com. .

1. Proposing One Primary Market Regulator with One Rule Book for Spot and Derivatives Listings

In the U.S. regulatory ecosystem, spot markets and derivatives markets are subject to different regulatory programs, and this can lead to inefficient and non-optimized market structures. In this post we propose as a solution an alternative regulatory approach that would provide market operators the ability to opt in to a unified regulatory regime for spot and derivatives marketplaces, through a primary regulator model.

As many know, the CFTC is the primary regulator of commodity derivatives marketplaces, while the SEC is the primary regulator of cash securities marketplaces, and the two agencies share oversight responsibility for certain aspects of security derivatives marketplaces.

In parallel, there is a further regulatory split for spot markets (sometimes called "cash markets" in the traditional commodities or securities context), where the applicable regulatory program depends on whether the product

being traded is categorized as a security (where the SEC regulates) or a commodity that is not a security (where the states largely regulate, via money transmitter or money services business licensing).

Against that backdrop, and particularly outside of the U.S., we observe that many crypto-native trading-market operators offer for trading both spot transactions on crypto assets as well as derivatives on those assets, under a unified rule book, one collateral and risk-margin program, and a single technology stack. This model is generally not found in the U.S. given the jurisdiction's historically fragmented approach to market regulation. Nonetheless, we believe that for traded crypto markets, the key principles for market regulation (customer and investor protection, market integrity, preventing financial crimes, and system safety and soundness) generally apply equally across spot and derivatives markets, and commodities and securities markets. That is, the regulatory label on a given product or market need not change the core goals of regulation, and the same rulesets should generally apply across all markets. For that reason, we strongly support offering a single unified regulatory program for crypto market operators.

Specifically, in jurisdictions where there is a primary derivatives-market regulator separate and distinct from a primary cash-markets regulator (such as in the U.S.), policy makers and regulators should seek to permit qualified crypto markets operators to run a single rule book, risk program, and technology stack, approved and overseen by a primary regulator (perhaps chosen by the marketplace on on an opt-in basis and supported thereafter by inter-regulator cooperation and information sharing, with the possibility of the primary regulator shifting if the underlying product mix evolves in a certain way), that governs the listing and trading of both spot cash transactions in crypto assets as well as derivatives on crypto assets.

Much of this can be achieved today under existing statutory authority and with creativity and cooperation by and among market regulators. With some specific issues, however, clarity might be needed from legislation. Under the current U.S. paradigm, for example, we acknowledge that it is unlikely to be absolutely clear at any given moment, absent legislation, whether all of the crypto products listed on such a venue are definitively "within" or "without" the jurisdiction of either of the markets regulators. However, between two possible regulatory solutions under this paradigm - which are (1) that regulators can prohibit the marketplace altogether (via indecision, decree, or a combination of the two), or (2) that regulators can innovate and cooperate to ensure that key regulatory and policy goals are met in a clear and robust way while also permitting the marketplace to operate - we think the second approach offers a compelling option.

Said more explicitly, in jurisdictions where there are two mature market regulators, FTX proposes the permissibility and adoption of a reasonable and rigorous framework that would allow a crypto-markets platform operator to elect one market regulator as its primary regulator for a unified spot and derivatives trading book, subject to adherence to a cooperative framework in which the other market regulator acts a secondary regulator while maintaining appropriate visibility into the platform's operations, but not day-to-day supervisory responsibilities. (Indeed, a similar approach is used today when a market regulator from one jurisdiction "recognizes" the framework of a different jurisdiction where a primary, "home" regulator resides, and then defers to that primary regulator's regulations and rulesets so long as they are sufficiently comparable.)

We propose a functional-based approach, where the regulation and the trading venue rule books that comply with that regulation should be largely modeled after existing market regulations for securities and derivatives markets, on the basis that most jurisdictions will follow this same approach. FTX believes that there is a unique

current opportunity for U.S. regulators to take a leadership position in the global crypto markets regulatory discussion, and we believe that modelling a primary regulator model on existing market regulation will foster standardization and harmonization of regulation globally, paving the way for international adoption and reciprocal jurisdictional recognition.

To underscore why we are so focused on these regulatory issues - it is because we believe that getting crypto market regulation appropriately calibrated is critical for the continued development of healthy, transparent, and well functioning global crypto markets, which we believe will deliver knock-on positive effects to the global economy as a whole. And we think our proposed approach, in addition to solving for regulatory uncertainty and fragmentation, would also reduce operational complexity by allowing matching engines for both spot and derivatives transactions to operate on the same platform with the same user interface. This in turn would reduce operational risk to the platform, and promote capital efficiency by allowing collateral in support of both order books to rest on the same platform. In the rest of this piece, we discuss in more detail various additional practical benefits of crypto market place operators being subject to unified primary regulator oversight.

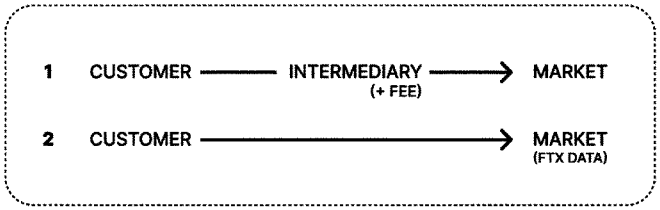
2. Full-Stack Infrastructure Providers and Maintaining Market-Structure Neutrality

Regulation should be market-structure agnostic, provided that the core regulatory issues (identified above as customer and investor protection, market integrity, preventing financial crimes, and system safety and soundness) are addressed. Technology has enabled any capable entity to perform the various functions involved with the pre-trade, execution, and post-trade phases of the lifecycle of an asset trade or transaction in a single regulatory stack - in fact, to split up those functions, from a technology perspective and when building a market from the ground up, would require a forced and artificial deconstruction.

However, one of the things that prohibits an entity from taking on any or all of these functions can be the specifications of a regulation. To say it another way, much of current market structure is a creation of regulatory artifact rather than a reflection of a thoughtful and holistic approach to marketplace design, efficiency, transparency, and risk management. FTX built and continues to evolve its trading ecosystem with the latter approach in mind.

We believe that so long as the various needed functions necessary to the lifecycle of a transaction are being met, policy makers would do well to remain otherwise neutral on how a market is structured (so long as appropriate customer protections also are in place, discussed below). For one example, most market regulation today envisions an intermediated market place where an intermediary such as a broker interfaces directly with a customer (think back to calling in, or mailing in, your order to a broker that had access to the physical exchange floor). In contrast, crypto-asset platforms largely dispense with this mode in favor of a direct-membership market structure, where end investors onboard directly to the platform for trading, and not through an intermediary or broker (although service providers such as Internet and data-center providers are involved).

A non-intermediated market allows all users to get the same access to market data (consider that FTX's data is free, globally, versus much of the global trading venue industry where data fees are a material commercial component of the business), connectivity, and key features related to functionality and risk management, regardless of the sophistication of the user. The positive implications of this are potentially enormous, and are only just beginning to be seen, interestingly, around the direct-to-consumer crypto marketplace models. The public is better served if the barrier to entry to transact competitively with global markets is an internet connection, rather than a $100,000 (or more) data-subscription fee and a costly fee- or commission-based relationship with a broker that merely plugs you into the trading venue's technology. Non intermediated markets create a more level playing field that's often lacking in many traditional financial systems, whose market structures have created a number of challenges including real and perceived conflicts of interests between intermediaries and their customers.



Consequently, a direct membership market structure should be expressly permitted (not required, but permitted) so long as the relevant customer protections continue to be afforded, in this case by the platform provider.

3. Custody of Crypto Assets -- Key Functional and Disclosure Requirements

For crypto assets, the asset is safekept in a wallet, where custody can be performed by the asset owner or by a wallet holder on the customer's behalf. Where custody is performed on a customer's behalf by a platform operator or intermediary, appropriate safeguards should be disclosed in policies and procedures of the custodian. Key areas of focus and disclosure should include: wallet architecture; whether insurance is provided by the custodian; how private keys are kept secure, managed and transferred; managing risks related to insider collusion or fraud; and physical security of data centers.

Importantly, in the case of platform operators, consideration should be given to the increasingly common practice of using third-party providers for data centers (i.e., cloud-service providers) as well as custodial services. In these instances, the platform operator will not itself perform these functions but nonetheless will be held responsible by users for them, and users should be given visibility into how third parties will address the aforementioned issues. Market supervisors should require regulated platform operators to perform regular diligence on their vendors and to have sufficient business continuity and disaster-and-recovery programs in place in connection with their vendor suite.

4. Full-Stack Market Infrastructure Providers and the Lifecycle of a Trade -- Addressing Risk Related to Token Issuance and Asset Servicing, Orderly Markets and Settlement of Trades, Cross Margining and Risk Management of Positions

Again, native crypto-trading platforms integrate into a whole the system for custody, issuing tokens, settlement of trades, and risk managing positions with one technology stack. In creating or fine-tuning a regulatory framework for these platforms, policy makers should ensure that market supervisors understand this system through well developed and clear policies and procedures disclosed by the platform operator. The framework should address the following key issues related to the lifecycle of a spot or derivatives trade.

Token Issuance and Asset Servicing

Token issuers who have access to the platform for purposes of issuing a token should be governed by disclosed policies and procedures that explain the listing standards for tokens. In some cases, existing securities laws will apply, in which case the policies and procedures should explain how such laws are complied with by the platform as it relates to issuing the security tokens.

This document does not address whether existing securities laws should be amended to account for distributed-ledger technologies and new methods of issuing securities in tokenized form. Suffice it to say here that some of the traditional requirements for central securities depositories might not be appropriate for platforms that offer these services, but others will be.

To the extent a token is not a security but has some security-like features at some point in time, and policy makers otherwise have not addressed whether such tokens should be treated as securities, a platform operator in any case should be required to disclose, or otherwise facilitate disclosure of (i.e., most material information for a token can be easily found on the Web, and a platform could direct a platform user to this information), key material information about the token issuer as part of the platform's listing standards.

Likewise, in the case of all tokens, the platform operator should develop and disclose policies and procedures for how a token issuer will interact with the platform for purposes of facilitating asset servicing, so that supervisors and platform users both can understand and assess the risks to the platform posed by token-issuance functionality. This would be especially relevant in the case of security tokens, where dividend payments and changes in ownership, for example, would impact the token and the owner of the token.

Market Surveillance

Good public policy would require that a crypto-platform operator has policies and procedures concerning the practices and technology used to perform market surveillance of the platform's trading environments in order to curb market manipulation and promote orderly markets. This is standard policy for traditional supervised markets and should be carried over to supervised crypto markets as well.

Settlement

With regard to settlement, our recommended policy would require the platform operator to have clear and transparent policies and procedures that explain when settlement of a transaction becomes final, and the conditions and circumstances under which the platform provider would reverse settlement due to errors, etc. By and large, regulated venues do this today in their terms of service, etc., and we think it is important they continue to do so.

One of the hallmarks of the FTX trading experience is to allow users to pair in a transaction nearly any combination of assets for purposes of settlement -- for example, a user could exchange BTC for USDC or for SOL. Sound policy would allow the platform to settle transactions by pairing the assets with any of the others listed on the platform, including stable coins or cash fiat currencies (see below for discussion of stable coins) but also other crypto assets, so long as the platform otherwise made clear how and when settlement becomes final.

Another hallmark of full stack trading experiences is access to credit to ensure and promote liquidity on the platform. Public policy should allow platform operators to facilitate the provisioning of credit to platform users so long as this service and function are well documented and explained to the supervisor and market participants on the platform. This is a clear example of where services previously provided by intermediaries can be solved by the trading venue itself.

Because crypto platforms have led the way in exchange innovation, public policy should anticipate that crypto firms will become more and more integrated with traditional payment rails and similar systems. Policy makers should consider whether and when to expressly delineate under what circumstances these platforms could access government-sponsored payment systems created for the settlement of securities, for example. Other policy initiatives will address whether and under what circumstances securities, including government-issued securities, can be reflected in tokenized form, but if such tokenization is permitted, an otherwise properly supervised platform operator should be allowed to access existing payment systems to facilitate settlement of such securities, even if interaction with that system is not on a real-time basis. Such a policy is recommended because otherwise access to this payment system would involve an intermediary, introducing various types of counterparty, operational, and credit risks to the platform that would not be in the interests of the participants on the platform (which itself would be highly supervised under our proposed framework).

Cross Margining and Risk Management

The regulatory framework for crypto should clearly allow for the cross-margining of both derivatives and spot positions on the platform with any and all assets permitted in the customer wallet and account, subject to appropriate risk weights and haircuts, as applicable. For the settling and risk management of crypto asset transactions on a crypto platform, the settlement and risk systems are automated and the relevant software interacts with the wallet and account that contain customer assets.

A well-designed regulatory framework would allow a single platform to perform all risk functions, and require the appropriate standards on those functions. For example, in addition to the custody requirements mentioned above, the settlement and risk-management systems should be appropriately explained to the market supervisor through the platform's rule book, and the regulator should be made aware of major changes to the system.

Sound policy also should ensure that risk-management systems used by a platform operator are configured to prevent customer accounts from going net negative across positions. A risk-management system that effectively performs this function with this goal, including through liquidations of customer positions, should not be allowed to do so in an arbitrary manner. Instead, the rules, risk parameters and business logic that trigger any actions taken by the customer platform as it relates to customer assets should be clearly disclosed and appropriately explained to the supervisor as well as the platform users in the platform's rule book, which should be approved by the primary market supervisor.

In permissioning the use of a risk-management system for clearance and settlement, policy makers should take care to remain technology and methodology neutral, so long as the platform operator can effectively demonstrate its responsibilities can be adequately met.

5. Trading Platform Providers -- Ensuring Regulatory and Market Reporting

Regulatory reporting of transactional activity should be required in order to provide market supervisors appropriate visibility into the trading platform, and to better allow supervisors to police for market manipulation and other unfair trade practices.

Policy makers should consider carefully how best to provide this data -- a requirement should be considered that would mandate that trading platforms create an API for the beneficial use of market supervisors to directly ingest data from the platform itself, rather than require a separate entity to undertake reporting responsibilities.

With respect to market reporting, a hallmark of the crypto-asset industry (as previewed above) is the provisioning of market data to users free of charge. Policy makers should carefully consider the standards under which platforms are permitted to charge users a fee for the provisioning or use of market data related to trading that takes place on said platform along with the implications of that activity for market access, transparency, and fairness policy initiatives. The right standards could incentivize the platform operators to focus on risk management, user experience, and product innovation for competitive advantage rather than fees based on trading activity brought to the platform by the user.

6. Ensuring Customer Protections

As suggested, crypto-asset platforms have ushered in an evolution of market structure in favor of a non-intermediated model, where entities separate from the platform are not needed in order to access the platform and the trading environment.

In this market structure, however, key customer protections should remain in place. From a policy perspective, one approach could be a very general and non-prescriptive one that requires that platform providers or intermediaries develop and disclose policies and procedures to ensure the best interests of all customers are protected at all times, and leave it to the entity's discretion. This would allow investors to choose a platform provider based on the robustness of those policies and procedures.

If a more detailed or prescriptive approach is favored, such an approach should consider whether specific requirements related to practices impacting platform customers such as front-running trading activity, market manipulation, general risk disclosures related to the assets and instruments listed for trading, appropriate and non-misleading communications with customers, and avoidance of entering into conflicts of interest with customers. Again, appropriate customer-protection requirements can be borrowed from the traditional finance space -- the key is to ensure that the platform provider can provide them rather than insisting that an intermediary perform the function. FTX believes that market place operators are properly positioned (perhaps best positioned) to deliver these types of disclosures and materials to users in a way that can be built directly into the trading venue user interface/user experience.

7. Ensuring Financial Responsibilities are Met

As with traditional markets, ensuring that customer assets are protected to the maximum extent possible should be a principle for regulating crypto-asset markets.

Again, the prominence of the wallet as a tool for storing assets is key to the crypto-asset space, and apart from requirements to ensure that the wallet itself is safely maintained and secured, policy makers should ensure that customers have access to real-time information about their account levels at all times (and redundant access paths, in the event of disruptions on one access path), particularly if and when a platform operator commingles customers' assets in an omnibus manner. If a platform provider elects to provide this infrastructure, operational complexity can be substantially reduced while customer assets are meaningfully protected.

In the case of a platform operator or an intermediary, policy makers should consider whether to adopt a minimum capital requirement (or other financial wherewithal condition) to ensure there are adequate resources to address operational and other types of risks that could jeopardize customer assets in custody. For platform operators, this could take the form of ensuring operational resiliency but in addition also ensuring adequate resources to address defaults and liquidations performed by a risk-management system (see above discussion on platform risk management). The goal should be to ensure platform operators need not depend on off-platform resources for settlement and risk management.

With respect to margining customer accounts, there should be a policy that expressly allows portfolio margining of all customer positions in all assets on the platform. This risk-management approach promotes capital efficiency and reduces operational risks to the platform or intermediary managing the customer account.

8. Ensuring Stable Coins Used on Platform Meet Appropriate Standards

A platform operator that permits the use of stable coins for settlement of transactions should be required to explain the standards the platform operator uses in deciding which stable coins it permits for such purposes. FTX has articulated and explained its policy recommendations for stable coin issuers (see https://blog.ftx.com/policy/context-stablecoin-regulation/).

The reason such a policy is recommended is that stable coins are exposed to reserve-volatility as well as redemption risk, and platform users should be entitled to some understanding of whether and to what extent those risks could impact their activity on the platform, including their impact on settlement of transactions (which might not be direct, but nonetheless indirect).

For example, a stable coin backed by risky and volatile assets and not transparently backed by an adequate amount of such assets with appropriate haircuts, could become exposed to price risk. This price risk could interfere with settlement finality on the platform, insofar as the value of the stable coin delivered as payment for the crypto assets in a transaction on the platform are suddenly not equal. Ensuring that stable coins allowed for use on the platform meet adequate standards set by the platform operator (or by public policy makers if applicable) mitigates this risk, and should better protect the users of the platform.

9. Full-Stack Infrastructure Providers -- Ensuring Appropriate Cybersecurity Safeguards are Kept

Market regulators in recent years have developed comprehensive cybersecurity requirements for market infrastructure providers. Policy makers should either apply the relevant safeguards already in place for exchanges, or otherwise require that the platform provider develop and disclose to market participants its policies and procedures regarding cybersecurity safeguards. In the case of platform operators already licensed by a market regulator, system-safeguard requirements already will be in place. In the case of platform operators not already licensed, one consideration for policy makers is to adopt a policy that helps facilitate standardization of these safeguards domestically as well as globally.

10. Full-Stack Infrastructure Providers -- Ensuring Anti-Money Laundering and Know Your Customer Compliance

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Platform operators must perform appropriate KYC as part of user onboarding and must conduct regular anti-money laundering surveillance of user activity (both on the trading venue and via the scrutiny of related on-chain transfers in and withdrawals out). Many platforms, including FTX, use a combination of vendors and internal compliance personnel to assist with these functions today. However accomplished, it is critical that crypto market place regulation continues to require significant focus on the performance of KYC and AML obligations. To ensure this, market place operators should be performing periodic self-audits and should also be subject to regular review and exam by their primary regulator on these requirements.

Exhibit C

FTX's Key Principles for Ensuring Investor Protections on Digital-Asset Platforms

Introduction

FTX strongly believes that ensuring investor protections is critical to the successful operations of digital-asset platforms, including our own, as well as to ensuring a positive user experience for our customers. FTX also believes that non-intermediated "direct access" markets, such as the FTX exchanges, can and do provide a level of investor protection that meets and exceeds the policy goals and purposes of traditional investor protection regulation (notwithstanding the absence of an intermediary or "broker"). Technology continues to displace the need for an investor to rely on intermediaries and brokers to access certain markets or asset classes, and one of the most important innovations of the digital-asset industry is a simplified market structure that does not need to rely on intermediaries for access to markets. From this observation, this paper addresses the key investor protection principles (described below) applicable to any market and the ways in which non-intermediated "direct access" digital-asset platforms can and do provide these protections for their users.

The goal of this paper is to support two critical propositions:

- The investor protection principles we describe in this paper can be provided directly by a digital-asset exchange or platform, using a non-intermediated market model, at an effectiveness level that exceeds relying on a series of intermediaries to provide similar protections and that ultimately leads to what FTX believes will be an overall risk-reducing market structure, for the benefit of investors.
- To the extent that legacy regulations or policies would assume or require an intermediary to provide these protections, we believe that approach often imposes unnecessary burdens and costs (including fees and both capital and operational inefficiency) on investors and markets without any corresponding benefit–and any such rules should be updated and modernized.

If market structure policy is truly to be technology neutral (which is an important and often stated principle expressed by policy makers), market regulators must acknowledge that intermediated market structures are due, in many instances, to the fact that technology was less robust when those markets were first developed. While intermediaries previously were helpful because the cost and complexity of accessing (1) a market for trading assets or (2) the assets themselves (especially when securities, for example, were in material or paper form) were substantial enough that it was economically efficient for an investor, especially an individual investor, to rely on

an intermediary to provide such access and attendant services. However, intermediated market access is NOT an *a priori* first principle of market structure design, and technology has meaningfully changed what is possible.

Today, the only tools necessary to access a centralized market place for assets directly are (1) a computer or mobile device; (2) relevant "trading" software accessible on that hardware; (3) access to broadband services to transfer data over the Internet, and (4) an application programming interface (API) to allow the trading software to be built and integrate with the trading platform's software. As a result, while investors might elect to use intermediaries for various reasons, those intermediaries are no longer indispensable for gaining access to financial products if the investor has the aforementioned tools.

We believe this has led to the possibility of the reduction of many types of risks, as explained in ***FTX's Key Principles for Market Regulation of Crypto-Trading Platforms*** (hereinafter "**Market Regulation Key Principles**"; see https://www.ftxpolicy.com/). Combined with other best practices and enhanced risk-management techniques utilized by FTX, this simplified market structure forms the basis for our argument that a well designed and operated non-intermediated "direct access" digital-asset platform can be ***risk reducing*** relative to traditional market infrastructure. Building on FTX's **Market Regulation Key Principles**, this paper continues the discussion about critical investor protections and our view that platform operators should be allowed to provide these protections, and be held accountable for them, rather than insisting that they be fulfilled by intermediaries on the platform.

While not the core goal of this paper, we also note that intermediation can reduce transparency and information available to the customer. Traditionally, most users are not given full market data; neither are they allowed full access to exchanges, preventing equitable access. FTX's disintermediated structure ensures that all users have equal access to its information and markets.

Key Investor-Protection Principles

Ultimately, all policies affecting the operation of a digital-asset market ensure the protection of the investor on the platform, and FTX's ***Market Regulation Key Principles*** paper addresses those.[18] Here we focus on specific principles related to the core of protecting customers' interests and their assets kept on a digital-asset platform. These include (1) maintaining adequate liquid resources to ensure the platform can return the customer's assets upon request; (2) ensuring the environment where customer assets are custodied, including digital wallets, are kept secure; (3) ensuring appropriate bookkeeping or ledgering of assets and disclosures to protect against misuse or misallocation of customer assets; (4) ensuring appropriate management of risks including market, credit/counterparty, and operational risks; and (5) avoiding or managing conflicts of interest. Each of these is addressed in turn.

[18] *See* https://www.ftxpolicy.com/.

1. Maintaining Adequate Resources to Return a Customer's Assets

A hallmark of the investor-protection regimes for markets globally and in the U.S. are requirements to ensure that the intermediary holding a customer's assets has adequate liquid resources available at all times to ensure that the customer can redeem her assets when she chooses. Often these policies are designed to ensure that there is (1) ***no delay*** in returning customer securities upon request, or (2) ***no shortfall,*** where an amount lesser than the value of the customer's asset can be returned to the customer.[19] This principle often involves other restrictions on the custodian, including, for example, a restriction of the use of customer assets to finance other business expenses or initiatives.[20] To ensure adequate liquid assets, familiar policies require a reserve of funds or qualified securities that is at least equal in value to the net cash owed to customers.[21] U.S. derivatives policy is very similar and also requires a cushion of resources to be held by the entity managing a customer's derivatives positions to ensure timely return of customer assets.[22]

FTX recommends policy makers consider a policy embodying this principle for digital-asset platform operators: fashioning a requirement, to be reflected in the platform's policies and procedures or otherwise, where the platform operator is accountable for keeping adequate liquid resources to ensure it can deliver customer assets back to the customer upon their request. This principle is sound for all asset types, and while the policy today tends to fall on intermediaries, it can just as easily be applied to the platform operator; in general it should apply to whichever entity is custodying customer assets. Such a policy as applied to digital-asset platform operators would be independent of other requirements to ensure adequate capital to cushion losses (see discussion below).

To the extent existing regulations have implemented this principle by fashioning restrictions on intermediaries, most market supervisors – including those in the U.S. – have other authorities that would permit appropriate or conditional application of such a duty on a market operator. The fact that customer assets include digital assets and tokens in principle need not alter the basic policy of ensuring there is the availability of liquid assets.

FTX has policies and procedures for its platforms today that reflect this basic principle by maintaining liquid assets for customers withdrawals, including a sufficient balance of digital assets funded by the company for its non-U.S. platform. The resources are funded to provide sufficient cover against user losses under certain events

[19] *See, e.g.*, SEC Rule 15c3-1, Rule 15c3-3 Adopting Release, Exch. Rel. No. 9775, 1972 WL 125434, at *1 (Sept. 14, 1972). *See also* FINRA Rule 2150.

[20] *Id*.

[21] The amount of net cash owed to customers is computed pursuant to a formula provided by the rule. While the formula itself is somewhat complex, it embodies a basic concept for the responsible stewardship of customer cash: if a broker-dealer owes more to its customers than its customers owe to it, the broker-dealer must set aside at least an amount equal to that difference so that it is readily available to repay customers. *See also* https://www.sec.gov/divisions/enforce/customer-protection-rule-initiative.shtml.

[22] *See, e.g.*, CEA Sections 4d(a)(2), 4d(f), and 30.7. The CFTC's customer-protection rules for FCMs are very similar, and the rules embody, inter alia, the concepts of "segregation of customer assets" as well as "targeted residual interest," which like the SEC's requirements require that adequate resources provided by the FCM itself, in this case, are included in the customer's segregated account to ensure there is efficient and adequate return of customer assets upon request.

and extreme scenarios in order to, among other purposes, ensure a customer without losses can redeem its assets from the platform on demand.

2. Securing Environment Where Customer Assets Are Custodied

Another key customer-protection principle is making sure that the environment itself, where customer assets are kept, is safe and secure. Existing market regulation often looks to the requirements of other financial custodians and intermediaries that also custody assets as a proxy for safety and security. For example, U.S. policy has the concept of requiring the use of a "qualified custodian" for the custody of customer cash and securities,[23] which in many instances is another intermediary that is also supervised and otherwise equipped to ledger and track a specific customer's funds.[24] Interestingly, the U.S. derivatives regulator explicitly recognizes that a clearinghouse is subject to sufficiently rigorous standards and supervision that it can be entrusted with safekeeping customer assets.[25] In any case, this principle mandates that appropriate arrangements to safeguard the clients' rights in client assets and minimise the risk of loss and misuse are in place, which can be accomplished by ensuring that the custodian of the assets maintains adequate levels of financial integrity, physical and cyber security, as well as transparency to customers about the locus and availability of their assets.[26]

Regarding a digital-asset platform operator, the assessment of whether the environment delivers on this principle is different from that for traditional assets because the ecosystem often involves traditional fiat currencies as well as digital assets and tokens related to public blockchains. For digital assets, the digital wallet is central to the custody arrangements. For fiat currency, FTX and other other platform operators will necessarily rely on licensed banking institutions to custody a customer's fiat currency; for traditional, non-tokenized securities, the custody function will follow the lines of the traditional market structure, unless some exemption is provided to allow some other arrangement – in the U.S., for example, existing regulations would require that custody be performed by a licensed intermediary legally permitted to custody such securities. (It certainly would be interesting, however, for policy makers to consider permissioning platform operators with the proven resources to custody these assets as well – again, derivatives regulation allows clearinghouses to custody assets.)

For digital assets, however, where policy is much less developed, custody involves control of private keys to digital wallets, and physical security involves the safekeeping of those private keys. When digital assets are left in the custody of platform operators such as FTX, safekeeping private keys can be performed in-house by the

[23] Under the SEC's framework, "qualified custodians" typically include banks, broker-dealers, and futures commission merchants. *See* SEC Rule 206(4)-2(c)(3).

[24] *See, e.g.*, Securities Exchange Act of 1934 Rule 15c3-3. The CFTC's rules mandate that customer assets held at an FCM be segregated and clearly identified as customer assets, and be custodied by a bank or trust company, a registered clearing house, or another FCM. *See* CEA Sections 4d(a) and 4d(b) and CFTC Regulation 1.11.

[25] In the United States, some CFTC regulated clearinghouses already have direct clearing relationships with traders and are therefore holding customer funds without using intermediaries.

[26] *See IOSCO Final Report on Recommendations Regarding the Protection of Client Assets* ("*IOSCO–Protection of Assets*"), Principle 3 (Jan. 2014) http://www.iosco.org/library/pubdocs/pdf/IOSCOPD436.pdf.

platform operator, or by the platform operator contracting with a third-party (the platform operator would remain accountable for regulatory requirements under this arrangement). Notably, both approaches have been permitted by market regulators and embraced by market participants.

Multiple architectures exist for the storage of private keys, which can be accomplished through use of a "hot wallet," cold storage, multi-signature wallet, or even by a smart-contract wallet. To be sure, policy makers could decide if a particular approach should be allowed or prohibited based on a particular policy emphasis – each approach has trade offs related to security and efficiency – but at this time, the best policy approach is likely allowing market participants to decide their preferred custody approach by electing to transact with the platform operator that offers it. This approach necessarily would require that a platform operator adequately disclose its wallet architecture and security practices. In any case, limiting access to the private keys under custody through appropriate permissioning, and ensuring adequate cyber-security protections, are critical to discharging this principle regarding securing the environment where assets are kept.

Some have suggested that allowing the platform operator to serve as the digital-asset custodian might present a conflict of interest for the platform operator, presenting more opportunities for misuse or misallocation of customer assets. It is far from clear to FTX that contracting with a third party for custody would in every instance lower the risks of misuse or misallocation of a customer asset, particularly when the platform operator would presumably remain accountable and, indeed, liable in every case; and each additional party added to a customer's experience adds another potential point of failure. We believe that rather than focus on any perceived conflict, policy makers should instead focus on the first principles described above for asset safekeeping (i.e., regular auditing of the cybersecurity aspects of the custody plan along with auditing the actual assets held in custody), and perhaps consider requiring the platform operator to disclose any remaining potential conflicts while developing policies and procedures to address them.

FTX uses both approaches, using a third-party custodian in part for the U.S. derivatives platform and a proprietary in-house custody solution for the other platforms. For its in-house wallet solution and to maximize security, FTX leverages best-practice, hot- and cold-wallet standards whereby only a small proportion of assets held are exposed to the Internet and the rest are stored offline. FTX policies and procedures also address and dictate other key components to the security of private keys, including applicable multi-signature arrangements, as well as the storage of backup relevant backup information. FTX's custody solutions comply with all relevant regulations, including those of the U.S. CFTC, and the company takes pride in the confidence in our security measures our customers have given to us.

3. Ensuring Appropriate Ledgering and Disclosures of Assets to Protect Against Misuse

Another key investor-protection principle is making sure there is adequate bookkeeping (and related records) to track the customer's assets, combined with appropriate disclosure and reporting.[27] This is to ensure that whoever is in control of a customer's assets is not misallocating or misusing those assets, particularly in furtherance to their own purposes at the expense of the customer's best interests. The basic concept here is that there should be controls in place to ensure the custodian has books and records that keep track of and identify which customer owns what, and there is adequate regulatory and customer reporting, as well as independent auditing, to verify the same.

In keeping with this principle, FTX provides a user experience that enables any user to easily view account balances for all assets, for all of its platforms, in real time. By logging in to the customer's account at FTX, the customer can immediately view the types of assets they own held in custody by FTX. The assets are ledgered and easily identifiable to the user (but held in an omnibus wallet in the case of the customer's tokens in order to better promote liquidity on the platform) pursuant to internal policies and procedures, and FTX regularly reconciles customers' trading balances against cash and digital assets held by FTX. Additionally, as a general principle FTX segregates customer assets from its own assets across our platforms.

Relatedly, and previewing the risk management discussion below, FTX ensures redundancy, resiliency, and disaster-recovery preparedness by using multiple geographically dispersed cloud and data service vendors and facilities to ensure industry-leading 24/7 service.

4. Conducting Adequate Risk Management to Protect Digital Assets

The next key principle is ensuring that any market participant in possession of customer assets is performing adequate risk management to protect those assets, regardless of their particular role in the ecosystem. There are multiple types of relevant risks that are inherent to any market structure, including but not limited to credit or counterparty risk, market risk, funding liquidity risk, and operational risk. (All of these in turn have a bearing on or contribute to systemic risk within the overall ecosystem.)

Credit and counterparty risk refers to the risk that a counterparty will fail to perform its obligations. Market risk is defined as the potential for losses arising from the change in value of an asset. Liquidity risk is the potential that a position in an asset cannot be unwound due to a lack of depth or a disruption in the market for the asset. Operational risk includes a risk of loss from a failure of internal processes at an organization, which can be caused by human error, technology-system breakdowns, or communication-network failures; they also can include losses caused by external factors such as "acts of God" or other naturally occurring events.[28]

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[27] *See IOSCO–Protection of Assets*, Principles 1 through 3.

[28] For source of definitions, see T*he Joint Forum of the Basel Committee on Banking Supervision, the International Organization of Securities Commissions, and the International Association of Insurance Supervisors, Risk Management Practices and Regulatory Capital*, November 2001, p. 15, at https://www.iosco.org/library/pubdocs/pdf/IOSCOPD122.pdf.

Market participants in any market, including digital-asset market operators, must address each of these risks to ensure against substantial or catastrophic losses that could lead to existential threats against their own firm, thereby imperiling the assets of their customers. In general, policy makers that develop market regulation have required that both market operators as well as intermediaries manage risk by developing appropriate policies and procedures to address them, which contemplate the use of quantitative methods to measure risk, pricing products according to their risks, establishing risk limits, active management of risks through hedging and other techniques, and the building of cushions to absorb losses.[29]

FTX is a full-stack infrastructure provider, combining the matching engine and the clearing function on the same platform, providing a unified user experience for the trading of assets as well as the clearing and settlement of those assets. FTX's ***Market Regulation Key Principles*** addressed other risk-management considerations for the trading venue itself, but here we focus particularly on risk management embedded in the clearing and settlement functions that relate to investor protections.

Clearinghouses in traditional markets again are subjected to substantial regulatory rigor and are required to develop written policies, procedures, and controls that establish an appropriate risk-management framework which, at a minimum, clearly identifies and documents the range of the aforementioned risks and more to which the DCO is exposed, addresses the monitoring and management of the entirety of those risks, and provides a mechanism for internal audit.[30] Public policy typically provides clearinghouses discretion in setting, modeling, validating, reviewing and back-testing margin requirements that build the cushion to absorb potential losses, but must develop such requirements nonetheless; those models are then evaluated by appropriate regulators.[31] Clearinghouses are required by regulation to frequently check the adequacy of initial-margin requirements, value initial margin assets, back test products that are experiencing significant market volatility, and conduct stress tests with respect to each large trader who poses significant risk.

FTX platforms improve upon these requirements today in a number of material respects, and indeed the FTX US derivatives platform complies with the specific requirements of U.S. policy. First, the FTX international exchange imposes on its users a dynamic maximum leverage limit depending on their absolute position, which is limited to maximum leverage of 20 times the notional value of the user's account, and substantially lower in the case of larger positions. The limit is calculated as a function of market liquidity and volatility, along with the positions and collateral that the user holds. Second, FTX platforms check customer-account levels and asset amounts, including those used to collateralize positions, multiple times per minute as opposed to once per day,

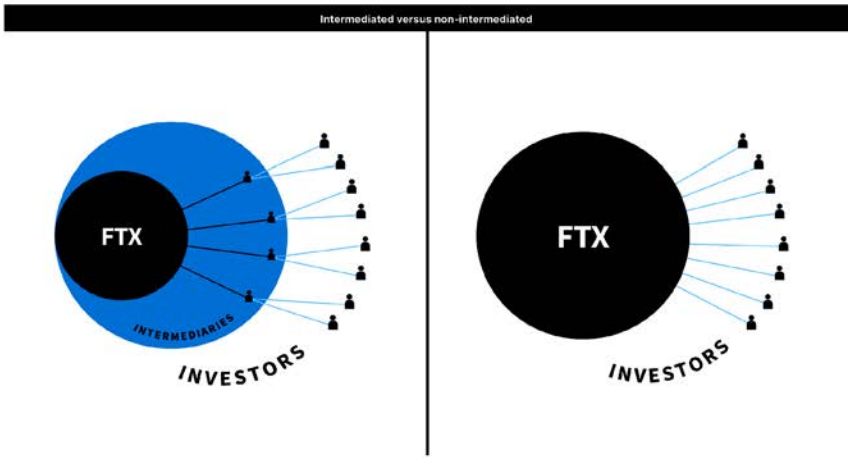
[29] *See id.*

[30] *See, e.g.*, Derivatives Clearing Organization General Provisions and Core Principles ("DCO Final Rule"), 76 Fed.Reg. 69334, 69,335 (Nov. 8, 2011); *see also* Standards for Risk Management and Operations of Clearing Agencies ("Clearing Agency Rule"), SEC Rule 17Ad-22, 17 CFR Part 240.

[31] *See id.*

as standard policy requires today. Third, customer positions are liquidated if the net balance of all of a customer's positions becomes negative, or positions fall below the maintenance-margin threshold, and the FTX risk engine performs this function automatically. FTX uses an advanced and user-friendly liquidation process that gradually reduces a user's position to bring it to solvency, instead of closing the entire position. Fourth, FTX's risk-management program requires that digital-asset collateral be placed on the platform itself, rather than pledged but not delivered to the platform, to ensure the platform has immediate access to the collateral for purposes of managing market risks. And fifth, FTX's markets are open 24 hours a day, 7 days a week, which protects against delayed management of customer positions or market conditions, and the consequent build-up of market risk.

FTX undertakes this risk-management program without any reliance on intermediaries, depending only on its own systems and personnel. Historically, in traditional market structures, intermediaries provided a first or outer layer of risk management, as the entity typically responsible for onboarding customers and maintaining the customer relationship, and thereby exposing that intermediary to all of the attendant risks from that relationship. Market operators and clearinghouses are beneath or within that outer layer and, as explained above, also engage in management of the risks outlined above.



In traditional market structure, any type of breakdown in the risk management at the *outer* layer of the intermediated market structure exposes the *inner* layer to consequent risks. This is so because those intermediaries are members of the trading platform as well, and the effects of a risk-management breakdown can be transferred to the trading platform as well as to the other members of the trading platform. Policy makers refer to this concept as interconnection risk. Arguably, the existence of this outer layer created through intermediation increases the opportunities for risk-management failure because there are so many more points of

potential lapses or failure. Many of these can be inconsequential to the overall ecosystem, but some or many can be consequential.

The simplified market structure native to the digital-asset ecosystem poses fewer interconnection risks within the system because the outer layer of participants is folded into the inner layer – investors access the digital-asset platform directly. Likewise, without intermediaries bringing their customers to the trading platform, the trading platform is not exposed to risk-management failures by an intermediary, and can focus instead on its own risk-management program. This in turn simplifies the role of the supervisory community overseeing such platforms, who by focusing on the risk management of the platform operator can dispense with concerns about the platform's members who are not intermediaries. Again, this concept is key to FTX's view that the market structure for our platforms is ***risk reducing*** compared to those found in traditional markets.

One corollary to this concept is that involving intermediaries in the market structure ***does not*** by definition lead to greater investor protections, as some have argued. Instead, greater protections would depend entirely on the risk-management resources and capabilities (operational and financial) of the intermediary and whether they are delivering on other key investor protections, which in part depends on the level of supervision of the intermediary *vis a vis* the level of supervision of the platform. As a general matter, the supervision of clearinghouses as it relates to risk management in particular is equal to or greater than that for intermediaries, with heightened financial integrity and reporting standards. And as explained above, FTX risk management is designed and has been implemented to improve upon those standards in multiple ways.

Fewer interconnections, combined with superior risk-management practices at the platform level, while delivering on core investor protections, leads to a superior and risk-reducing market structure that better protects investors.

5. Avoiding Conflicts of Interest

The final principle is that in order to ensure the investor's interests are protected, conflicts of interest between the investor and the entity offering the products should be eliminated, mitigated and/or managed appropriately. Once again, in traditional capital markets the policy focus has been on intermediaries who offer access to investment products or otherwise sell the products to their customers directly, and today there are considerable requirements directed at intermediaries. Although not all existing regulations related to conflicts will apply, to the extent that policy makers wish to apply the relevant measures to the digital-asset space, this could be accomplished rather smoothly by shifting the burden of those measures from intermediaries to the platform operator as needed.

Policy governing traditional markets generally takes two approaches to addressing conflicts of interest: expressly prohibiting certain types of conduct, and requiring policies and procedures that involve affirmative steps to identify areas of risk for conflicts, and measures to mitigate or eliminate those conflicts. As an example of the

former, most securities regimes, including in the U.S., expressly prohibit misstatements or misleading omissions of material facts, and fraudulent or manipulative acts and practices, related to the purchase or sale of investment products.[32]

An example of the latter approach is a "best interest" or "suitability" requirement for entities offering investment products to their customers, again typically intermediaries in the case of traditional markets. This type of policy seeks to discourage entities from offering or recommending products that the investor does not sufficiently understand or possess the resources to use properly.[33] Other regimes are less prescriptive and generally focus on the financial wherewithal of a customer seeking access to a trading market, on the premise of ensuring creditworthiness and an ability to meet financial obligations on the platform,[34] along with risk-related disclosures.[35]

FTX favors an approach that provides equal access to all investors, and follows sufficiently robust listing standards that ensure adequate information about the listing is provided to the customer. But if policy makers preferred to impose a heightened standard more similar to what is found in securities markets, for example, they would need to impose that responsibility on the platform operator, which again could easily be accomplished.

In any case, whether intermediaries are involved in the market or not, conflicts inevitably arise when each actor is pursuing its commercial or economic interests. The key point for this particular principle is that when they do, there are familiar methods for eliminating or mitigating those conflicts, even as they apply to platform operators. FTX conducts its business with a goal of maximizing our customer's interest, but supports reasonable policy measures to eliminate or mitigate conflicts that impose those responsibilities directly on the platform.

[32] *See, e.g.*, Section 15(c) of the Exchange Act.
[33] *See, e.g.*, SEC Regulation Best Interest (BI), FINRA Rule 2111. This type of policy seeks to discourage entities from offering or recommending products that the investor does not sufficiently understand or possess the resources to use properly. To accomplish this, some policy regimes require the intermediary to collect relevant information about the customer/investor in order to ascertain the customer's investment profile, and then have policies and procedures for assessing suitability based on that information.
[34] *See, e.g.*, CFTC Rule 38.602, Rule 38.604, Rule 39.12, all of which speak to financial fitness and wherewithal.
[35] See, e.g,. CFTC Rule 1.55 and 33.7.

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Testimony of Perianne Boring, Founder and Chief Executive Officer, Chamber of Digital Commerce

Before the United States Senate

Committee on Agriculture, Nutrition, and Forestry

"Examining Digital Assets: Risks, Regulation, and Innovation"

February 9, 2022

Washington, D.C.

I: Introduction

Good morning, Chair Stabenow, Ranking Member Boozman and Members of the Committee. Thank you for inviting me to participate in this important discussion on digital assets.

My testimony on behalf of the Chamber of Digital Commerce ("the Chamber") focuses on the following points:

- Blockchain and digital assets represent generational innovation and economic growth, particularly in the financial services industry. Despite the many myths associated with these technologies, a number of key facts remain: the inherent nature of both blockchain and digital assets enable transparency in the market, facilitating ease of transactions, and ultimately helping to spur more sustainable energy practices, accelerating the transition to renewable energy, and offering economic opportunity to underserved rural areas.
- Despite the growth and opportunities in the digital asset market, the lack of regulatory clarity has created many unintended consequences. The fragmented regulatory system is hampering innovation and impacting the U.S.'s global competitiveness. Many other countries understand the crucial role these technologies are going to play in the digital economy and have facilitated regulatory environments that foster growth and innovation within their borders.
- There are many opportunities for the U.S. – and this Committee – to foster growth and innovation. As I discuss in more detail below, the Chamber recommends the following policies:
    - Adopt the Chamber's 2019 National Action Plan for Blockchain; and
    - Provide regulatory clarity for the industry, including identifying a lead regulator. Should that be the path, we believe the Commodity Futures Trading Commission (CFTC) is well-positioned to take on that role due to its principles-based regulation, its innovation mindset, and its ability to quickly adapt to the ever-evolving industry.

Today, I am appearing on behalf of the Chamber of Digital Commerce, which I founded and where I continue to serve as Chief Executive Officer. Established in 2014 as the world's first and largest blockchain trade association, the Chamber's mission is to promote the acceptance and use of digital assets and blockchain technology. We are supported by a diverse membership that represents the blockchain industry globally, including more than 200 of the world's leading startups, software companies, financial institutions, and investment firms, as well as other market participants, including digital asset mining firms. Membership is open to all companies committed to supporting and growing this thriving marketplace.

Through education, advocacy, and close collaboration with policymakers and regulators, the Chamber works to develop public policies that provide certainty and clarity to the marketplace. Such sound policies will foster innovation, job creation, and investment for industries and businesses of all sizes, while encouraging adoption of these transformative technologies with applications far beyond finance or investing. Just as important, if not more so, these policies will also maintain U.S. leadership in the global digital asset and blockchain ecosystem.

Digital assets and blockchain technology hold a generational promise for entrepreneurs, investors and broader society. It is not an exaggeration to say that these opportunities are on the scale of innovations that followed the widespread deployment of electricity, the railroads, or the Internet.

Digital assets are helping to usher in a truly global and inclusive economy, while blockchain technologies are revolutionizing and disrupting entire industries. This revolution is not only in financial services and banking, but also can be seen in innovations in the agriculture industry focused on supply chain, government records, title and asset ownership, digitization and encryption of records, and digital identity.

With an appropriate policy and regulatory framework, digital assets and blockchain can positively affect the future of businesses and governments and broader society, as innovations did in the 19th and 20th centuries. But just as the Internet required regulations suited for an emerging technology versus the legacy infrastructure of the rotary phone, policies for digital assets and blockchain technology should be based on the use cases of the future versus the needs of early 20th century financial services. What this policy framework should look like is what I wish to discuss with you today.

Before I discuss our policy recommendations, it is important to provide a basic overview of both blockchain and digital assets.

II: Bitcoin and Blockchain

A. History

In 2009, Bitcoin was designed as a "peer-to-peer electronic cash system" and was the first-ever blockchain network.[1] Its creation was motivated by the so-called "double-spending problem," which for decades perplexed the founding generation of the Internet. Bitcoin's creator identified a problem: although the Internet generally allowed for the peer-to-peer transmission of *information*, such as media files and text, it did not facilitate the peer-to-peer transmission and transfer of a *unit of value*. The Internet for years enabled individuals to transmit copies of pictures to others without an intermediary, but was incapable of enabling an individual to transfer a payment in a similar way. In other words, sending you a dollar meant giving up my dollar (this *was* the "double spending problem").[2]

Intermediate solutions which have emerged to bring finance to the World Wide Web suffer from the "double spending problem." These solutions effectively take existing financial infrastructure and retrofit it to the Internet. There are certainly some important innovations – mobile phone apps allow us to deposit checks without visiting a bank branch; online portals allow us to make stock trades at a lower cost without calling brokers; etc. – but they do not transform the fundamental nature of finance. Financial transactions on the Internet *require* intermediaries; otherwise, there is no way to validate the ownership of units of value.

When Satoshi Nakamoto – the founder(s) of Bitcoin – solved the "double spending problem" by publishing the Bitcoin protocol, they gave birth to a new era that allowed for the Internet to truly extend into finance without intermediaries. Blockchain technology allows for the proliferation of distributed, immutable databases that can be relied upon as the source of truth and used by American businesses seeking to record property ownership and facilitate global commerce.

While decades of competitive pressures introduced by the Internet have fundamentally changed media moving forward, equivalently monumental shifts in other areas, particularly agriculture, finance, and supply chains, have not yet been realized because the full promise of the Internet required the invention of blockchain to be unleashed. We are only beginning to utilize the full potential of Satoshi's elegant creation.

B. Example Use Cases

The future looks bright. "Blockchain is a cryptographically secure platform ideal for permanently storing assets and ownership information, and will serve as the foundation or 'rails' for other technologies, like the Internet of Things ("IoT") and artificial intelligence."[3] Satoshi's solution to the "double spending problem" has implications not only for the financial sector, but also for the

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[1] "Bitcoin: A Peer-to-Peer Electronic Cash System." Satoshi Nakamoto. https://bitcoin.org/bitcoin.pdf.
[2] "Bitcoin: Inside the encrypted, peer to peer digital currency." Thomas Lowenthal. https://arstechnica.com/tech-policy/2011/06/bitcoin-inside-the-encrypted-peer-to-peer-currency/
[3] "National Action Plan for Blockchain." Chamber of Digital Commerce, February 2019. https://digitalchamber.s3.amazonaws.com/National-Action-Plan-for-Blockchain1.pdf

near-instantaneous, secure transmittal of information that can be validated through peer-to-peer networks versus through intermediaries, complicated by human error. Accordingly, the use cases have grown exponentially in the last few years as new blockchain innovations inspired by the Bitcoin blockchain have emerged.

Some are proprietary solutions (think of a company's intranet versus the open Internet), and some are open-source solutions that allow for distributed computer programs to be hosted and executed (such as Ethereum or Solana). In other words, there are various ways blockchains are advancing human prosperity and progress.

For today's purposes, I've highlighted a few use-cases that our members are involved in that touch on the matter we're here to discuss:

Cross-Border Payments

The economics of migrant worker remittances and business-to-business (B2B) cross-border payments are important to America's farmers, and blockchain technology has the potential to make these payments faster and more affordable.

A typical remittance fee can be as high as 10.9% per transaction,[4] while the World Bank estimates that sending payments can cost an average of 6.38% of the amount sent.[5] In addition, international money transfers can take anywhere from 1 to 5 business days depending on the banks involved, the destination country, bank hours of operation, and needed currency conversions.[6] In contrast, payments providers operating in South America and Africa using bitcoin and other digital assets charge transaction commissions as low as .1%.[7] Since analysts expect that the remittance market will grow between $200 billion to over $900 billion by 2026, lower fees will ensure that more funds go to workers and their families instead of to intermediaries.[8]

Chamber members are applying blockchain technology to help lower the cost of cross-border payments. For example, in testimony before the House Financial Services Committee in December of 2021, Stellar Development Foundation CEO Denelle Dixon explained how Stellar's blockchain facilitates faster settlement than traditional cross-border transactions.[9]

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[4] "Bitcoin gains traction as vehicle for sending remittances home to Mexico," Mexico News Daily, May 10, 2021. https://mexiconewsdaily.com/news/bitcoin-gains-traction-as-vehicle-for-sending-remittances-home-to-mexico/

[5] "Remittance Prices Worldwide," The World Bank, March 2021. https://remittanceprices.worldbank.org/en

[6] "How long do international money transfers take?," Cecilia Hendrix, *Western Union*, April 5, 2021. https://www.westernunion.com/blog/au-how-long-does-international-money-transfer-take/

[7] "The new wave of crypto users: migrant workers," Andalusia Knoll Sol, *Rest of World*, April 26, 2021. https://restofworld.org/2021/crypto-remittances/

[8] "Global Remittance Market is Expected to Grow by $200 Billion by 2026," Polly Jean Harrison, *The FinTech Times*, June 29, 2021. https://thefintechtimes.com/global-remittance-market-is-expected-to-grow-by-200-billion-by-2026/#:~:text=Global%20Remittance%20Market%20is%20Expected%20to%20Grow%20by,transfer%20market%20reached%20over%20%24700%20billion%20in%202020.

[9] "Testimony of Denelle Dixon, CEO and Executive Director, Stellar Development Foundation Before the United States House of Representatives Committee on Financial Services," *Stellar Development Foundation*, December 8, 2021.

MoneyGram International, a well-known name in cross-border transfers, has also begun a pilot program that allows customers to make cross-border stablecoin transactions that are converted into a currency of the sender's choice without the need for a bank account.[10] While there are fees associated with currency conversion, transferring funds on a traceable blockchain provides for a more secure transaction option than legacy payments solutions and faster fund collection for the recipient.

Blockchain technology is also enabling small- and medium-sized businesses to better facilitate cross-border commerce. In December, B2B payments business Tribal Credit launched a partnership with digital asset exchanges Bitso and Stellar that allows businesses in Mexico to send payment in pesos to the U.S., while the U.S. business receives payment in USD.[11] This partnership has the potential to facilitate faster payments and better relationships among the 62 million small- and medium-sized businesses that transact globally each year.

Supply chains & ownership registries

Blockchain technology is not just about payments. It also allows users to efficiently verify online identities or information while maintaining control of sensitive data in agriculture, healthcare, and other important sectors.

A May 2021 Congressional Research Service report cited a few use cases in the agriculture sector, particularly in supply chain and food sourcing. These examples illustrate how blockchain can help achieve a higher policy goal of food safety through the tracing of a food's origin and ensuring against fraud, as in the case of the U.S. Department of Agriculture's (USDA) Agricultural Marketing Service's National Organic Program.

Blockchain technologies are already making a meaningful difference in livestock-ownership recordkeeping. From Wyoming[12] to Burma[13] to Bolivia, [14] blockchain technologies are being used to bring livestock ownership registries into the 21st Century. The USDA recently said it expects blockchain technology to play an "essential role" in our nation's complex agricultural supply chains.[15]

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[10] "MoneyGram International Launches a New Pilot on Stellar," *Stellar,* November 17, 2021. https://stellar.org/blog/moneygram-international-launches-a-new-pilot-on-stellar?locale=en

[11] "Tribal Credit, Bitso, Stellar Development Foundation Partner to Enable Faster, Cheaper Int'l B2B Payments in LatAm, *Tribal Credit,* December 9, 2021. https://www.tribal.credit/press-releases/tribal-credit-bitso-stellar-development-foundation-partner-to-enable-faster-cheaper-intl-b2b-payments-in-latam

[12] "Cheyenne Cattlepass Cocreating Cattle Tracking NFTs." Wyoming News. https://www.wyomingnews.com/news/cheyenne-s-cattlepass-co-creating-cattle-tracking-nfts/article_db88058e-8384-5db5-8973-e6bafaa7852f.html

[13] "Blockchain Use Cases for Inclusive FinTech: Scalability, Privacy, and Trust Distribution. David Kuo Chuen Lee. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3629135

[14] "Bolivian Cattle Ranch will be Tokenized to Open Up Business to Investors." Nasdaq. Sebastian Sinclair. https://www.nasdaq.com/articles/bolivian-cattle-ranch-will-be-tokenized-to-open-up-business-to-investors-2020-11-30

[15] "Blockchain to Play 'Essential Role' in Farming Supply Chains, Says US Government." Coindesk. Paddy Baker. https://www.coindesk.com/markets/2020/08/11/blockchain-to-play-essential-role-in-farming-supply-chains-says-us-government/

Blockchain is also being used to improve food safety in supply chains. Partnering with IBM food trust blockchain, Walmart and its suppliers can track the status of produce sold in its stores. It can use this blockchain technology to efficiently identify the source location of produce, which will help consumers avoid items that have been affected by E. coli or Salmonella outbreaks.

In addition to efficiency, businesses can leverage the transparency of the blockchain to ensure ethical sourcing. For example, Ford Motor Company is a member of the Responsible Sourcing Blockchain Network to ensure it sources minerals from suppliers with ethical working conditions.

The military is also aware of the supply chain benefits of blockchain technologies. In 2020, the U.S. Air Force provided $1.5 million to an Indiana-based blockchain firm to build out a platform for supply chain logistics.[16] Last year, the U.S. Navy commissioned a $1.5 million blockchain system to help the Department of Defense's Defense Logistics Agency better sense demand and to manage supplies for our nation's warfighters.[17] Concerningly, geopolitical adversaries like the People's Republic of China (PRC) have more deeply embraced blockchain's industrial use cases. For example, Chinese authorities have committed to building an "advanced blockchain industrial system" to advance civil-military objectives, and blockchain technology is a key component of the Chinese Communist Party's Five Year Plan.[18]

Of particular interest is the PRC's efforts to build smart cities on blockchains ultimately controlled by the state. As with any technology, however, blockchain is neutral, and its applications can be either good or bad. Although the PRC seeks to leverage blockchain technology for illiberal ends, blockchain can also be used in a free and open society – like the U.S. – to facilitate expression, improve the delivery of government benefits, and record digital identities.

Some Chamber members, for example, have created a marketplace for pieces of art on the blockchain.[19] Other Chamber members, such as IBM, Burst IQ, and Ontology, are leveraging blockchain technology to allow users to verify their digital identities online while maintaining control over sensitive personal data in healthcare, the auto industry, financial services and elsewhere.[20]

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[16] "US Air Force Gives Blockchain Firm $1.5M to Build Supply Chain Network." Coindesk. Danny Nelson. https://www.coindesk.com/markets/2020/06/15/us-air-force-gives-blockchain-firm-15m-to-build-supply-chain-network/

[17] "SIMBA Chain Receives a $1.5 Million SBIR Phase II Contract from the US Office of Naval Research." Global News Wire. https://www.globenewswire.com/news-release/2021/01/13/2157839/0/en/SIMBA-Chain-Receives-a-1-5-Million-SBIR-Phase-II-Contract-From-the-U-S-Office-of-Naval-Research.html

[18] "China Plans to Accelerate Blockchain Development and Adoption in Push to Become a World Leader in Technology by 2025." South China Morning Post. Coco Feng. https://www.scmp.com/tech/tech-trends/article/3136515/china-plans-accelerate-blockchain-development-and-adoption-push

[19] "Nifty Gateway." *Gemini*, 2022

[20] IBM has developed a blockchain based platform that has been used by businesses, universities, and others to manage digital identities. "Blockchain for digital identity and credentials," IBM, last accessed November 3, 2021. Burst IQ has created a platform for personalized healthcare identities. Burst IQ, Company, accessed November 4, 2021. Ontology's decentralized identity application is being used in various leading consumer products including Mercedes-Benz vehicles. Ontology, "Over 1.5 Million Users Now Managing Their Digital Identity Using ONT ID, Ontology's Decentralized Identity Application," September 9, 2021.

Trade finance

Many Chamber members are also applying blockchain to improve trade finance. Trade finance is the practice whereby banks provide credit to guarantee the exchange of goods. The trade finance market still predominantly relies on manual contract creation, slow payment processing, manual AML reviews, and other inefficiencies that rely on intermediation. Blockchain technology is improving the trade finance market in several ways.

The transparent and immutable ledger that is foundational to blockchain technology gives all parties involved greater visibility and control of transactions that occur during trades by providing a point of truth. Self-executing smart contracts can automatically trigger payments, which provide near-instant settlement if made via blockchain. Blockchain analytics providers can conduct automatic AML risk assessments as transactions are added to the blockchain, and flag suspicious activity.

Chamber member IBM is already demonstrating the benefits that blockchain can provide for trade finance. IBM Blockchain has partnered with 16 banks in 15 countries to develop the we.trade network, which automates trade finance processes and provides traders with credit rating and logistics services. IBM found that members joined the network to facilitate more trade in emerging markets, and that network transaction volumes are growing rapidly. Additionally, Chamber member Citi is an investor and participant in Contour, a blockchain-based trade finance network that digitizes trade finance contracts and transaction records, improves security, and provides real-time data synchronization for participants in the trade ecosystem.

III: Debunking Digital Asset Myths

Despite these use cases and the growth of this market, there continue to be a number of myths regarding digital assets and blockchain. We are here today to provide facts to dispel these myths.

Myth A: Digital assets fuel ransomware and money laundering activity - FALSE

Some say the rise in digital assets is to blame for the recent surge in ransomware attacks and online financial crime. The increase in ransomware is not being driven by digital assets, but rather, by a lack of adequate cybersecurity across a rapidly digitizing economy. COVID-19 accelerated the digitization of workspaces and data; unfortunately, America's cyber hygiene has not kept up. The analytics capabilities of blockchain and increased partnerships between Chamber members and law enforcement, however, is proving effective in tracking down perpetrators of ransomware and other criminal activities. The Chamber, recognizing the need to support law enforcement agencies and fostering relationships between law enforcement and industry, co-founded the Blockchain Alliance, a public-private forum between U.S. and international law enforcement agencies and innovators.

It is important to understand that ransomware is not a new phenomenon. The first documented ransomware attack took place in 1989,[21] and in the early 2000s – long before the first bitcoin was mined – criminal organizations began to leverage ransomware.[22] Ransomware payments have taken many forms over the past few decades, including wire transfers, prepaid debit cards, gift cards, cash payments, and other forms of value.[23] The use of digital assets is unfortunately just the newest iteration of this scheme.

Unlike previous means of payment used in ransomware attacks, however, digital assets make it possible to track ransomware payments. This characteristic was made clear in the aftermath of the recent ransomware attack on Colonial Pipeline. Using blockchain analytics tools, the FBI tracked the flow of funds from Colonial Pipeline to the cybercriminals and then seized the funds.[24] Thanks in large part to the sophisticated blockchain analytics technologies of such Chamber members as Chainalysis and TRM Labs, as one FBI field agent told *The Wall Street Journal,* "You can't hide behind cryptocurrency."[25]

This transparency is likely a contributing factor to why cryptocurrency is not a preferred medium for financial crime. Overall, digital asset-related transactions represent a very small fraction of total financial crime. The United Nations estimates that the amount of money laundered globally in one year is 2% to 5% of global GDP, or $800 billion to $2 trillion in current U.S. dollars.[26] By comparison, illicit activity comprised just 0.05% of digital asset transaction volume.[27] This is an infinitesimal percent of global GDP. Illicit actors will always attempt to use cutting-edge technology to facilitate financial crime; however, money laundering via digital asset payments is not common.

Myth B: Digital assets – and those who issue/trade digital assets – create a systemic risk in the U.S. financial system – FALSE

The President's Working Group on Financial Markets has suggested that there may be a role for the Financial Stability Oversight Council (FSOC) to determine the systemic risk associated with stablecoins, a type of digital asset.

Digital asset trading volume and market capitalization demonstrate that digital assets do not currently pose systemic risk to the market. On any given day, the largest U.S. digital asset trading

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[21] Danny Palmer, "30 years of ransomware: How one bizarre attack laid the foundations for the malware taking over the world," *ZDNet*, December 19, 2019.
[22] Fabio Palozza, "The Origin of Ransomware and Its Impact on Businesses," *Radware Blog*, October 4, 2018.
[23] J.P. Koning, "Fighting Ransomware Doesn't Require Banning Cryptocurrency," *American Institute for Economic Research*, May 29, 2021.
[24] David Uberti, "How the FBI Got Colonial Pipeline's Ransom Money Back," *The Wall Street Journal*, June 11, 2021.
[25] *Ibid.*
[26] "Money Laundering," *United Nations Office of Drug & Crime*, accessed November 3, 2021.
[27] Crypto Crime Trends for 2022: Illicit Transaction Activity Reaches All-Time High in Value, All-Time Low in Share of All Cryptocurrency Activity, *Chainalysis,* January 6, 2022. *See also* DeFi Takes on Bigger Role in Money Laundering But Small Group of Centralized Services Still Dominate - Chainalysis

platform typically experiences around 1% of the trading volume of Nasdaq, the largest U.S. stock exchange.[28]

Measuring by asset size also underscores that U.S. cryptocurrency activity poses no systemic risk. The balance sheet of the largest digital asset trading platform is $15.9 billion, about the size of a community bank. For comparison, the balance sheet of the largest U.S. bank is $2.5 trillion.[29] U.S. digital asset companies are also not leveraged to the degree of commercial banks.

Some point to digital asset market volatility as a cause for concern. Just as with the volatility in the traditional stock market, bitcoin and other digital asset price volatility does not pose a systemic risk resulting in firm failures or bankruptcy.

Myth C: The digital asset industry is fraught with unregulated speculation and fraud - FALSE

The digital asset industry is regulated at both the Federal and State levels. At the Federal level, depending on the type of digital asset and its use, a number of financial regulators have digital assets in their jurisdiction. For the discussion today, I will focus on the role of the Commodity Futures Trading Commission (CFTC).

The CFTC has deemed the digital assets bitcoin and ether as commodities and as such, pursuant to the Commodity Exchange Act, has regulatory authority over derivatives products and those market participants that touch such products, including designated contract markets and swap execution facilities. Additionally, the CFTC has fraud and anti-manipulation enforcement authority over the spot market for commodities,[30] which include bitcoin and ether. Moreover, digital asset exchanges and stablecoin providers are also subject to State-level money transmitter and payments laws. Many cryptocurrency businesses are also required to register and report to the Financial Crimes Enforcement Network (FinCEN) as money services businesses.[31] In addition, digital asset exchanges and digital asset issuers are required to comply with State and Federal consumer protection laws. The U.S. Securities and Exchange Commission (SEC) has also asserted that a variety of digital assets are unregistered securities offerings, and thus subject to SEC jurisdiction.

The issue is not a *lack* of regulation, but rather a *disjointed* regulatory approach without clear rules of the road. This problem and proposed solutions are set forth in more detail in sections IV, V, and VI of my testimony.

Myth D: Digital assets – and in particular – the creation of digital assets on blockchain harm the environment - FALSE

Like the traditional financial industry, ensuring the functionality and integrity of the Bitcoin network and other proof-of-work blockchains require energy use. However, digital asset mining

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[28] Daily trading volume data is for Coinbase was retrieved from nomics and NasdaqTrader.com for Nasdaq.
[29] Balance sheet data retrieved from Investing.com for Coinbase and the Federal Reserve Board for JPMorganChase
[30] "CFTC Jurisdiction Over Cryptocurrency – Implications for Industry Participants," *White & Case*, November 12, 2019.
[31] *Ibid.*

brings with it an opportunity that the United States should not overlook. Namely, digital asset mining is helping spur sustainable energy practices, accelerating and funding the transition to renewable energy, and offering economic revitalization to underserved rural areas.

In 2020 bitcoin mining was estimated to use 188 terawatts of power, which is about 0.122% of global energy consumption. According to the Bitcoin Mining Council, 58.5% of the industry's energy use comes from sustainable sources; no other industry comes close to such an energy mix – bitcoin mining is one of the most sustainable industries in the world today.[32]

For comparison, in 2020 renewable energy sources accounted for about 12% of total energy consumption in the United States.[33] Much of the growth in market share for renewables for digital asset mining can be attributed to a recent exodus from China to the United States, resulting in a rapid increase of sustainable energy use due to bitcoin mining in the U.S. If we do not take advantage of this opportunity in the United States, other less developed countries will allow digital mining with more emissions and far less oversight.

The growth of bitcoin mining in the U.S. will accelerate the adoption of renewable power generation. Utilities have a greater incentive to invest in solar and wind energy when they know that they will have a consistent customer in a bitcoin miner. As well, unlike other energy consumers, bitcoin miners can power down when the grid is experiencing strain, and power up when the grid has excess load from renewables. This ability leads to less wasted energy, better grid management on extreme load cases, enough bitcoin mining revenue for utilities to continue developing and adopting renewables, and reduced costs from efficiencies derived from higher base loads.

Bitcoin miners are also helping reduce waste and carbon emissions in fossil fuel industries. For example, bitcoin miners are relocating to oil fields to use natural gas that drillers are unable to transport and typically vent into the atmosphere as methane in a process called "flaring."[34] Methane is a much more powerful greenhouse gas than carbon (25x worse), and reducing the practice of flaring helps lessen the environmental impact of drilling.[35] Pressure from government and the private sector to reduce carbon emissions overall will likely continue to propel bitcoin miners to innovate and seek out renewable and lower carbon-intensive energy sources.

Digital asset mining has also helped create new jobs in states across the country, including Washington, North Carolina, Montana, Oklahoma, New York, South Carolina, Pennsylvania, Georgia, Kentucky, Ohio, Texas, and North Dakota.[36] In many cases, mining companies have

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[32] "Q4 Bitcoin Mining Council Survey Confirms Improvements in Sustainable Power Mix and Technological Efficiency," *Bitcoin Mining Council,* 2022.
[33] "How much of U.S. energy consumption and electricity generation comes from renewable energy sources?," U.S. Energy Information Administration, last modified May 14, 2021.
[34] Laila Kearney, "Oil drillers and Bitcoin miners bond over natural gas," *Reuters*, May 21, 2021.
[35] "Bitcoin miners help US oil producers cut flaring," *Argus*, October 8, 2021.
[36] Taras Kulyk, "Mining Digital Assets Creates Opportunities For Institutional Investors And Communities Alike," *Core Scientific*, March 9, 2021.

chosen to locate operations in areas devastated by deindustrialization and in rural communities, helping reinvigorate those local economies.[37]

Bitcoin is a global network, and bitcoin mining is not going away. If the U.S. implements policies to limit or inhibit bitcoin mining, then miners will be driven to other countries. Non-U.S. mining locations will likely have a higher share of fossil fuels as part of their energy mix, and less oversight over emissions.

With appropriate policies, the United States has the opportunity to be a world leader in supporting an industry that will underpin the evolution of financial services infrastructure, while helping propel advances in sustainable energy.

IV. The Current U.S. Regulatory Landscape is Fragmented

There is no single federal regulator of digital assets in the United States, nor any one, cohesive regulatory approach. Instead, there exists a panoply of federal regulators with some interest and role in this exciting new industry. Unfortunately, each of these regulators views the industry through its own unique lens and in the context of its own set of statutes and regulations. Even worse, under the current "regulation by enforcement" paradigm, there is often a lack of clarity regarding how rules of the road are applied.

Some digital asset regulators police fraud and market integrity, such as the SEC and the CFTC. Then there are consumer protection regulators, such as the Consumer Financial Protection Bureau (CFPB) and the Federal Trade Commission (FTC). There are also banking regulators, such as the Board of Governors of the Federal Reserve System (FRB), the Office of the Comptroller of the Currency (OCC), and the Federal Deposit Insurance Corporation (FDIC).

Another category of regulators on the federal level consists of anti-crime organizations, such as the Department of the Treasury's Financial Crimes Enforcement Network (FinCEN) and the Department of Justice (DOJ). There are also federal-level organizations, such as the Federal Financial Institutions Examination Council (FFIEC), the Financial Stability Oversight Council (FSOC), and the President's Working Group on Financial Markets (PWG), that are intended to coordinate the efforts of the many regulators listed above. On top of all of this, there are also a number of state-level regulators and laws.

As the digital asset industry has evolved, various regulators have put out guidance, rules, and enforcement actions that are sometimes divergent or conflict from prior actions and/or those of

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[37] Matthew De Saro, "Ponderay Newsprint Mill Reopens as Crypto Mining Operation," *Beincrypto*, last modified September 16, 2021. Kate Rooney, "An old Alcoa plant in Upstate New York is going to be converted into one of the world's largest bitcoin mining centers," *CNBC*, June 5, 2018

other regulators. In my testimony, I will focus primarily on the regulation applied to digital assets by the CFTC and the SEC, as well as a very brief discussion of other State and Federal regulation.

A. CFTC

The Commodity Exchange Act (CEA) broadly defines a "commodity" as, among other things, "all services, rights, and interests in which contracts for future delivery are presently or in the future dealt in." Through regulatory approvals, statements, and its enforcement posture, the CFTC has made clear that it views bitcoin and ether, the two largest digital assets by market capitalization, to be commodities for purposes of CFTC regulation.

In a 2015 enforcement action against Coinflip Inc., the CFTC explained that "Bitcoin and other virtual currencies are encompassed in the definition and properly defined as commodities."[38] This made the CFTC one of the first regulators to define virtual currencies and assert jurisdiction over them.

In December 2017, the CFTC permitted the CBOE Holdings, Inc., and the CME, both CFTC-regulated exchanges, to list futures contracts with bitcoin as the underlying commodity. In October 2019, then-Chairman Heath Tartbert explained that "[w]e haven't said anything about ether – until now. It is my view as Chairman of the CFTC that ether is a commodity, and therefore it will be regulated under the CEA. And my guess is that you will see, in the near future, ether-related futures contracts and other derivatives potentially traded . . . It's my conclusion as Chairman of the CFTC that ether is a commodity and therefore would fall under our jurisdiction."[39]

Soon thereafter, CFTC-regulated exchange ErisX listed an ether futures product, followed shortly by CME's own exchange-traded ether futures product.[40] As a result, today's CFTC's oversight and enforcement authorities cover a significant portion of the digital assets market. The total market cap of all digital assets, including stablecoins is approximately $1.86 trillion. Notably, bitcoin represents $734.2 billion and ether represents $333.1 billion of that $1.86 trillion, or 57.4% of that market cap. By comparison, the next-largest market cap digital asset is the U.S. Dollar-based stablecoin Tether, which makes up $77.98 billion.

B. SEC

Over time, the SEC has brought enforcement cases alleging that certain digital assets are securities for purposes of asserting enforcement jurisdiction. Unlike the CFTC, however, which has specifically stated that certain digital assets fall squarely in its regulatory jurisdiction, the SEC has not provided a list of tokens it deems to be securities and has instead stated that digital assets require a "facts and circumstances" approach to determining if a digital asset qualifies as an "investment contract" under the *Howey* Test. The first time the SEC weighed in with definitive views on whether or not a particular digital asset might be a security was in its July 2017 report on

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[38] See Order: Coinflip, Inc., d/b/a Derivabit, et al

[39] IN CASE YOU MISSED IT: Chairman Tarbert Comments on Cryptocurrency Regulation at Yahoo! Finance All Markets Summit | CFTC CFTC Press Release Number 8051-19, October 10, 2019

[40] Nikhilesh De, ErisX Announces Launch of First US Ether Futures Contracts – CoinDesk, CoinDesk, May 11, 2020

an investigation of "The DAO" pursuant to Section 21(a) of the Securities Exchange Act of 1934 (the "Dao Report").[41] The SEC explained, in part, that so-called "DAO Tokens" were securities because these tokens gave holders voting rights and a right to distribution of profits.

After the DAO Report, the SEC made several similar statements, and SEC staff has provided guidance on determining the applicability of securities laws to digital assets.[42] These statements and staff guidance have focused on the applicability of securities laws to initial coin offerings (ICOs).

In 2018, the SEC addressed the issue of ether as a commodity in a speech from William Hinman, the Director of the SEC Division of Corporation Finance. Director Hinman explained, "The network on which bitcoin functions is operational and appears to have been decentralized for some time, perhaps from inception. Applying the disclosure regime of the federal securities laws to the offer and resale of bitcoin would seem to add little value."[43] He went on to explain, "putting aside the fundraising that accompanied the creation of Ether, based on my understanding of the present state of Ether, the Ethereum network and its decentralized structure, current offers and sales of Ether are not securities transactions. And, as with bitcoin, applying the disclosure regime of the federal securities laws to current transactions in Ether would seem to add little value. Over time, there may be other sufficiently decentralized networks and systems where regulating the tokens or coins that function on them as securities may not be required."[44]

Based on Director Hinman's remarks, it would appear that something that might start life as a security could, over time, become sufficiently decentralized as to no longer be deemed a security. Hinman explained that there is a path by which:

> "[A]a digital asset transaction may no longer represent a security offering. If the network on which the token or coin is to function is sufficiently decentralized – where purchasers would no longer reasonably expect a person or group to carry out essential managerial or entrepreneurial efforts – the assets may not represent an investment contract. Moreover, when the efforts of the third party are no longer a key factor for determining the enterprise's success, material information asymmetries recede. As a network becomes truly decentralized, the ability to identify an issuer or promoter to make the requisite disclosures becomes difficult, and less meaningful."[45]

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[41] Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO.

[42] *See e.g.* Investor Bulletin: Initial Coin Offerings (July 25, 2017), *available at* Investor Bulletin: Initial Coin Offerings: "Depending on the facts and circumstances of each individual ICO, the virtual coins or tokens that are offered or sold may be securities." See also "Framework for "Investment Contract" Analysis of Digital Assets," (April 3, 2019) available at: https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets. This staff statement represents staff views and is not a rule, regulation, or statement of the Commission.

[43] William Hinman, Digital Asset Transactions: When Howey Met Gary (Plastic), Remarks at the Yahoo Finance All Markets Summit: Crypto, SEC Website June 14, 2018.

[44] *Ibid.*

[45] *Ibid.*

SEC activity related to digital assets increased dramatically last year and throughout 2021 SEC Commissioner Hester Peirce, as well as then-SEC Commissioner Elad Roisman, criticized the lack of clarity in SEC guidance with respect to the application of securities laws to digital assets. In a statement regarding an SEC settlement with Blotics, Ltd., the two Commissioners stated that "[a]lthough the Commission staff has provided some guidance, the large number of factors and absence of weighting cut against the clarity the guidance was intended to offer." In the absence of clear guidance, Commissioners Peirce and Roisman argued that "litigated and settled Commission enforcement actions have become the go-to source of guidance." The Commissioners observed that "people can study the specifics of token offerings that become the subject of enforcement actions and take clues from particular cases; however, applying those clues to the facts of a completely different token offering does not necessarily produce clear answers. Providing guidance piecemeal through enforcement actions is not the best way to move forward."[46] While the views of individual Commissioners do not reflect the views of the SEC, these views do reflect a lack of consensus within the Commission as to how digital assets should be regulated.

C. Other Financial Regulators

Below is a high-level summary of the other financial regulators and their roles in regulating digital assets.

FinCEN

FinCEN regulates, among other things, "money services businesses" (MSBs) that transmit or convert money under the Bank Secrecy Act (BSA). Entities that qualify as "exchangers" or "administrators" of "currencies" or "convertible virtual currencies" must comply with the BSA and the regulations promulgated thereunder. In short, while the CFTC treats such digital assets as bitcoin and ether as commodities, and the SEC views many digital assets as securities, FinCEN often treats these same digital assets as currency for purposes of determining if a money service business must comply with its regulations.[47]

IRS

For federal tax purposes, rather than being treated as currency, the IRS treats virtual currency as property. General tax principles applicable to property transactions apply to transactions using virtual currency.[48]

Federal Reserve System

The Federal Reserve System has been studying the role of stablecoins and central bank digital currencies (CBDC) in the economy. The Federal Reserve System runs national payments rails,

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[46] See statement of SEC Commissioners Hester M. Peirce and Elad L. Roisman *In the Matter of Coinschedule*, July 14, 2021 https://www.sec.gov/news/public-statement/peirce-roisman-coinschedule.

[47] FIN-2013-G001, "Application of FinCEN's Regulations to Persons Administering, Exchanging, or Using Virtual Currencies," (March 18, 2013) at https://www.fincen.gov/sites/default/files/shared/FIN-2013-G001.pdf (2013 FinCEN Guidance).

[48] IRS Notice 2014-21, https://www.irs.gov/pub/irs-drop/n-14-21.pdf

such as Fedwire, and has the authority to allow state-chartered financial institutions access to these networks. Although Wyoming-chartered institutions have applied for such access, the Federal Reserve System has yet to approve their applications.

Office of the Comptroller of the Currency (OCC)

A number of other federal regulators have issued a patchwork of inconsistent guidance for digital assets. For instance, the OCC issued a series of Interpretive Letters suggesting that banks were authorized to engage in the custody of digital assets and payments that use certain digital assets. Shortly thereafter, when the new Acting Comptroller took over the OCC, that authority was pulled back and not permitted absent express permission from the OCC.[49]

State Regulators

State financial-services agencies have also issued rules and regulations to varying degrees. Licensing and bonding are required in some states for the exchange of fiat and digital currency. Some states have revised regulations to incorporate digital currency, and some states have produced guidance for digital currency businesses. The New York Department of Financial Services requires companies doing certain types of digital currency business in the State of New York to apply for a Bitlicense, and most states have some form of Money Transmitter License requirement for people handling payments and exchanges of digital assets in their states. Some states also have varying consumer protection and tax laws or regulations that apply to digital asset activities within the state.

V. Risks to the United States

As explained above, the current regulatory framework for digital assets is disjointed. The risks to the United States from this lack of cohesion have already begun to crystallize as companies use regulatory arbitrage to find more friendly countries. The lack of a cohesive national plan has led a number of U.S. companies and investors to take their innovations and capital to other jurisdictions where they have more regulatory certainty and innovation-friendly laws. There are also national security implications: when activity occurs offshore, it is harder to monitor, detect, prevent, and prosecute illicit activity.

The U.S. "won" the Internet in its early days because President Clinton issued a directive to Executive branch agencies to make clear that regulators should be technology neutral, support private sector-driven solutions, and promote industry-led self-regulation. This approach paved the way for one of the greatest drivers of American innovation and prosperity in generations. As I mentioned above, blockchain is a continuation of the Internet revolution – an economic engine that will bring tremendous prosperity to society if it is allowed to flourish and enable the Internet to reach its full potential. Absent a better approach to the regulation of digital assets, we will likely

[49] Office of the Comptroller of the Currency News Release 2021-121, https://www.occ.gov/news-issuances/news-releases/2021/nr-occ-2021-121.html, November 23, 2021.

watch much of the economic activity occur outside of our borders, thereby forfeiting the bounty of new jobs, new companies, and more tax revenue.

VI. Solutions

National Action Plan for Blockchain

In February 2019, the Chamber of Digital Commerce introduced a National Action Plan for Blockchain.[50] The Chamber is calling on the highest levels of the U.S. government to embrace a comprehensive, national strategy for blockchain. The plan proposes that the U.S. approach blockchain technology with clearly articulated support to encourage the private sector development and innovation required of emerging industries.

The National Action Plan's proposed guiding principles for government are:

1. Encourage development by the private sector;
2. Adopt a regulatory approach that does no harm while the industry establishes key innovations, bringing enforcement actions against clear violations of law;
3. Clear and established policies and regulations set prior to enforcement;
4. Any regulation should be based on the function performed, not the technology;
5. Prevent regulatory patchwork;
6. Any necessary regulation or law should be clear, predictable, and developed with future innovation in mind;
7. Study and understand the unique attributes of blockchain technology and digital assets; and
8. Establish an office that coordinates U.S. blockchain strategy going forward.

We note recent reports that the Biden administration intends to issue an executive order that may address the regulation of digital assets, and we hope that the administration will consider our Action Plan recommendations.

Regulatory Clarity

In addition to our National Action Plan for Blockchain, the Chamber supports a number of initiatives aimed at achieving greater regulatory clarity for the digital assets industry.

Joint Working Group

We have called for the creation of a joint CFTC, SEC, and industry working group to promote a more harmonious regulatory approach, and we are pleased to see and support recent bipartisan legislation and encourage further collaboration to that end.

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[50] Chamber of Digital Commerce, National Action For Blockchain, February 2019

The U.S. Needs a Lead Regulator

Given the fragmented nature of the U.S. regulatory landscape and the risk of "not getting it right," we recommend that there be one lead regulator for digital assets. To be clear, the lead regulator need not be the only regulator for digital assets market activity; where appropriate, other regulators could be primarily responsible for certain subsets of the digital assets marketplace. There are many examples where multiple regulators have jurisdiction over different aspects of an industry, but one regulator takes the lead. For example, the CFTC and the USDA both have some oversight and jurisdiction over different aspects of agricultural commodities. This approach can eliminate unnecessary regulatory burdens, provide a comprehensive regulatory approach, and help centralize regulatory expertise.

One existing regulator that could be well-positioned to take up the role of a lead regulator is the CFTC. In fact, during his confirmation hearing, then-Acting Chairman Rostin Benham highlighted his role in regulating this significant portion of the market:

> "This is the tip of the iceberg . . . As of yesterday, the total size of the digital asset market was $2.7 trillion. Among that $2.7 trillion, nearly 60% were commodities [...] given the size, the scope and the scale of this emerging market, how it's interfacing and affecting retail customers, and with the scale of the growth being so rapid, potential financial stability risks in the future, I think it's critically important to have a primary cop on the beat."

I will focus the remainder of my comments today on why we believe the CFTC can lead, as I assume this Committee will be most interested, given your direct oversight of the Commission.

The CFTC is a market regulator with a long history of taking on the regulation of new and innovative products. The first CFTC-regulated exchanges listed agricultural commodity-based products. It would be hard to imagine back then that these same exchanges would be listing contracts based on foreign currency, interest rates, the S&P 500, volatility indexes, bitcoin, or ether. The CFTC already regulates a large swath of the digital assets market. As noted above, bitcoin and ether, which make up the majority of the value in the digital asset industry, are the underlying commodities for regulated futures contracts, and the CFTC has spot market anti-fraud and anti-manipulation enforcement authority as well (albeit somewhat limited).

The CFTC also has a history of vetting and approving new types of exchanges to trade new, innovative products, including climate, interest rate, event contracts and most recently, digital assets. Given that the CFTC has already reviewed and approved a number of exchanges that focus on digital asset-based products, it already has a great deal of regulatory expertise to bring to bear.

Another supporting consideration is the CFTC's principles-based regime that has, as part of its mission, a mandate to promote responsible innovation and competition in the marketplace. A principles-based model is especially effective in the regulation of a new asset class or technology because it allows the regulator to set out the desired regulatory outcomes, but gives the market flexibility to innovate in how those outcomes are achieved.

The CFTC has long been a proponent of innovation, leading the charge among federal financial agencies in creating an innovation office: In 2017, the CFTC created LabCFTC to serve as a gateway for innovators and to ensure that responsible innovation continues to grow.

The CFTC's long history of working cooperatively with other regulators is another important consideration. The CFTC has a history of coordinating and cooperating with the USDA (on agriculture products), FERC (on electricity products), EPA (on environmental products), the SEC (on securities-based products), and other regulators. The CFTC has also developed a robust regime of coordination and mutual recognition with foreign regulators, something that is crucial given the ease with which digital assets can be moved across jurisdictions. We believe a cooperative approach with the SEC and other regulators will be necessary to effectively regulate the digital asset industry and that the CFTC is well positioned in this regard.

Most importantly, the CFTC has a strong and robust enforcement program, with experience in successfully enforcing cases of fraud, market manipulation, and other illegal activity. A good example of this is the CFTC's experience in dealing with retail foreign currency fraud. In the late 1990s and early 2000s, the CFTC saw a raft of retail foreign currency scams and undertook a significant number of cases to weed out fraudsters and protect retail customers. However, there was a lack of legal clarity for the CFTC's regulatory jurisdiction over certain leveraged spot transactions. Congress took action and gave the CFTC the authority it needed to fully police this market in the 2008 amendments to the Commodity Exchange Act.

VII. Conclusion

With an appropriate and clear policy and regulatory framework, digital assets and blockchain have the great potential to usher in a new era of innovation and economic opportunity for the U.S., businesses and consumers. But to achieve this, it is crucial that the U.S. maintain its leadership of this industry, and that will require a coordinated, national approach and a lead regulator. The Chamber of Digital Commerce believes that with the proper tools and legislative authority, an agency like the CFTC could be both the regulator to promote American innovation and a tough cop on the beat. Of course, for this all to work, Congress will need to carefully delineate the role other regulators play in the digital assets marketplace. The Chamber looks forward to working with Congress, and with you specifically, in achieving such clarity, and to carefully determine and craft the appropriate regulatory structure for the digital assets industry.

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Senate Committee on Agriculture, Nutrition, and Forestry
Examining Digital Assets: Risks, Regulation, and Innovation

February 9, 2022

Written Statement of Kevin Werbach

Chair Stabenow, Ranking Member Boozman, and members of the committee:

Thank you for the opportunity to speak before you at this hearing. I am the Liem Sioe Liong/First Pacific Company Professor, and Chair of the Department of Legal Studies & Business Ethics at The Wharton School, University of Pennsylvania. There I direct the Wharton Blockchain and Digital Asset Project, and since 2017, I have hosted the Wharton Reg@Tech Roundtable, which brings together academics, industry legal experts, and regulators from across the federal government, as well as Europe and Asia, to discuss public policy questions around digital assets. My book, *The Blockchain and the New Architecture of Trust*, was published in 2018 by MIT Press. I am the Academic Director of Wharton's online executive education program on Economics of Blockchain and Digital Assets.

I. Introduction

This is an important time for Congress to get up to speed on the rapidly-developing markets around digital assets and cryptocurrencies. I do not need to tell you that over the past two years, there has a been a boom in digital asset trading activity, sales of non-fungible tokens (NFTs), decentralized finance (DeFi) market development, and broader institutional and governmental adoption of digital assets around the world.

These are exciting developments, with the potential to revolutionize finance, improve equity in sectors across the economy, increase efficiency in virtually every industry, promote privacy and individual freedoms, and broadly create more competitive, fair, and transparent markets. I emphasize, though, the word "potential." Trading activity in cryptocurrencies is not the same thing as realization of the dream of Web3, the much-discussed vision that decentralized blockchain-based solutions will replace existing tech platforms, media firms, financial services companies, and other traditional organizations. Holdings of major digital assets such as bitcoin

are actually highly concentrated today,[1] with intermediaries occupying important roles in most transactions. Many of the practical benefits of digital assets and blockchain remain uncertain, and there are serious limitations and risks that should not be ignored. Policy-makers and the regulators they oversee, such as the Commodity Futures Trading Commission (CFTC) that falls within the jurisdiction of this committee, must carefully evaluate both benefits and dangers, as well as the range of tools they have at their disposal.

I recently testified before the Joint Economic Committee on related topics. Because my written statement for that hearing provides an extensive discussion about the regulatory landscape for digital assets and DeFi, I have attached it for inclusion in the record rather than repeat myself here.

In the remainder of this statement, I will address four issues:

- What exactly are digital assets?
- How should we think about regulating them?
- What are some of the major risks to be concerned about?
- What can we learn from the development of internet regulation?

To cut to the chase, regulation of digital assets is essential. Consideration of how best to create effective oversight for these markets is urgent. The reason for regulation is not to stop the development of innovative new technologies; to the contrary, it is to facilitate their long-term success. American financial markets are the envy of the world not only because of their dynamism, but because they are trustworthy. Effective oversight gives firms room to innovate while policing abuses, market failures, and hidden risks. To reach its potential, the digital asset sector must address concerns about investor protection, financial crime, tax compliance, and financial stability, among other important topics. This hearing, and others addressing different parts of the financial regulatory regime, are important steps in that process.

II. What are Digital Assets?

Blockchain technology is difficult for most people to understand. How can a ledger of transactions operate without anyone in charge? How can a valuable asset appear seemingly out of nowhere? Why are there so many digital assets, and how can one evaluate what any of them are really worth? Is this just a new category of speculative investments, or something more?

The first point to make is that, while the technical foundations of digital assets are important, everyone involved in using or trading them doesn't need to be versed in the intricacies of proof-of-stake consensus or zero-knowledge proofs. Most people do not understand the packet-

[1] *See* Igor Makarov & Antoinette Schoar, Blockchain Analysis of the Bitcoin Market, NBER Working Paper 29396 (Oct. 2021).

switched networking protocols or the decentralized routing architecture of the internet either. Yet we happily use it every day.

The digital asset world may seem exotic, but the basic concepts are familiar:[2]

- An **asset** is something of value. Many things can function as assets, some of which have other uses (for example, oil or houses).
- Some assets are **currencies**, which are used as money (dollars or Euros, but also many other kinds of goods throughout history).
- Some assets are **fungible**, meaning that each one is equivalent to another (a poster of the Mona Lisa). Some are **non-fungible**, meaning they are unique (the Mona Lisa itself).
- **Tokens** are representations of value, such as ten-dollar bills, poker chips, or title to a home. Their value comes from the association of the token with the underlying assets. Traditionally, that association is established by centralized entities, such as banks and merchants, and by governments through the legal system.

Each of these has an equivalent for digital assets:

- A **digital asset** is something of value that is represented on a blockchain.
- Some digital assets are **cryptocurrencies**, which are usable as money (bitcoin, USDC). Like traditional currencies, they can serve other functions as well, such as being traded by investors.
- Some digital assets are **fungible** (ether, XRP), while others are unique and therefore **non-fungible** (Cryptopunks, fighting pets in the game Axie Infinity).
- **Tokens** are still representations of value, but their connection to the underlying digital asset is established by their presence as valid transactions on the blockchain ledger. An NFT, for example, has a unique ownership identifier on the blockchain that effectively cannot be duplicated, even if the image file associated with it is trivial to copy.

In addition to representing assets, blockchains can execute software code, known as **smart contracts**. That code can be embedded in a token, so that, for example, an NFT performs functions or changes based on certain triggers. Smart contracts can also function as software applications that interact with tokens. DeFi, for example, is made up of smart contracts that execute financial transactions such as trading and lending directly on a blockchain.

I describe blockchain, as, according to the title of my book, an "architecture of trust."[3] Trust is essential for society, and it is essential for finance. I hand my credit card to a server in a restaurant, or transfer my funds to an application such as Paypal or Square, because I trust them. Trust is not certainty. It is confidence despite some residual vulnerability. Blockchain diffuses the trust that previously resided in a central entity. This allows for the removal of intermediaries that typically add cost, delay, or serve their own interests. It means that ownership can be

[2] The definitions provided here are general descriptions, and not intended to imply any regulatory classifications. Terms such as "currency" or "commodity" have particular meanings under relevant statutes.

[3] Kevin Werbach, The Blockchain and the New Architecture of Trust (2018).

established without reliance on third parties, because transactions are cryptographically secured on the blockchain ledger.

However, this does not mean that trust goes away. On the contrary, digital assets require trust. A Bored Ape Yacht Club NFT would not be worth hundreds of thousands of dollars if prospective buyers thought it could easily be duplicated or was not authentic. Moreover, the absence of centralized trust creates burdens as well. If you lose (or someone steals) the private cryptographic keys associated with your digital assets, those assets are effectively gone. No one has the power to bring them back. Banks and other large financial institutions may be comfortable with sophisticated custody arrangements to protect bearer assets, but most individual investors and businesses aren't.

Various mechanisms are being developed to protect digital asset holders, including specialized custody solutions. However, they generally involve tradeoffs of security, decentralization, or ease-of-use. Digital asset exchanges such as Coinbase and FTX generally take custody of users' assets, similar to traditional broker-dealers and exchanges.[4] There are also efficiencies of central intermediaries, which can manage order books, cross-margining, liquidity provision, and other mechanisms to facilitate trading. And the more carefully one examines digital asset and DeFi markets, the more points of trust (or opportunities for untrustworthy behavior) appear.

The fact that cryptocurrencies such as bitcoin and ether have escalated so dramatically in value and generated so much mainstream interest is testimony to their success in generating trust. This is a remarkable accomplishment for permissionless decentralized systems. However, we must also recognize that markets in which prices skyrocket out of proportion to economic realities amid a frenzy of popular interest are not sustainable; they are bubbles. A bubble will not necessarily go to zero when it bursts. In fact, as the economist Carlota Perez has documented, bubbles may be a necessary stage in in the alchemy of technological innovation and financial capital.[5] However, the behaviors in a bubble bear little relationship to those before and after. The fact that millions of people are trading digital assets, buying NFTs, and participating in complex yield-generating activities through DeFi may be evidence of a generational shift in investor behavior and methods of capital formation, or it may be a game of musical chairs that collapses at some unpredictable moment. It could well be both. We should not dismiss the potential benefits of digital assets. Neither should we ignore the potential dangers they may introduce.

The potential, and the danger, are greater than for most financial innovations because digital assets are more than just trusted representations of value. They are repositories of smart contract software code. This means that digital assets can be the foundations for virtually any kind of software service or application, with programmable financial flows natively incorporated. The vision of Web3 is that the centralized internet platforms will be replaced by these decentralized

[4] DeFi protocols are non-custodial, but this creates other problems. *See* World Economic Forum and Wharton Blockchain and Digital Asset Project, *Decentralized Finance (DeFi) Policy-Maker Toolkit* (2021), https://www.weforum.org/whitepapers/decentralized-finance-defi-policy-maker-toolkit.

[5] *See* CARLOTA PEREZ, TECHNOLOGICAL REVOLUTIONS AND FINANCIAL CAPITAL (2002).

blockchain-based applications, in which users rather than service providers own the essential assets and information.

I generally talk about four major categories of applications for blockchain technology and digital assets: Transacting, Trading, Tracking, and Trust-Minimizing.[6]

- **Transacting** means payments. The original rationale for Bitcoin, the first digital asset platform and still the most valuable cryptocurrency, was as a decentralized form of money not issued by any government. Today there are many firms that accept bitcoin and other cryptocurrencies, largely for symbolic reasons, but the benefits in the United States compared to modern digital tools such as PayPal, Venmo, Square, and Apple Pay remain unproven. Digital assets and blockchain have greater potential to improve wholesale and inter-bank payments, including through the use of stablecoins and central bank digital currencies. Many questions remain, however, for development of such systems.[7]

- **Trading** means using considering digital assets as a new financial asset class, subject to investment directly and through various forms of derivatives. This is the area where adoption has been the most significant. The total value of traded digital assets exceeded $2 trillion at its recent peak. Over the past two years, DeFi and NFT markets have also grown rapidly, offering a variety of other investment and yield-generation opportunities. Markets have tended to be highly volatile, and the short track record of this asset class makes it difficult to generalize about its performance. External factors such as the post-2008 bull market in equities and the economic stimulus in response to the Covid-19 pandemic may also be impacting digital asset markets.

- **Tracking** means using blockchain ledgers to securely follow flows of goods and services. Most of the world's largest enterprises have been experimenting for several years with blockchain-based systems for provenance, supply chains, and related tracking applications. These systems may use NFTs to represent unique assets, but their objective is to improve efficiency, accuracy, and robustness of cross-organizational business processes, not to generate investment profits.

- **Trust-minimizing** means creating software applications that replace centralized systems with decentralized ones based around digital assets. This is essentially the concept of Web3: an internet that empowers individuals and dilutes the power of dominant technology platforms. A plethora of decentralized applications (dApps) running on smart

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[6] An earlier version of this framework was presented in Kevin Werbach, *Blockchain Isn't a Revolution: It's Two Big Innovations and One Promising Idea*, Medium (June 18, 2018), https://medium.com/s/story/blockchain-isnt-a-revolution-it-s-two-big-innovations-and-one-promising-idea-988fca6b0fca.

[7] *See* U.S. Department of the Treasury, President's Working Group on Financial Markets Releases Report and Recommendations on Stablecoins (Nov. 1, 2021), https://home.treasury.gov/news/press-releases/jy0454; Federal Reserve, Money and Payments: The U.S. Dollar in the Age of Digital Transformation (Jan. 2022), https://www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf.

> contracts are being created for a wide variety of use cases. Technical challenges of performance, security, and interoperability remain significant, however. Just because something can be done in a decentralized way does not mean it will succeed against established platforms enjoying strong network effects or scale economies. And it is sometimes difficult to disentangle whether a system is oriented toward trust minimization or increasing the value of tokens. This remains both the most exciting category of blockchain activity long-term, and the most uncertain.

Regardless of the application, there are two halves to the blockchain story that must always be taken into account. On the positive side, there is no computerized activity that, in theory, a blockchain cannot do. Based on fundamental computer science and cryptography, anything we can do with software might someday be done with a blockchain. Although there are many serious hurdles regarding performance, security, and interoperability, this is a tremendously exciting prospect. On the other side of the coin, nothing that can be done with a blockchain could not, in theory, be done with a traditional centralized database. That database would require trust in a central actor, but in terms of the application functionality, a blockchain is just a particular data structure. The question, therefore, is why something *should* be built on blockchain foundations, or would only be built that way in practice. Outside of trading activity, there are still too few examples in production at scale which pass this test.

III. How Should We Think About Regulation of Digital Assets?

Too much of the conversation around digital assets and cryptocurrencies starts with the assumption that they are currently unregulated. It then proceeds to a discussion about whether the imposition of regulation is either desperately needed to prevent financial catastrophes, or would produce a catastrophe of stifled innovation and American obsolescence. There are many problems with this conception. The most important is the idea that digital assets today are completely outside the regulatory perimeter.

Technological innovation in financial services is not a new phenomenon. For decades, startups and established firms have devised new ways to engage in fund-raising, payments, trading, lending, and other financial activities. Even as the technologies change, the relevant activities continue to fit within regulatory categories. Just because something is a new kind of derivative or security does not mean that those frameworks no longer apply. If decentralized applications and digital assets meet the definitions of securities or derivatives, those rules come into play. Unfair and deceptive trade practices can be prosecuted by the Federal Trade Commission, regardless of the tools involved. Similarly, the fact that systems and their developers are not entirely located in the United States does not make U.S. law inapplicable, when, for example, services are targeted or provided to U.S. customers.

When new technologies develop, there may well need to be clarifications, new interpretations by expert agencies, or legislative updates to better fit the legal regime to activity in the marketplace. However, the rationales for regulation do not change. If investors are being scammed out of the money, markets are seriously manipulated, financial crime is being facilitated, or hidden risks of

crises are excessive, the need for protections does not depend on the technical specifics. However, the best ways to implement those protections may. Technologies may increase dangers in one way and solve them in others. The question, therefore, is not whether to have regulatory oversight, but what those regimes should look like. Where market forces can effectively deter harmful behavior, intervention is not needed. However, this is an empirical question. We should not assume that competition and self-regulatory mechanisms will fail to rein in abuses, but neither should we assume they will succeed.

The fact of the matter is that financial markets are regulated in every jurisdiction with significant activity, and they have been for a very long time. Where there is money to be made, someone will eventually figure out ways to cheat others, or to amass so much power that they distort markets to their advantage. Similarly, we, and every major economy in the world, have central banks actively engaged in monetary policy because the alternative is repeated and devastating financial panics. If anything, advancing technology typically creates the need for more regulation, not less. The collateralized debt instruments and other complex products that underpinned the 2008 Global Financial Crisis could not have taken off without the digitization of finance. They highlighted the need to adopt new protections against systemic risk that were not necessary in earlier eras of finance.

Blockchain technology differs in important ways from the more centralized databases that traditionally support financial services. Digital assets are inherently global, online, and tradeable 24/7/365. They are generally built on public permissionless blockchains that are transparent in both their software code and their transaction history, which is not the case for most traditional financial infrastructure. They can replace many intermediaries which were traditionally points of failure, cost-causers, or sources of abuse. Perhaps most importantly, they catalyze innovation and experimentation. Some of the most brilliant computer scientists, entrepreneurs and financial experts in the world are devoting themselves to this technology because its potential enthralls them.

There are many things wrong with our financial system, which this wave of innovation may help to address. However, that does not mean we should ignore harms when they occur. Nor should we presume that everything blockchain is open, fair, decentralized, transparent, scalable, or even functional. The most successful participants in the digital asset ecosystem are centralized firms such as exchanges and NFT marketplaces, which occupy a similar role in the financial ecosystem to conventional intermediaries.[8] Again, policy-makers and regulators must examine the digital asset world as it is, based on data rather than aspirations.

This will not be a task for one regulator, any more than internet policy is. There are simply too many different issues, which touch on the expertise of many parts of the government. There may be value in creating a new specialized agency or bespoke digital asset frameworks within existing agencies. Congress should examine those possibilities. It should work with the White

[8] *See* Kristin N. Johnson, *Decentralized Finance: Regulating Cryptocurrency Exchanges*, 62 WILLIAM & MARY L. REV. 1911 (2021).

House to support a thorough review of the capabilities, limitations, and roles of all federal departments and agencies to identify how digital assets policy questions may most effectively be addressed. And it should closely observe developments at the state level. As always, there is sometimes value in preemption and uniformity, but sometimes states can adopt creative and diverse approaches that push forward beyond what a national regime can accomplish.

Particularly relevant to this committee, the question is not whether digital assets or cryptocurrencies are necessarily securities, commodities, or something else. They are all those things…depending on the characteristics and uses of each token, application, and network. Nor is the question whether the SEC or CFTC should be "the" regulator of this space. Each has different areas of expertise. The CFTC should not be given authority because, as some appear to believe, it is the more industry-friendly agency, but because there is market activity it is well-suited to oversee.[9] The CFTC has successfully brought significant actions in the digital asset area such as the $100 million fine against BitMEX for registration and anti-money laundering violations[10] and the $42.5 million fine against Tether and Bitfinex for false statements regarding the USDT stablecoin.[11] It also established LabCFTC as a hub for addressing innovative areas, and has authorized swap execution facilities for digital assets.

Both agencies deserve technical, staffing, and financial resources corresponding to the size of the job, as do the relevant affiliates of the Treasury Department, the Federal Trade Commission, the Consumer Financial Protection Bureau, the Department of Justice, and the National Institute of Standards and Technology. A two-trillion dollar digital asset market is not something to be addressed by small teams at the periphery. There is more than enough work for multiple agencies, so long as there are good working relationships and coordination processes to avoid conflicts.

Even more important, the divide between agencies should not be a reason for unjustified gaps in the regulatory regime. Someone needs clear authority to engage in oversight of spot markets in digital assets that are not considered securities. Someone needs clear authority to exercise oversight of digital asset exchanges that have rapidly become some of the most valuable and prominent firms in financial services, including those exchanges which nominally operate offshore but in practice are heavily active in this country. Someone needs clear authority to oversee stablecoins that claim assets in the tens of billions of dollars and play an oversized role

[9] I note that the leadership of this committee and the House Agriculture Committee recently sent a letter to Chairman Benham seeking information on the CFTC's approach to digital assets. *See* Bipartisan and Bicameral Letter from Ag Committees Calls for CFTC Guidance on Digital Assets, Jan. 12, 2022, https://www.agriculture.senate.gov/newsroom/dem/press/release/bipartisan-and-bicameral-letter-from-ag-committees-calls-for-cftc-guidance-on-digital-assets.

[10] *See* Federal Court Orders BitMEX to Pay $100 Million for Illegally Operating a Cryptocurrency Trading Platform and Anti-Money Laundering Violations, Release No. 8412-21, Aug. 10m 2021, https://www.cftc.gov/PressRoom/PressReleases/8412-21.

[11] *See* CFTC Orders Tether and Bitfinex to Pay Fines Totaling $42.5 Million, Release No. 8450-21 (Oct. 15, 2021), https://www.cftc.gov/PressRoom/PressReleases/8450-21.

in digital asset markets in the U.S. and worldwide. Loopholes, rented charters, and ill-fitting licenses cannot be the legal foundations for an industry that aims transform all of finance.

Finally, every relevant agency needs the resolve and the capacity to address the clear abuses that are all too common in the digital asset world. Fraud is fraud. Theft is theft. Tax evasion is tax evasion. There are difficult cases and grey areas that deserve careful consideration. There are also far too many examples that are all too clear cut. The question is why so many examples of deception, manipulation, hacks, and other abuses have seemingly gone un-punished. We must examine whether this is a legal gap, a resource gap, an enforcement capabilities gap, or something else. The only way over the long run to promote trust in the legitimate actors within the digital asset world is to distinguish and take down the bad actors.

While there are understandable worries that regulation will chill market activity or shift it to other jurisdictions, we have seen little evidence that the digital asset sector has abandoned the United States.[12] Furthermore, in peer-reviewed empirical research with my colleague Brian Feinstein, we found that in major global jurisdictions including the United States, regulatory announcements in virtually every category did not significantly impact trading volumes in bitcoin and ether.[13] Of course, this does not mean no regulation ever impacts trading markets. It suggests that the mere fact regulators are active in announcing and implementing rules for digital assets does not chill market activity.

IV. Risks in Digital Asset Markets

The benefits and potential of digital assets are real. Unfortunately, so are the abuses in the digital asset market. The scope of fraud, attacks, and other harmful activity is worrisome. The fact that so many parts of this market are opaque, despite the transparency of the underlying blockchain ledgers, increases that worry. And the fact that market participants so quickly brush off frequent losses in the tens or hundreds of millions of dollars is perhaps the most worrisome fact of all.

Major financial bubbles have occurred repeatedly over the past four centuries, ever since finance and trade were sufficiently well-developed to allow for modern markets.[14] These bubbles are often associated with scams and other abuses, especially in times of enthusiasm about new technology or market opportunities.[15] This is only to be expected. Times of transformation can

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[12] There are individual companies that have relocated, such as after the imposition of New York's BitLicense rules in 2015, but the sector as a whole remains highly active and successful in this country. Similarly, some jurisdictions have aggressively courted digital asset firms with favorable rules, but they have largely attracted legal registrations and small outposts of major entities.

[13] *See* Brian D. Feinstein and Kevin Werbach, *The Impact of Cryptocurrency Regulation on Trading Markets*, 7 J. FIN. REG. 48 (2021).

[14] *See* CHARLES P. KINDLEBERGER AND ROBERT Z. ALIBER, MANIAS, PANICS, AND CRASHES: A HISTORY OF FINANCIAL CRISES (5th Ed. 2005).

[15] *See* Kenneth R. Gray, Larry A. Frieder, and George W. Clark Jr., *Financial Bubbles and Business Scandals in History*, 30 INT'L. J. PUBLIC ADMIN. 859 (2007).

create major profit opportunities. They also open the door for bad actors capitalizing on the general exuberance, when the normal informational and legal counterweights are not in place.

The famed economist John Kenneth Galbraith coined the term "Bezzle" for the gap between perceived and real value of assets due to undiscovered theft or irrational exuberance.[16] This gap is particularly large during periods of market enthusiasm and innovation. It creates what Galbraith called a "a net increase in psychic wealth."[17] People are for a time, effectively wealthier, but this wealth is an illusion that collapses in a crash. When the illusion is revealed, it can undermine trust and have negative long-term effects on markets.

According to Chainalysis, cryptocurrency crime reached an all-time high in value in 2021, with $14 billion sent to illicit addresses.[18] Because of huge growth in digital asset trading activity, this represented only 0.15 percent of transaction volume. Those who allege that fraud and illicit activity are the only, or the predominant function of cryptocurrencies are wrong. However, $14 billion is not a small number. It represents only transactions involving addresses known to be engaged in criminal activity, not the full range of scams, attacks, and manipulative activity likely occurring in the market. One recent survey identified 29 different kinds of cryptocurrency fraud in the academic literature.[19] Researchers have identified over 47,000 scam Bitcoin and Ethereum addresses, and 8,000 cryptocurrency scam URLs.[20] And nearly 7,000 people filed complaints with the Federal Trade Commission reporting cryptocurrency scams between October 2020 and May 2021, losing a median of $1,900 each.[21] The $80 million in reported losses were a 1,000% increase from the year before.

Just last week, a hack of Wormhole, a cross-blockchain bridge for DeFi, led to the theft of over $300 million of ether.[22] The funds were replenished by Jump Trading, a high-frequency trading firm that is a significant investor in related projects, which raises as many questions as it answers.[23] Around the same time, the anonymous co-founder of the significant DeFi protocol

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[16] *See* Michael Pettis, *Why the Bezzle Matters to the Economy*, China Financial Markets (Aug. 23, 2021), https://carnegieendowment.org/chinafinancialmarkets/85179.

[17] JOHN KENNETH GALBRAITH, THE GREAT CRASH 1929 (1955).

[18] *See* Chainalysis, *Crypto Crime Trends for 2022* (Jan. 6, 2022), https://blog.chainalysis.com/reports/2022-crypto-crime-report-introduction/.

[19] *See* Arianna Trozze et al, *Cryptocurrencies and Future Financial Crime*, 11 CRIME SCIENCE 1 (2022).

[20] *See* Massimo Bartoletti et al, *Cryptocurrency Scams: Analysis and Perspectives*, 9 IEEE ACCESS 148353 (2021), https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=9591634.

[21] *See* Emma Fletcher, Cryptocurrency Buzz Drives Record Investment Scam Losses, Consumer Protection Data Spotlight (May 17, 2021), https://www.ftc.gov/news-events/blogs/data-spotlight/2021/05/cryptocurrency-buzz-drives-record-investment-scam-losses.

[22] *See* Tom Wilson and Pushkala Aripaka, *Crypto Platform Wormhole Says "Funds Are Safe" After $320 Mln Hack*, Reuters (Feb. 3, 2022), https://www.reuters.com/technology/crypto-network-wormhole-hit-with-possible-320-mln-hack-2022-02-03/.

[23] *See* Tom Wilson and Pushkala Aripaka, *Jump Trading Replaces Stolen Wormhole Funds After $320 Mln Crypto Hack*, Reuters (Feb. 3, 2022), https://www.reuters.com/technology/crypto-network-wormhole-hit-with-possible-320-mln-hack-2022-02-03/.

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Wonderland was discovered to be Michael Patryn, who has a history of financial fraud and was co-founder of QuadrigaCX, a Canadian cryptocurrency exchange that absconded with hundreds of millions of dollars of user funds.[24]

There is something wrong when sizeable attacks and fraud are so common, and yet investors appear to shrug them off entirely. Researchers on trust generally identify ability, benevolence, and integrity as the three pillars for establishing trustworthiness.[25] When digital asset and DeFi firms demonstrate their inability to safeguard assets, and engage in behavior that suggests ill-intent or inconsistency, it should result in a drop in trust. The fact that many such firms, and the market as a whole, do not experience such a reaction, indicates that investors may not rationally be assessing risks. This could be a recipe for disaster.

In addition to hacks, scams, and thefts, there are many reasons to be concerned that the digital asset market is subject to manipulation. Practices that are routinely banned for other asset classes are widespread. A study in 2019 found that for lightly-regulated digital asset exchanges outside the United States, approximately 95% of volume was faked due to artificial wash trading.[26] (Another data point that regulation has value.) Wash trading is also rampant in the ballooning NFT market,[27] along with infringement, fakes, and spam.[28] There are many openly-operating pump-and-dump schemes for digital assets, a canonical form of illicit market manipulation. One study identified 355 such schemes involving 197 different coins, $350 million of trading volume, and touching up to 23 million individuals.[29] And that was in 2018, when the market was orders of magnitude smaller than today. Researchers have found evidence that public blockchain consensus mechanisms are subject to potential collusion among miners to influence prices.[30] And

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[24] *See* Jordan Pearson, *Crypto Co-Founder Revealed to Be Infamous Fraudster, Investors Shaken*, Vice.com (Jan. 28, 2022), https://www.vice.com/en/article/epxakz/crypto-co-founder-revealed-to-be-infamous-fraudster-investors-shaken.

[25] *See* Roger C. Mayer, James H. Davis and F. David Schoorman, *An Integrative Model of Organizational Trust*, 20 ACAD. MGMT. REV. 709 (1995).

[26] Bitwise Asset Management, Analysis of Real Bitcoin Trading Volume, March 19, 2019, https://static.bitwiseinvestments.com/Research/Bitwise-Asset-Management-Analysis-of-Real-Bitcoin-Trade-Volume.pdf; Rachel McIntosh, *Six Months After Bitwise, Wash Trading Lives on in Crypto*, Finance Magnates (Sept. 25, 2019), https://www.financemagnates.com/cryptocurrency/news/things-are-better-but-wash-trading-persists-in-crypto-heres-why/.

[27] *See* Chainalysis, Crime and NFTs (Feb. 2, 2022), https://blog.chainalysis.com/reports/2022-crypto-crime-report-preview-nft-wash-trading-money-laundering/; Andrew Hayward, *Hot Ethereum NFT Platform LooksRare Is Rife With Wash Trading—And OK With It*, Decrypt (Jan. 12, 2022), https://decrypt.co/90317/ethereum-nft-market-looksrare-wash-trading.

[28] *See* Jordan Pearson, *More Than 80% of NFTs Created for Free on OpenSea Are Fraud or Spam, Company Says*, Motherboard (Jan. 28, 2022), https://www.vice.com/en/article/wxdzb5/more-than-80-of-nfts-created-for-free-on-opensea-are-fraud-or-spam-company-says.

[29] *See* Anirudh Dhawan & Talis J. Petnins, *A New Wolf in Town? Pump-and-Dump Manipulation in Cryptocurrency Markets*, __ REV. FIN __ (forthcoming 2022), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3670714.

[30] See Xiaotong Sun, Is Blockchain Becoming More Centralized? Evidence on Collusion in the Ethereum Blockchain, SSRN, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3940678.

a recent report revealed that Coinbase, the largest U.S.-based digital asset exchange, frequently decided to list tokens that it previously invested in, without disclosure, a conflict of interest that would be prohibited for traditional exchanges.[31]

I have not even yet mentioned the most worrisome element in the digital asset market: the stablecoin Tether (USDT).[32] Tether has continued to play an outsized role in the digital asset world despite having been found by the New York Attorney General and the CFTC to have lied about its backing, and being banned from operating in New York.[33] Its claimed assets of more than $70 billion have never been formally audited. How exactly major exchanges and digital asset lending platforms use Tether is opaque. Tether and other centralized stablecoins serve useful functions, but that is not a reason to avoid the common-sense requirements that apply to banks, money market funds, and other similar instruments in the traditional finance world. The SEC has repeatedly cited evidence of fraud and manipulation involving Tether and similar instruments as rationales for rejecting proposed bitcoin exchange traded funds.

Last month, the UK Financial Conduct Authority proposed new rules governing advertisements for investments in digital assets.[34] The regulator's research found that many investors were taking on risks they did not fully appreciate, fueled by marketing that failed to disclose important information. Less than one-tenth of investors were aware of warnings the FCA had issued about the volatility and potential dangers of cryptocurrency investment, suggesting that more formal rules were needed.[35] The FCA's research also found that the biggest reason for investment in digital assets was, "as a gamble that could make or lose money."[36] Gambling is not illegal. But it is carefully regulated, given the potential for abuses and significant harms.

The growing practice of DeFi yield farming and other mechanisms of leveraging (and then re-leveraging) digital assets is also making these markets more like the fragile interconnected

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[31] *See* Miles Kruppa, *The Coinbase Model: Profit From the Crypto Assets It Lists*, Financial Times (Jan. 28, 2022), https://www.ft.com/content/4e15d5b6-033b-4294-8aba-d95e02f51b3b

[32] *See* Jeanna Smialek, *Why Washington Worries About Stablecoins*, N.Y. TIMES, Sept. 17, 2021, https://www.nytimes.com/2021/09/17/business/economy/federal-reserve-virtual-currency-stablecoin.html; Zeke Faux, *Anyone Seen Tether's Billions?*, BUSINESSWEEK (Oct. 7, 2021), https://www.bloomberg.com/news/features/2021-10-07/crypto-mystery-where-s-the-69-billion-backing-the-stablecoin-tetherJeff Wise, Tether Is a Trail of Shady Deals and Shattered Promises. Too Bad Cryptocurrency Now Depends on It, Men's Journal (, https://www.mensjournal.com/entertainment/for-better-or-worse-cryptocurrency-depends-on-tether-mens-journal/.

[33] Attorney General James Ends Virtual Currency Trading Platform Bitfinex's Illegal Activities in New York (News Release), Feb. 23, 2021, https://ag.ny.gov/press-release/2021/attorney-general-james-ends-virtual-currency-trading-platform-bitfinexs-illegal.

[34] *See* Joshua Oliver, *UK Financial Watchdog Proposes Tougher Rules for Crypto Adverts*, Financial Times (Jan. 19, 2022), https://www.ft.com/content/1a8b0285-9003-4c2f-8974-73137f323acd.

[35] *See* Joshua Oliver, *Most Would-Be Crypto Investors Unaware of UK Regulator's Warnings*, Financial Times (June 17, 2021), https://www.ft.com/content/39718cda-5cd1-4f0d-b7e3-0151e45bf25b.

[36] *Id.*

financial markets they seek to replace.[37] One of the major vulnerabilities of the financial system is that intermediaries effectively create money as shadow banks by stacking multiple claims on assets such that holders do not necessarily own what they believe they own. When liquidity dries up, these arrangements can produce the kind of crisis the world witnessed in 2008.

There are abuses in traditional financial markets as well. And risk is part of investing. Regulators should not paternalistically decide that retail investors cannot ever reap the benefits of investment strategies available to the wealthy and institutions. They should ensure that investors have accurate and sufficient information which they are capable of digesting. And they should ensure that markets are not systematically rigged against them or artificially constructed to benefit insiders. This is the kind of oversight that agencies like the CFTC have always provided.

V. Lessons From Internet Regulation

In thinking about how to address digital assets, we should heed the lessons of internet policy, which similarly developed around a disruptive and transformative yet deeply problematic technological innovation. As Counsel for New Technology at the Federal Communications Commission in the mid-1990s and a member of the White House group that developed the Clinton Administration's *Framework for Global Electronic Commerce*, I was directly involved in may debates about how the government should address the emerging phenomena of the internet and the World Wide Web. The policy adopted was not, as some today believe, to do nothing and allow the internet to develop with no constraints. It was to avoid unnecessary restraints on innovation while addressing the policy questions that arose.

One important difference between the internet then and digital assets now is that most internet activity did not involve regulated activities. As I noted earlier, financial services are regulated because without those guardrails, there will inevitably be abuses of investors, market manipulation, theft, facilitation of financial crime, excessive market concentration, and unreasonably levels of hidden risk. Amazon selling books online or Yahoo! making it possible to search for websites did not raise such concerns. However, some internet activity did overlap with regulated industries. The communications services overseen by the FCC were one class of examples.

The FCC wisely rejected a petition to ban internet telephony services because they allegedly represented unfair competition against long-distance carriers. That would have made Zoom, Facetime, and all the other real-time internet communications tools that are so important today illegal. However, the FCC did require voice over IP service providers interconnected with the public switched telephone network to provide enhanced 911 compatibility.[38] If you pick up your

[37] *See* Caitlin Long, *Two Wall Street Terms Every Bitcoin Trader Needs To Learn Now*, FORBES (Aug. 13, 2018), https://www.forbes.com/sites/caitlinlong/2018/08/13/the-r-and-c-words-enter-the-vocabulary-of-bitcoin-enthusiasts/?sh=12b633ab68f3.

[38] *See* IP-Enabled Services; E911 Requirements for IP-Enabled Service Providers, *First Report and Order and Notice of Proposed Rulemaking*, WC Docket Nos. 04-36, 05-196, 20 FCC Rcd. 10245 (2005), *aff'd*, Nuvio Corp. v. FCC, 473 F.3d 302 (D.C. Cir. 2006); 47 C.F.R. §§ 9.3, 54.5 (2007).

phone in an emergency and dial 911, whether your call goes through and provides emergency personnel with the location information they need should not depend on the technology used to routes communications. Similarly, when AT&T attempted to evade the access charges that fund universal service subsidies by offering a service that artificially switched in and out of internet protocols in the middle of the connection, the FCC rejected it.[39] Where there are good public policy reasons for a requirement, the question should be how to achieve those goals in the most effective manner, with the least burden.

Many times over the past several years, I have heard that the absence of regulatory clarity, excessive regulation, the absence of a specialized regulatory regime, or the hostile attitudes of regulators meant that the U.S. would fall behind in the digital asset world, ultimately imperiling our status of the world's most important financial center. Yet here we are in 2022. The U.S. is home to a large, diverse, and growing industry of digital asset and blockchain firms; trading activity in digital assets here is robust; the most valuable exchanges and other platforms in public and private market transactions are here; the most prominent digital asset and Web3 investors are in Silicon Valley; and innovations continue to emerge from American participants in this space. The digital asset space is far more global than the internet economy was in its early days, or even today. There are major hotspots of activity throughout the world. Teams can collaborate globally in ways that were not possible in the 1990s, or even the early 2010s. And there are certainly example of firms that relocate or change their legal domicile to avoid regulatory obligations. However, these are the exceptions that prove the rule.

America needs to adapt its legislative, regulatory, and enforcement regime to address the novel challenges that digital assets pose. There are risks if we get it wrong, and over time other jurisdictions will attract activity if we wait too long to act. There will be plenty to discuss regarding the specifics of the regulatory framework. We must not be afraid to take action to achieve the long-standing public policy goals of financial regulation.

VI. Conclusions

Questions about how to regulate digital assets will not be answered fully today, or even this year. Blockchain is a foundational technology that will power the development of new markets, applications, and industries over a period of decades or more, just as the internet did. We cannot yet say that it will be as significant as the internet. There are many good reasons to be concerned that aspects of digital asset markets are unsustainable. There are also many reasons for excitement about the current and potential activity in this area. And things change fast. In many ways the, digital asset market, and the degree of engagement with the rest of finance, are unrecognizable compared to five years ago. The next five years will witness dramatic change as well.

[39] *See* Grant Gross, *FCC Rejects AT&T VoIP Petition*, COMPUTERWORLD (Apr. 22, 2004), https://www.computerworld.com/article/2564959/fcc-rejects-at-t-voip-petition.html.

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The fact that technology moves quickly, while law evolves slowly, is not a reason to abandon legal protections.[40] Statutory provisions and case law decades old may establish principles that effectively fit new fact patterns. And regulators can adopt mechanisms such as safe harbors, no action letters, and sandboxes to provide additional flexibility for novel services as they grow. However, the sooner that gaps in legal authority or ill-fitting rules can be addressed, the better. This committee should ensure that the CFTC has the legal authority and resources to engage in active fact-finding, rulemaking, and enforcement in the digital asset space, in concert with other regulators at the federal and state level.

[40] *See* JOSHUA FAIRFIELD, RUNAWAY TECHNOLOGY: CAN LAW KEEP UP? (2021).

DOCUMENTS SUBMITTED FOR THE RECORD

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February 8, 2022

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Dear Chairwoman Stabenow, Ranking Member Boozman, Chairman Scott, and Ranking Member Thompson:

Thank you for your letter, dated January 12, 2022, which posed a number of questions regarding the scope and size of digital asset markets, the risks and potential benefits of these emerging technologies, and the potential role of the Commodity Futures Trading Commission (CFTC).[1] I appreciate the opportunity to share my observations, and look forward to working with each of you in the future.

1. **What is the current estimated size of the digital asset marketplace? How does this marketplace compare in size and participation to those markets directly regulated by the Commission?**

As an initial matter, it should be noted that the markets for digital assets largely developed outside of traditional market structures, acting as both use-case and catalyst for the burgeoning decentralized, distributed, and digital infrastructure. The range includes a wide variety of assets transacted in and across many different types of platforms from peer-to-peer to traditional boards of trade. Accordingly, while we can compare cash markets in one asset class to derivatives in

[1] Absent fraud or manipulation, the CFTC's regulatory regime does not directly apply to spot markets for commodities, including digital assets. Accordingly, the CFTC does not typically have direct access to nonpublic information regarding trade data or other relevant information for such markets. Similarly, while some futures and other derivatives contracts based on digital assets trade on CFTC-regulated exchanges, a large volume do not. As a result, I cannot verify the accuracy or sourcing methods of the data providers cited in this response.

another asset class, doing so may also highlight their differences. It is nevertheless a meaningful way to explore the differences and determine whether the preference for one over another is in response solely to market forces or rather a function of one being subject to extensive regulatory oversight.

Based on the best available information, the current total market capitalization of all digital assets categorized as "cryptocurrencies" in circulation is approximately $2 trillion.[2] At the center of this industry are trading platforms where participants directly exchange digital assets in what we generally refer to as "cash" or "spot" transactions. There are also trading platforms more akin to traditional boards of trade for derivative contracts referencing the underlying digital asset cash markets. The CFTC directly regulates certain registered platforms offering exchange-traded futures, options, and swaps to U.S. persons.

Among CFTC registrants, there are several exchanges that offer trading to U.S. market participants in futures contracts tied to the two largest digital assets by market capitalization, Bitcoin and Ether. In January 2022, the average daily open interest for these futures contracts was approximately $3 billion in notional value with an average daily trading volume of approximately $2.7 billion in notional value. As of February 4, 2022, there was also over $1 billion in over-the-counter derivatives referencing Bitcoin and Ether.

Among exchanges not registered with the CFTC, there is also a fairly sizeable global market for trading digital asset-based derivative contracts on exchanges purportedly operating outside of the CFTC's jurisdiction. According to industry estimates, in January 2022, the average daily open interest in Bitcoin and Ether-based derivatives on these exchanges was $22 billion in notional value, with average daily trading volume of $74 billion in notional value.[3]

The chart below reflects a comparison of the size of these markets to the daily open interest in CFTC-regulated markets for certain well-established futures contracts.

Underlying Commodity	**Open Interest (daily average – 2022 YTD)**	**Trading Volume (daily average – 2022 YTD)**
BTC and ETH CFTC registered exchanges	$3 billion	$2.7 billion
BTC and ETH Unregistered exchanges	$22 billion	$74 billion
Corn	$86 billion	$10.5 billion
Crude Oil	$507 billion	$90 billion
Gold	$220 billion	$50 billion
S&P 500	$2 trillion	$500 billion

Underlying the market for digital asset derivatives is a large spot or cash market for directly buying and selling thousands of different digital assets beyond just Bitcoin and Ether. According

[2] *See* CoinGecko, https://www.coingecko.com/ (accessed on Feb. 7, 2022).

[3] Calculations using data from The Block, https://www.theblockcrypto.com/data (accessed on Feb. 7, 2022).

to public data, in January 2022, the average daily trading volume in the global digital asset spot market was approximately $26.9 billion.[4]

2. **What proportion of the digital asset market do you estimate is currently traded by U.S. persons?**

   Please see response to question 3 below.

3. **Within the United States, what is the estimated scope of retail participation in digital asset markets? How does this compare to the level of retail participation in derivatives markets for other commodities?**

Due to limited visibility into the digital asset market, it is difficult to provide an accurate estimate of participation by U.S. persons in this market and what proportion may be categorized as retail. However, recent surveys identified that approximately 13% to 14% of Americans invested in digital assets as of 2021.[5] To provide some perspective, a separate analysis suggests that less than 1% of the global population has invested in digital assets.[6]

Several metrics demonstrate that retail investors are a significant portion of participants in the digital asset market. A recent study finds that a notable number of retail investors are diverting funds from stocks to digital assets,[7] and the largest digital asset exchange in the U.S. reported an increase from 2.1 million to 7.4 million monthly users in the year prior to Q3 2021.[8] Public data reflects that mobile applications providing retail access to digital asset trading platforms are some of the most downloaded applications,[9] and some of these same platforms are paying significant sums to advertise to retail participants.[10]

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[4] *Id.*

[5] *See* Laycock and Choi, "A rising number of Americans own crypto." Finder, https://www.finder.com/how-many-people-own-cryptocurrency (June 14, 2021); Iacurci, "13% of Americans traded crypto in the past year, survey finds." CNBC, https://www.cnbc.com/2021/07/23/13percent-of-americans-traded-crypto-in-the-past-year-survey-finds.html (July 23, 2021).

[6] *See* Hon, et al., "Crypto Market Sizing: Global Crypto Owners Reaching 300M." Crypto.com report (Jan. 2022) (estimating global digital asset owners at 295 million as of December 2021).

[7] *See* Reinicke, "Some investors are putting more money into cryptocurrencies than stocks." CNBC, https://www.cnbc.com/2021/10/20/some-investors-putting-more-money-into-cryptocurrencies-than-stocks.html (Oct. 20, 2021).

[8] *See* Coinbase, Q3 2021 Shareholder Letter, https://investor.coinbase.com/financials/quarterly-results/default.aspx (Nov. 9, 2021).

[9] *See* Zhou, "Cryptocurrency Accelerates on Mobile with PayPal Leading Download Rankings Across Global Regions." App Annie, https://www.appannie.com/en/insights/mobile-minute/cryptocurrency-accelerates-on-mobile-globally/ (Nov. 2, 2021).

[10] *See* Vigna and Vranica, "Bengals, Rams, and Bitcoin: Crypto Ads Invade the Super Bowl." The Wall Street Journal, https://www.wsj.com/articles/bengals-rams-and-bitcoin-crypto-ads-invade-the-super-bowl-11644159817 (Feb. 6, 2022).

By comparison, within the futures markets on CFTC-registered exchanges, trading activity by market participants above a certain threshold is reported to the CFTC. For analytical purposes, the CFTC categorizes reportable trading above that threshold "institutional trading," while non-reportable trading is generally indicative of retail participation. Recent CFTC studies find that non-reportable trading makes up approximately 25% of long open interest in the Bitcoin futures market, which is significantly higher than is generally observed in other futures markets, such as corn, soybean, wheat, WTI crude, gold, and S&P E-mini futures, where non-reportable long open interest ranges from 5% to 11%.[11] These studies suggest the amount of retail participation in the digital asset futures market is more than double that in other futures markets.

4. **In what ways are digital asset markets and intermediaries different than the existing markets and intermediaries under the CFTC's jurisdiction? In what ways are they similar? Are there principles for market regulation that can be applied to both?**

The most notable difference between the digital asset market and other commodity markets is the level of retail participation. Most commodity derivative markets, such as the agriculture and energy markets, are dominated by wholesalers, end-users and institutional investors engaging in hedging and other risk management transactions. However, the digital asset market is characterized by a high level of retail participants engaged in price speculation, often with high levels of leverage.

At first glance, participants in the digital asset market may seem to be interacting with exchanges and intermediaries structured like those seen in other financial markets. However, the lack of a comprehensive regulatory regime applicable to businesses operating in the digital asset market has led to inconsistent practices around issues such as trade settlement, conflicts of interest, data reporting, and cyber security.

Another distinguishing factor of the digital asset space is the direct impact that international markets, particularly those outside CFTC jurisdiction, have on the digital asset markets being accessed by U.S. participants, which promotes risk.

There are unique elements of the digital asset market that require special consideration, but as with any trading market, the digital asset market would benefit from uniform imposition of requirements focused on ensuring certain core principles, including market integrity, customer protection, and market stability. At the CFTC, we have seen that a regulatory regime focused on core principles can be successful in overseeing a wide variety of markets, and have no reason to think those same principles cannot be applied to digital asset markets.

[11] *See* Ferko, et al., "Who Trades Bitcoin Futures and Why?" CFTC, https://www.cftc.gov/sites/default/files/2021-11/WhoTradesBTC_V2_ada.pdf (Nov. 4, 2021); CFTC Commitments of Traders, *available at* https://www.cftc.gov/MarketReports/CommitmentsofTraders/index.htm.

5. Discuss the types of misconduct the CFTC has observed in the digital asset marketplace and how, if at all, this differs from misconduct found in traditional financial markets.

The CFTC has filed 49 enforcement actions involving digital assets since 2015. Those 49 actions include 23 matters filed in fiscal year 2021, and include defendant entities located in the United States and abroad. Notably, while the specific assets and methods at issue may differ, the types of misconduct closely resemble misconduct found in traditional financial markets. For example, the CFTC has investigated and filed actions involving: (i) fraudulent schemes, such as Ponzi and pump-and-dump price manipulations; (ii) wash and prearranged trading; and (iii) the offering of illegal off-exchange transactions to name a few.

The CFTC has enforcement authority over fraud and manipulation involving commodities in interstate commerce as well as derivatives. Using this authority, in the past four years, the CFTC has brought 23 cases involving some sort of fraud connected with digital assets. The majority of those actions involve fraudulent activity in the spot markets. Entities and individuals who solicit retail customers to trade digital assets may use online chat, gaming, and dating applications to connect with potential customers. Frequently, they also use websites to market and "offer" trading, often employing names that closely resemble CFTC registrants or other legitimate entities to cloak themselves in the indicia of reliability. Separately, digital assets, including bitcoin and other cryptocurrencies, are often used as a form of payment to fund fraudulent enterprises, including those involving more traditional financial products such as binary options, forex, and other commodities.

As alluded to above, a significant number of derivatives transactions involving digital assets occur on exchanges that are, or at least purport to be, located outside of the United States and are not directly supervised by the CFTC. Unlike CFTC-registered derivatives exchanges, these exchanges may be subject to limited regulation and do not have uniform compliance approaches. They often lack robust know-your-customer and anti-money laundering procedures as well as other necessary consumer protections, and they offer highly leveraged transactions. The CFTC has brought enforcement actions against such exchanges operating in the U.S., and/or engaging in transactions with U.S. customers, without being registered with the CFTC or following applicable regulations as required.

While the types of misconduct are similar, the fact that the CFTC does not have the authority to directly supervise and regulate the digital asset cash markets may be a contributing factor in the increasing frequency of fraud and similar misconduct in the digital asset market. Fraudsters tend to move toward areas where there is little regulation and limited transparency.

6. How has LabCFTC been working with stakeholders in the digital asset and DeFi space to support innovation and development, while also ensuring customer protection and financial market integrity?

Since its inception in 2017, LabCFTC has played an important role as a bridge between financial technology innovators and the CFTC. LabCFTC has served as the front door for innovators to come meet with staff to facilitate a dialogue in an effort to ensure innovators are

focusing on important issues such as customer protection and market integrity. LabCFTC has also worked to accelerate the CFTC's research and consideration of novel approaches to accomplishing those same goal. However, the growth of the digital asset market has moved beyond the ability to address these issues in one-on-one conversations, and the technology has moved past the sandbox phase such that the CFTC is continuing to evolve to address these issues through new approaches.

7. Discuss how the CFTC has collaborated with other federal financial regulators regarding digital assets.

The CFTC works closely with several financial regulators regarding digital assets. Most notably, CFTC staff is in regular communication with staff of the Securities and Exchange Commission (SEC). The CFTC also participates in broader interagency initiatives, such as the President's Working Group on Financial Markets, which issued a report related to stablecoins in November 2021, as well as recent efforts led by the Biden administration in this area.

At an international level, the CFTC participates in multiple international bodies that address digital asset-related issues, such as the International Organization of Securities Commissions and the Financial Stability Board. Through LabCFTC, the CFTC has entered FinTech Cooperation Agreements with the UK's Financial Conduct Authority, the Monetary Authority of Singapore, the Australian Securities and Investments Commission, and the South African Reserve Bank.[12]

8. Do you foresee any shortfalls in the Commission's authorities to protect customers and ensure market integrity as the digital asset marketplace grows in volume and scope?

The cash market for trading digital assets is currently subject to an insufficient patchwork of regulations imposed mostly at the state level. Yet the market is global in reach with many well-capitalized international companies operating the largest trading platforms and attracting an increasingly large user base of retail customers.

In my opinion, there are important principles missing from the current regulatory framework applicable to digital asset markets that we see in other federally regulated markets, particularly ones that primarily cater to retail investors. A federal regulatory regime may ensure that certain safeguards are in place to address the risks to individual investors, market integrity, and systemic stability. Those safeguards could include pre-trade and post-trade transparency and uniform standards around settlement, data reporting, cyber security, and leverage.

Despite historically focusing on the derivatives market, the CFTC is prepared and well-suited to play an increasingly central role in overseeing the cash markets for digital assets. At its core, the CFTC is a markets-focused regulator that works to ensure market integrity and vibrancy through oversight of exchanges and clearinghouses that are required to comply with well-established core principles, as well as through oversight of market participants. This flexible approach has allowed the CFTC, with authority from Congress, to evolve from initially being

[12] CFTC, FinTech Cooperation Agreements, https://www.cftc.gov/LabCFTC/FinTechCoopArrangements/index.htm.

tasked with overseeing agricultural markets to now overseeing markets in everything from energy and precious metals to financial indices and swaps. And we now stand ready to do the same with the digital asset market.

Again, thank you for your letter. Please do not hesitate to contact me or have a member of your staff contact Ann Wright, Acting Director of the Office of Legislative and Intergovernmental Affairs at (202) 441-0453 or awright@cftc.gov if we can be of further assistance.

Sincerely,

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Joint Economic Committee

Demystifying Crypto: Digital Assets and the Role of Government

November 17, 2021

Written Statement of Kevin Werbach

Chairman Beyer, Ranking Member Lee, and members of the committee:

Thank you for the opportunity to speak before you today. I am the Liem Sioe Liong/First Pacific Company Professor, and Chair of the Department of Legal Studies & Business Ethics at The Wharton School, University of Pennsylvania. I also direct the Wharton Blockchain and Digital Asset Project. Much of my work involves policy implications of emerging technologies. In the late 1990s, I served as Counsel for New Technology Policy at the Federal Communications Commission. For the Obama Administration, I co-led the review of the FCC for the Transition Team, and then served as an expert advisor to the FCC and National Telecommunications and Information Administration.

For a number of years, blockchain and cryptocurrencies have been a growing focus of my research. I published a book, *The Blockchain and the New Architecture of Trust*, in 2018.[1] Since 2017, I have led workshops bringing together academics, industry legal experts, and regulators from across the federal government, as well as Europe and Asia, to discuss public policy questions around digital assets. My team recently published two reports on decentralized finance in collaboration with the World Economic Forum, *DeFi Beyond the Hype*[2] and *The DeFi Policy-Maker Toolkit*.[3] I created Wharton's blockchain and cryptocurrency course for MBA and

[1] Kevin Werbach, The Blockchain and The New Architecture of Trust (The MIT Press 2018).

[2] Wharton Blockchain and Digital Asset Project, *DeFi Beyond the Hype* (2021), https://wifpr.wharton.upenn.edu/wp-content/uploads/2021/05/DeFi-Beyond-the-Hype.pdf.

[3] World Economic Forum and Wharton Blockchain and Digital Asset Project, *Decentralized Finance (DeFi) Policy-Maker Toolkit* (2021), https://www.weforum.org/whitepapers/decentralized-finance-defi-policy-maker-toolkit.

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undergraduate students,[4] and I am academic director of Wharton's forthcoming online executive education program on Economics of Blockchain and Digital Assets.[5]

I. Introduction

You are taking on an important task in seeking to understand the benefits, costs, and regulatory aspects of cryptocurrencies.[6] Blockchain technology, and the decentralized asset ecosystems it enables, could well represent the most important developments in information technology since the internet. Blockchain could be the basis for fundamentally re-wiring the global financial system in beneficial ways, and for re-designing the digital platform economy that impacts the daily life of billions of people.[7] The potential exists to use distributed ledgers and digital assets not only to improve the efficiency of many kinds of transactions, but to make markets more fair, inclusive, open, and transparent.

At the same time, there is no question these same technologies can be—and are—used by criminals, fraudsters, and other bad actors. There are serious risks involved in digital asset-based markets, some of which have already produced large losses for participants. And it is important to distinguish potential from reality. These are still, in many ways, immature technologies. Scalability, security, and interoperability remain huge challenges, especially as adoption grows. There are important questions about energy usage of proof of work networks, which are beyond the scope of this hearing. And blockchain is not the right solution for every problem. In certain situations, blockchains may inspire the incorporation of cryptographic techniques and data structures into fundamentally centralized databases. In others, the traditional architecture is the best one, at least for now.

Finally, while there are many fascinating projects exploring the potential of mechanisms such as decentralized organizations and cryptocurrency payments to enable new kinds of communities, empower individuals, or circumvent authoritarian regimes, the bulk of economic activity around digital assets today is for financial speculation. Holdings of most significant digital assets are highly concentrated, with privileged actors including developers and early investors often

[4] *See* LGST 244x/644x Blockchain and Cryptocurrencies: Business, Legal, and Regulatory Considerations, https://apps.wharton.upenn.edu/syllabi/2019C/LGST644401/.

[5] *See* Wharton Executive Education, Economics of Blockchain and Digital Assets, https://www.blockchain.wharton.upenn.edu/.

[6] As described below, I will primarily use the general term "digital assets," because most of the tokens discussed are not intended to be employed as currencies.

[7] Kevin Werbach, Blockchain: The Last, Best Hope for Open Data, NESTA (September 11, 2020), https://www.nesta.org.uk/report/blockchain-last-best-hope-open-data/.

holding a disproportionate share. And there are major questions about market manipulation underlying the entire digital asset trading market.[8]

Let me be clear. These problems do not mean that digital assets should be dismissed, regulated out of existence, or treated as an inherently noxious development. There is real value being created, in many different ways. The twin revolutions of Satoshi Nakamoto's Bitcoin whitepaper and the smart contract technology of Ethereum have unleashed a Cambrian Explosion of experimentation and innovation. Virtually every major firm in financial services, and most other industries, is now looking at where blockchain and digital assets might provide opportunities to do what they do better, or do new things they cannot do today. And this is a global phenomenon.

It is essential for market participants and policy-makers to see both the positive and the negative aspects of digital assets, so that they can set a course to accentuate the benefits while limiting the harms. Regulation and innovation are not necessarily in conflict. In many cases, regulatory action to address abuses and provide clarity to market participants is an important, or even necessary, condition for long-lasting, productive or transformative innovation. This is not to say that all regulation is well-designed or well-implemented. But we have centuries of evidence that unregulated financial markets produce catastrophic boom-and-bust cycles and severe abuses that undermine their welfare-maximizing potential.

A quarter century ago, I served as a member and editor for the White House working group that drafted the *Framework for Global Electronic Commerce*, a seminal report that set out the United States Government's approach to the emerging phenomenon of the internet.[9] I also wrote *Digital Tornado: The Internet and Telecommunications Policy*, a 1997 Federal Communications Commission working paper that explained how the internet would transform the communications sector and identified the regulatory challenges that would pose.[10] The steps taken by the U.S. Government in the late 1990s facilitated the incredible growth of the digital economy. However, what is important to understand is that the policy adopted then was not that the internet should be a totally unregulated space, or that the harms it brought should be disregarded because of its benefits. While the *Framework* opposed "undue restrictions" on e-commerce, it also identified the need for a "predictable, minimalist, consistent and simple legal environment for commerce."[11] That is what you, and other policy-makers, should be seeking today for cryptocurrencies and digital assets.

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[8] *See* John M. Griffin and Amin Shams, *Is Bitcoin Really Untethered?*, 75 J. of Finance 1913 (2020); Jacob Silverman, *Is Tether Just a Scam to Enrich Bitcoin Investors?*, New Republic (Jan. 13, 2021), https://newrepublic.com/article/160905/tether-cryptocurrency-scam-enrich-bitcoin-investors.

[9] *See* President William J. Clinton and Vice President Albert Gore, Jr., *A Framework for Global Electronic Commerce* (1997), https://clintonwhitehouse4.archives.gov/WH/New/Commerce/.

[10] *See* Kevin Werbach, *Digital Tornado: The Internet and Telecommunications Policy* (1997), https://www.fcc.gov/reports-research/working-papers/digital-tornado-internet-and-telecommunications-policy.

[11] *See Framework for Global Electronic Commerce* (1997), *supra* note 8.

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The central thesis of my book is that blockchain is not the end of trust; it is a new, decentralized form of trust. It is a scary thing to exchange your dollars for a currency issued by no one, or to buy a virtual asset whose value is represented on a decentralized network, or to devote your time and energy to a community whose rules are enforced entirely through software executing automatically on a blockchain. The success or failure of the blockchain economy, or Web 3 as some would prefer, depends on trust. What government does—and doesn't do—will play a significant role in shaping that trust.

II. Regulation of Digital Assets

A. Development of Digital Asset Markets

The digital asset sector has seen extraordinary growth over the last decade. Within the last year alone, cryptocurrency market capitalization has grown fivefold, from $578 billion in November 2020 to $3 trillion in November 2021.[12] Daily trading volume far exceeds $100 billion.[13] There is now a thriving industry of decentralized applications (DApps) enabled through blockchains in a plethora of industries, from finance services to supply chains to fine art. DApps are created using smart contracts, which are a form of software code that executes immutably according to its specified parameters on a blockchain network.

The underlying blockchain market is developing rapidly as well.[14] Bitcoin (BTC) is the oldest and most valuable digital asset, still preeminent in payments and trading, but until recently the Bitcoin network did not offer robust capabilities for DApps.[15] Ethereum, whose native Ether (ETH) token is the second most valuable, is the most popular platform for smart contract and DApp development, especially for decentralized finance (DeFi). Today, Ethereum handles more

[12] *See* Yvonne Lau, *Cryptocurrencies hit market cap of $3 trillion for the first time as Bitcoin and Ether reach record highs*, Fortune (Nov. 9, 2021), https://fortune.com/2021/11/09/cryptocurrency-market-cap-3-trillion-bitcion-ether-shiba-inu/.

[13] Patricia Kowsmann and Caitlin Ostroff, *$76 Billion a Day: How Binance Became the World's Biggest Crypto Exchange*, Wall Street Journal (Nov. 11, 2021).

[14] I focus here on public permissionless blockchains. There are also permissioned networks and consortia built on platforms such as R3 Corda and Hyperledger Fabric. These are important in the enterprise blockchain market, but generally do not create platforms for third-party DApps and publicly accessible cryptocurrencies.

[15] A recent upgrade, Taproot, increases Bitcoin's capability to support smart contracts. There are also platforms built on top of Bitcoin, such as RSK and Stacks, which offer some of this functionality. *See, e.g.,* Arijit Sarkar, *BREAKING: The Bitcoin network welcomes Taproot soft fork upgrade*, Cointelegraph (Nov. 14, 2021).

than a million transactions daily.[16] Over the past twelve months, it has settled more than $6 trillion in transactions.[17]

There are, however, several competing public blockchain networks that claim to improve on Ethereum's functionality, including Solana, Algorand, Avalanche, DFinity, Tezos, EOS, Hedera Hashgraph, and Cardano. Some of these are gaining real developer traction and user adoption due to Ethereum's current performance limitations and high transaction ("gas") costs. And there are many more cryptocurrencies than blockchains; more than ten thousand, in fact.[18] This is because it is easy to create a virtual "token" on top of a smart contract blockchain, leveraging the underlying network security but providing different functionality. The number of tokens has doubled since last year,[19] and the trend is toward further growth.[20]

Of the $3 trillion market value of digital assets, about half is Bitcoin and one-fifth Ether.[21] The term "cryptocurrency" is sometimes limited to tokens that can effectively serve as money, and sometimes limited to the native asset of a blockchain network. The general term "digital assets," or in some international regulatory contexts, "virtual assets," encompasses all such tokens cryptographically secured on a blockchain ledger. Beyond payments, tokens can represent voting rights, for example, for members of a Decentralized Autonomous Organization (DAO) in the form of governance tokens. Other use cases include stablecoins, which can be pegged to less volatile fiat currency or other assets, and Non-Fungible Tokens (NFTs), which can represent anything from tickets that give access to events, to ownership of digital land or unique collectible artworks to even characters in games and digital identities.

Decentralization is a fundamental attribute of blockchains and digital asset or smart contract-based markets. What makes a blockchain different from a traditional database is that no central actor can issue, block, or change transactions on their own. Decentralization is a powerful force for both freedom and economic efficiency. It's the reason this country has thrived with a political system that gives every citizen a vote in electing our government, and an economic system driven by the self-interested actions of independent market participants. However, a more

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[16] *See* Ethereum Daily Transactions Chart, https://etherscan.io/chart/tx.

[17] *See* Samyuktha Sriram, *Ethereum Settles Over $6 Trillion In Transactions In Last 12 Months*, Benzinga (Oct. 5, 2021), https://www.benzinga.com/markets/cryptocurrency/21/10/23234548/ethereum-settles-over-6-trillion-in-transactions-in-last-12-months.

[18] According to coinmarketcap there are more than 14,000 cryptocurrencies. *See* CoinMarketCap, https://coinmarketcap.com/ (visited Nov. 12, 2021).

[19] *See* CoinMarketCap, https://coinmarketcap.com/.

[20] On the Ethereum blockchain the number of new addresses is increasing daily. *See* Ethereum Unique Addresses Chart, https://etherscan.io/chart/address.

[21] *See* Top 100 Cryptos by Market Cap, OnChainFX, https://onchainfx.com/ (visited Nov. 12, 2021).

decentralized system is not always better; nor is it always desirable. And we don't have a rigorous language for describing what "more decentralized" means in any event.

I would urge you to ignore the simplistic characterizations of blockchains and digital assets as necessarily creating a zero-sum competitor to existing firms, industries, or even governments. We heard this with the internet too. Yet the *New York Times*, JP Morgan, AT&T, and Microsoft are still here, albeit changed in important ways. And of course, the United States of America is still here. The choice we face is not blockchain vs. traditional software, nor is it Bitcoin vs. the U.S. dollar. It is the question of what kind of blockchain-enabled and digital asset-powered future we will experience, and how this new world will interact with and, in some ways, transform the old one.

B. The Regulatory Landscape

Broadly speaking, cryptocurrencies raise three major categories of regulatory consideration:

1. Consumer/investor protection
2. Financial crime
3. Macroprudential and monetary policy

Consumer/Investor Protection

The first category relates to concerns about fraud, market manipulation, deception, information asymmetries, hacks, and excessive or hidden risk. The basic financial regulatory response to these concerns is the registration, disclosure, and market surveillance regime of the 1933 and 1934 Securities Acts. Outside of financial services, agencies such as the Federal Trade Commission take actions against unfair or deceptive trade practices, and the Department of Justice pursues those who defraud consumers or investors. There have been numerous cases where digital asset market participants have been defrauded, had funds stolen, or have suffered catastrophic losses because they took risks they did not understand or could not withstand.

Financial Crime

The digital asset market today is still small relative to the universe of financial asset classes. However, this market is no longer small in absolute terms. The attributes that make cryptocurrencies valuable for legitimate uses also make them attractive for criminals, money launderers, sanctioned nations, terrorists, and others who are appropriately excluded from the global financial system. Over the past decades, a sophisticated national and global regime of anti-money-laundering and countering the financing of terrorism (AML/CFT) rules, as well as industry compliance practices, have been put into place. While highly imperfect, these mechanisms serve important objectives.

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Macroprudential and Monetary Policy

Finally, as the size of digital asset markets increases, and instruments such as stablecoins and central bank digital currencies become a greater component of the monetary system, financial policy makers will need to consider them in assessments of systemic risk. They may also need to take into account the impacts that privately issued digital assets have on nations' ability to exercise monetary policy, a topic that has already been raised in connection with Facebook's Libra (now Diem) proposal.[22]

Enforcement Challenges

In the cryptocurrency sector, there are two main problems in applying established rules. The first is categorization difficulty. The securities regulation regime depends on classification as a security or investment contract, for example. Applying the *Howey* and *Reves* frameworks in the digital asset context can be challenging. The second is that blockchain networks are decentralized, global, and typically reference participants through addresses not inherently associated with real-world identities. These factors create practical enforcement challenges even when there are clear cases of harms. Regulators also need to consider the magnitude of harms relative to benefits of unconstrained experimentation, the balance between case-by-case *post hoc* enforcement and prospective rules, as well as whether to take action against those who actively facilitate but may not directly commit violations.

C. U.S. Regulatory Activity[23]

Federal digital asset regulation in the U.S. to date has involved a number of agencies and offices: the Financial Crimes Enforcement Network (FinCEN), Office of the Comptroller of the Currency (OCC), and Internal Revenue Service (IRS) in the Treasury Department, the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC), and the Federal Deposit Insurance Corporation (FDIC). There has also been activity in a number of states, and several bills introduced in recent sessions of Congress, which I will not cover here.

FinCEN classifies virtual currencies as "money" for transmission purposes and in 2020 proposed a rule that would impose recordkeeping, reporting, and customer identity verification requirements on large virtual currency transactions.[24] Recent FinCEN actions have built on the

[22] Ryan Browne, *Here's why regulators are so worried about Facebook's digital currency*, CNBC.com (September 19, 2019), https://www.cnbc.com/2019/09/19/heres-why-regulators-are-so-worried-about-facebooks-digital-currency.html.

[23] This subsection is adapted from testimony I gave this summer to a legislative hearing before a committee of the Pennsylvania State Assembly on July 19, 2021.

[24] Requirements for Certain Transactions Involving Convertible Virtual Currency or Digital Assets, 85 FR 83840 (Dec. 23, 2020) (to be codified at 47 C.F.R. pts. 1020, 1022).

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precedent of the $110 million fine against the exchange BTC-e in 2017.[25] In addition, FinCEN's enforcement focus has noticeably extended to penalties against individual persons. A pair of prominent enforcement actions have targeted over-the-counter exchange activities by individuals who failed to register with FinCEN, implement an anti-money laundering program, and institute a reporting regime.[26] One of the actions included related criminal proceedings for money laundering of illicitly obtained bitcoin funds.[27]

Similar to FinCEN, the CFTC maintains a broad conception of its regulatory authority—if an active futures market exists for a digital asset, it is within the CFTC's purview. The CFTC has plainly stated that it has standing to regulate bitcoin and other virtual currencies in futures or options contracts, as well as any transactions involving margin financing or fraud.[28] Self-certifications of both the CME and CBOE, as well as a 2018 suit, legitimized this authority.[29] The CFTC has issued three order filings in 2021, including a $6.5 million monetary penalty against the exchange Coinbase for an alleged wash trading scheme.[30]

The SEC's framework for analyzing digital assets is based on the longstanding *Howey* test for classifying securities.[31] A 2018 statement by then Corporation Finance Director Bill Hinman stated that Bitcoin and Ether were sufficiently decentralized that they did not appear to meet the requirements of securities classification at this time.[32] A second functional prong developed following a pair of no-action letters issued by the SEC. The agency has indicated that when a

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[25] *In the Matter of BTC-E a/k/a Canton Business Corp. & Alexander Vinnik, Assessment of Civil Money Penalty*, FinCEN (July 26, 2017), https://www.fincen.gov/sites/default/files/enforcement_action/2020-05-21/Assessment%20for%20BTCeVinnik%20FINAL2.pdf.

[26] *See* Press Release, U.S. Dep't of Just., '*Bitcoin Maven' Sentenced to One Year in Federal Prison in Bitcoin Money Laundering Case* (July 9, 2018), https://www.justice.gov/usao-cdca/pr/bitcoin-maven-sentenced-one-year-federal-prison-bitcoin-money-laundering-case; *see also In the Matter of Eric Powers*, FinCEN (Apr. 18, 2019), https://www.fincen.gov/sites/default/files/enforcement_action/2020-05-21/Assessment%20Eric%20Powers%20Final%20for%20Posting%2004.18.19.pdf.

[27] Judgment, *United States v. Theresa Lynn Tetley*, No. 17-cr-00738 (C.D. CA 2018), https://storage.courtlistener.com/recap/gov.uscourts.cacd.695757/gov.uscourts.cacd.695757.45.0_1.pdf.

[28] *See In the Matter of Coinflip Inc.*, CFTC (Sept. 17, 2015), https://www.cftc.gov/sites/default/files/idc/groups/public/@lrenforcementactions/documents/legalpleading/enfcoinfliprorder09172015.pdf.

[29] *See CFTC v. McDonnell*, 287 F. Supp. 3d 213 (E.D.N.Y. 2018); *see also* Press Release, CFTC, *CFTC Statement of Self-Certification of Bitcoin Products by CME, CFE and Cantor Exchange* (Dec. 1, 2017), https://www.cftc.gov/PressRoom/PressReleases/7654-17.

[30] *See* Press Release, CFTC, *CFTC Orders Coinbase Inc. to Pay $6.5 Million for False, Misleading, or Inaccurate Reporting and Wash Trading* (Mar. 19, 2021), https://www.cftc.gov/PressRoom/PressReleases/8369-21.

[31] *See* SEC FinHub, *Framework for "Investment Contract" Analysis of Digital Assets* (Apr. 3, 2019), https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets.

[32] *See* Bill Hinman & Valerie Szczepanik, Statement on "Framework for 'Investment Contract' Analysis of Digital Assets," SEC (Apr. 3, 2019), https://www.sec.gov/news/public-statement/statement-framework-investment-contract-analysis-digital-assets.

coin exclusively derives its value through operations on an already developed platform, there is no capacity to achieve investment returns. As a result, the coin functions as a "utility" within the platform and not a security. Few virtual currencies fall within these exceptions and the SEC regards most initial coin offerings (ICOs) as security issuances.[33]

To date, the SEC has issued over seventy enforcement actions against token issuers. Arguably, none are more significant than its 2020 action against the digital platform Ripple. The SEC claimed that Ripple's issuance of the digital token XRP constituted an unregistered securities offering totaling approximately $600 million.[34] The case, which has not yet gone to trial. could clarify the regulatory landscape for virtual currency offerings. New SEC Chairman Gary Gensler recently urged Congress to clarify the SEC's regulatory authority over digital assets, in particular exchanges, claiming the breadth of the industry is outpacing the SEC's purview.[35]

There is a growing emphasis on banking and depository institutions serving as custodians, issuers, or redemption agents for virtual currencies. A series of interpretive letters by the OCC indicates that commercial and savings banks may implement traditional banking services for virtual currency holdings. The FDIC has requested comments on the potential for digital assets to integrate into the activities of financial institutions.[36] The Federal Reserve Board and the Financial Stability Oversight Council (FSOC) are also looking at potential oversight of stablecoins.

Finally, the IRS treats virtual currencies as property for income tax purposes.[37] The IRS has not provided clear guidance on whether certain virtual currencies and positions are commodities under Internal Revenue Code provisions. In the past, the IRS has deferred to the CFTC's classification, and will likely impose commodity tax treatment on virtual currency transactions designated by the CFTC.[38] Following a 2016 report by the Treasury Inspector General, the agency has worked to build a more cohesive policy for addressing tax compliance and

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[33] *See Oversight of the Securities and Exchange Commission, Before the S. Comm. on Banking, Housing, and Urban Affairs*, 116th Cong. (2019) (statement of Jay Clayton, Chairman, SEC).

[34] *See* Complaint, *SEC v. Ripple Labs, Inc., Bradley Garlinghouse, and Christian A. Larsen*, No. 20-cv-10832 (S.D.N.Y. 2020), https://www.sec.gov/litigation/complaints/2020/comp-pr2020-338.pdf; *see also* Press Release, SEC, *SEC Charges Ripple and Two Executives with Conducting $1.3 Billion Unregistered Securities Offering* (Dec. 22, 2020), https://www.sec.gov/news/press-release/2020-338.

[35] *See Oversight of the Securities and Exchange Commission, Before the Subcomm. on Fin. Serv. And General Govt. of the H. Appropriations Comm.*, 117th Cong. (2021) (statement of Gary Gensler, Chairman, SEC).

[36] *See* Press Release, FDIC, FDIC Issues Request for Information on Digital Assets (May 17, 2021), https://www.fdic.gov/news/press-releases/2021/pr21046.html.

[37] *See* IRS Notice, *Guidance for Individuals and Businesses on the Tax Treatment of Transactions Using Virtual Currencies* (Apr. 14, 2014), https://www.irs.gov/pub/irs-drop/rr-19-24.pdf; *see also* IRS Notice, *Frequently Asked Questions on Virtual Currency Transactions* (Oct. 9, 2019), https://www.irs.gov/pub/irs-drop/rr-19-24.pdf.

[38] *See* New York State Bar Association Tax Section Report, *Report on the Taxation of Cryptocurrency* (Jan. 26, 2020), https://nysba.org/app/uploads/2020/03/Report-1433.pdf.

underreporting of virtual currency transactions.[39] Similar to a 2016 petition filing directed at Coinbase,[40] the IRS has issued a summons demanding the information of consumers transacting large sums on the Circle, Poloniex, and Kraken platforms.[41]

D. Global Regulatory Environment

Significant differences in regulatory approaches to cryptocurrencies exist worldwide as governments grapple with the fast-paced development of the digital asset sector. While El Salvador has made bitcoin legal tender,[42] China banned trading of cryptocurrencies and declared cryptocurrency mining illegal.[43] Other countries have attempted to craft bespoke legal regimes that attract blockchain-based service developers.

Among the most aggressive jurisdictions are Switzerland and Liechtenstein. While Switzerland has amended its existing legislation,[44] Liechtenstein has introduced an entirely new law. Liechtenstein in fact became the first country to comprehensively pass regulation for the token economy, which entered into force in January 2020.[45] The Liechtenstein Blockchain Act allows any right or asset to be tokenized.[46] In September 2020, the Swiss Parliament passed new

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[39] *See* Treasury Inspector General for Tax Administration, *As the Use of Virtual Currencies in Taxable Transactions Becomes More Common, Additional Actions are Needed to Ensure Taxpayer Compliance* (Sept. 21, 2016), https://www.treasury.gov/tigta/auditreports/2016reports/201630083fr.pdf.

[40] *See United States of America v. John Doe*, No. 16-cv-06658-JSC (N.D. CA 2017).

[41] *See* Press Release, U.S. Dep't of Just., *Court Authorizes Service of John Doe Summons Seeking Identities of U.S. Taxpayers Who Have Used Cryptocurrencies* (Apr. 1, 2021), https://www.justice.gov/opa/pr/court-authorizes-service-john-doe-summons-seeking-identities-us-taxpayers-who-have-used-0; *see also* Press Release, U.S. Dep't of Just., *Court Authorizes Service of John Doe Summons Seeking Identities of U.S. Taxpayers Who Have Used Cryptocurrency* (May 5, 2021), https://www.justice.gov/opa/pr/court-authorizes-service-john-doe-summons-seeking-identities-us-taxpayers-who-have-used-1.

[42] *See* Nelson Renteria et al., *In a world first, El Salvador makes bitcoin legal tender,* Reuters (June 9, 2021), https://www.reuters.com/world/americas/el-salvador-approves-first-law-bitcoin-legal-tender-2021-06-09/.

[43] *See* Alun John et al., *China's top regulators ban crypto trading and mining, sending bitcoin tumbling,* Reuters (Sept. 24, 2021), https://www.reuters.com/world/china/china-central-bank-vows-crackdown-cryptocurrency-trading-2021-09-24/. There are some indications that the ban on mining may be subject to reconsideration.

[44] *See* Swiss Confederation Federal Act on the Adaptation of Federal Law to Developments in Distributed Ledger Technology of 25 September 2020, https://www.sif.admin.ch/dam/sif/en/dokumente/Blockchain/blockchain_dlt_gesetz.pdf.download.pdf/DLT%20Federal%20Act.pdf.

[45] *See* Press Release, Government Principality of Liechtenstein, *Liechtenstein Parliament approves Blockchain Act unanimously* (Oct. 3, 2019), https://www.regierung.li/en/press-releases/222958/?typ=content&nid=11164. *See* The Token and Trusted Technology Service Provider Act (TVTG), https://www.gesetze.li/konso/2019301000. The English version of the Blockchain Act, including the government consultation report, can be accessed at http://nlaw.li/25.

[46] *Id.*

regulations for blockchain technology, which entered into force in two phases in 2021.[47] The new Swiss DLT Act amends several civil laws, financial market laws, and also securities law to provide a legal basis for trading rights through "electronic registers", as it introduces ledger-based securities that are represented on blockchains.[48] It further introduces special provisions for the treatment of crypto-based assets in case of bankruptcy, and also establishes a new authorization category for DLT trading, a DLT license.

In the European Union (EU), Member States have implemented regulatory requirements relying on guidelines such as the Financial Action Task Force (FATF)'s guidance for virtual asset service providers (VASP)[49] in 2019 and the EU's 5th Anti-Money Laundering Directive (AMLD5),[50] which has been enforced since 2020.[51] AMLD5 requires exchange services between "virtual currencies" and fiat currencies, as well as custodial wallets, to be registered with an EU Member State. Countries such as Gibraltar[52] and Malta have adopted crypto-friendly regimes for VASPs licensing.[53] Gibraltar, for example, in 2017 introduced a tailored license for fintech firms using blockchain technology.[54]

To bring more clarity and provide a harmonious EU-wide approach, the European Commission proposed a new regulatory framework for digital assets as part of the European Union's Digital Finance Strategy. The soon to be ratified proposal for Markets in Crypto Assets (MiCA),[55] aims

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[47] *See* Press Release, Swiss Confederation Federal Council, *Federal Council brings DLT Act fully into force and issues ordinance* (June 18, 2021), https://www.efd.admin.ch/efd/en/home/the-fdf/nsb-news_list.msg-id-84035.html.

[48] *See* Swiss Confederation Federal Department of Finance, *Digitalisation, Blockchain - Brief Summary*, https://www.efd.admin.ch/efd/en/home/digitalisierung/blockchain.html.

[49] *See* FATF's Guidance for a Risk-Based Approach – Virtual Assets and Virtual Asset Providers, http://www.fatf-gafi.org/media/fatf/documents/recommendations/RBA-VA-VASPs.pdf.

[50] *See* Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0843&from=EN.

[51] As a directive, it leaves EU countries the freedom to create their own laws to achieve the directive's goals. *See* generally, https://europa.eu/european-union/law/legal-acts_en.

[52] Note that upon UK's withdrawal from the EU, Gibraltar as a British Overseas Territory also ceased to be part of it, but it retains a special status regarding negotiations between the EU and the UK, requiring the involvement of Spain. *See* La Moncloa, Spanish Government on Brexit and resulting consequences regarding Gibraltar, https://www.lamoncloa.gob.es/lang/en/brexit/gibraltar/Paginas/index.aspx.

[53] *See* Sandali Handagama, *Europe's MiCA Crypto Rules Are Coming Soon. Here's Why They Matter,* Coindesk (Nov 2, 2021), https://www.coindesk.com/policy/2021/11/02/unpacking-europes-looming-mica-crypto-regulation/.

[54] *See* Huw Jones, *Gibraltar launches financial services license for blockchain*, Reuters (Dec. 14, 2017), https://www.reuters.com/article/us-gibraltar-regulator-blockchain-idUSKBN1E81JO.

[55] *See* European Commission COM(2020) 593 final, Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020PC0593.

to establish a common approach to digital assets beyond the existing rules for securities. Under MiCA, businesses issuing digital assets or serving as VASPs need to acquire a license in one EU Member State, which then becomes valid in all the EU. The proposal includes safeguards to address potential systemic risks, especially in relation to categories of digital assets, such as stablecoins.

In Asia, regulatory approaches vary widely. Japan, which once was home to Mt Gox, the biggest crypto exchange which handled 80% of global bitcoin trading before it went bankrupt due to a major hack, was the first country in the world to define a crypto exchange business in 2017 and legally define "virtual currency".[56] Singapore, considered one of the crypto-friendliest nations and home to many startups, continues to attract crypto related business and already regulates crypto currency exchanges under the Payment Services Act.[57] Whereas in other parts of Asia, such as South Korea and Hong Kong, the cryptocurrency industry is facing new restrictions.[58]

This is not a comprehensive global survey. And there are many details necessary to effectively compare policies across jurisdictions. I describe these global activities in part to illustrate that many other nations, including significant American competitors, are taking the digital asset phenomenon seriously. They are adopting distinctive approaches based on their own policy objectives and existing legal or regulatory structures. The U.S. should do the same.

III. DeFi Regulation

One of the most significant and rapidly growing parts of the blockchain sector is Decentralized Finance (DeFi). DeFi refers to financial services, and associated activity such as price feeds, with three distinctive characteristics: (i) trust-minimized execution and settlement on a permissionless blockchain; (ii) non-custodial treatment of assets; and (iii) software-based implementation that is open, programmable, and composable.[59] DeFi poses particularly acute challenges for regulators and policy-makers. Some of these relate to questions about securities rules or tax treatment for digital assets that have been under discussion and subject to regulatory pronouncements for years. Others are entirely new.

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[56] *See* Sygna Blog, *Guide: Japan Crypto Asset Regulation*, https://www.sygna.io/blog/japan-crypto-asset-regulation-guide/.

[57] *See* Monetary Authority of Singapore (MAS) Payment Services Act, https://www.mas.gov.sg/regulation/acts/payment-services-act.

[58] *See* Mercedes Ruehl and Leo Lewis, *Stakes Rise for Singapore's Big Crypto Bet*, Financial Times (Sept. 30, 2021), https://www.ft.com/content/1f948b38-2061-416d-951d-69415b879c17.

[59] *See* DeFi Policy-Maker Toolkit, *supra* note 3 at 21 *et seq*.

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A. DeFi Benefits and Risks

Total value locked (TVL) in DeFi, representing the value of digital assets which are committed as liquidity or collateral for DeFi services, went from roughly $1 billion in late 2019, to more than $10 billion in mid 2020, to $110 billion in November 2021,[60] with further growth projected.[61] Centralized cryptocurrency exchanges, such as Bitfinex, have started offering bridges between their custodial trading platforms and DeFi offerings.[62] DeFi developers and others are also looking at ways to connect DeFi with traditional finance (TradFi) institutions and markets. For example, payment processors are partnering with DeFi applications to enable direct purchases of stablecoins,[63] and brokerages are starting to offer clients crypto wallets to access the DeFi ecosystem.[64]

DeFi taps into the desire for an open, inclusive financial system that operates globally. A fully transparent system with no central authority, where users have ultimate control over their assets and can borrow, lend, trade, save and invest freely. The fact that the DeFi ecosystem is fully digital and typically operates on the shared trust infrastructure and standards of a particular blockchain ledger means that services can be modified and combined far more easily than in traditional finance. Increasing the velocity of assets and unlocking potential opportunities to earn yields or obtain capital efficiently has the potential to increase the risk-adjusted returns available to market participants.

As with other digital asset-based markets, DeFi also poses significant risks. In *The DeFi Policy Maker Toolkit*, a collaboration of the Wharton Blockchain and Digital Asset Project and the World Economic Forum, we identified five major categories of DeFi risks:[65]

> Financial: Depletion of funds due to market activity of other users, including rapid price declines, failure of liquidity, or strategic behavior.
>
> Technical: Failures of the software systems supporting transaction execution, pricing, and integrity. These include issues such as smart contract vulnerabilities, poorly written smart

[60] *See* Total Value Locked (USD) in DeFi, https://defipulse.com/.

[61] *See*, e.g., Ethan Wu, *Why DeFi could be an $800 billion industry next year, according to a crypto expert*, Businessinsider (Aug. 19, 2021), https://markets.businessinsider.com/news/currencies/defi-crypto-800-billion-industry-billionaire-decentralized-finance-vesper-2021-08.

[62] *See* Tom Farren, *Bitfinex launches the first L2 bridge from CeFi to DeFi*, Cointelegraph (Sep. 23, 2021), https://cointelegraph.com/news/bitfinex-launches-the-first-l2-bridge-from-cefi-to-defi.

[63] *See* Adrian Zmudzinski, *DeFi Leader MakerDAO Partners With Simplex to Create a Dai Fiat On-Ramp*, Cointelegraph (Mar. 3, 2020), https://cointelegraph.com/news/defi-leader-markerdao-partners-with-simplex-to-create-a-dai-fiat-on-ramp.

[64] *See* Robert Stevens, *Robinhood Crypto COO, CTO Hint That DeFi Features Are Coming*, Decrypt (Sep. 26, 2021), https://decrypt.co/81946/robinhood-crypto-coo-cto-defi-tools.

[65] *See* DeFi Policy-Maker Toolkit, *supra* note 3 at 13 *et seq*.

contracts, failures of price oracles, or failures of the underlying blockchain settlement process.

Operational: Failures of the human systems for key management, protocol development, or governance. These include problems with updates or forks, key management for users and governance participants, and how to resolve disputes.

Legal Compliance: Use of DeFi to engage in illicit activity or to evade regulatory obligations.

Emergent: Macro-scale crashes due to the interaction, scaling, and integration of DeFi components. These risks become particularly worrisome as DeFi services plug into each other, and into traditional financial services markets, with limited visibility into the full set of interconnections.

In some cases, DeFi mitigates risks that are a serious problem calling for regulatory involvement in traditional finance. For example, with fully collateralized or over-collateralized DeFi transactions, there is not the counterparty risk that parties will not actually have the capital they claim to have. Positions are visible on the blockchain, and cryptographically secured. In other cases, DeFi generates risks that have no analogue in the established environment. A software error in a traditional derivatives trade, if identified, can be the basis for legal redress or rolling back a transaction. DeFi is based on immutable execution of smart contracts, which can make even obvious mistakes nearly impossible to fix, unless some anticipatory mechanism is put into place.

DeFi market participants, services such as smart contract auditors and DeFi insurance providers, and regulators are actively working to evaluate and address many of these risk categories. A full discussion of the state of play is beyond the scope of this testimony. More to the point, many of these risks involve the kinds of technical issues best addressed by expert agencies or departments within the scope of their mandate. The question for the Congress is whether, and if so how, to alter the statutory framework.

B. DeFi and Regulating Decentralized Systems

DeFi squarely poses the challenge of how it may be possible regulate decentralized systems. A custodial cryptocurrency exchange has a corporate structure, headquarters, management team, and typically licenses or registrations. A decentralized exchange functioning as an automated market maker (AMM), or other on-chain DeFi protocol, need only be software code in the form of smart contracts running on a distributed blockchain network. If the code allows transactions that violate U.S. law, such as sending funds to sanctioned entities or transacting in unregistered securities, the question arises as to how those regulations could be enforced. No natural person or firm needs to be involved for the code to execute and process a trade. Furthermore, if a regulator wished to take enforcement action, there would appear to be no person or firm to take action against.

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While this may sound like an insoluble problem, it is likely to be manageable in practice, if regulators adapt their approaches and focus on the objectives of legal requirements. There are three points of contact that deserve consideration as means of addressing potential regulatory concerns about DeFi: stablecoins, app platforms, and token issuance.

Stablecoins

DeFi services are heavily dependent on stablecoins. This is partly because DeFi, being constructed of smart contracts running on blockchains, cannot directly interface with off-chain payment mechanisms. There is no way to take out a DeFi loan involving traditional U.S. dollars, or interfacing directly with traditional payment rails. Instead, DeFi uses digital assets that are functionally equivalent to those dollars.

The vast majority of stablecoin activity today is associated with centralized stablecoins, most notably Tether (USDT), USD Coin (USDC), and Binance Dollar (BUSD).[66] Facebook's proposed Diem platform, formerly Libra, would also operate in a centralized fashion. Such operators maintain reserves of high-quality liquid assets as backing for the stablecoin. The stablecoin may be manifested as a token on multiple blockchains. However, those tokens are always associated with an identifiable entity that is subject to licensure and regulatory oversight. The exception is Tether, which has an obscure management structure. Tether claims to do no business in the United States, even though it is widely available through U.S.-based exchanges.

Today, centralized stablecoins are not subject to a consistent regulatory framework in the U.S. Some have obtained state money transmission licenses.[67] Others have state trust licenses.[68] Circle has announced plans to become a regulated full-reserve bank.[69] Avanti Bank and Trust plans to launch a stablecoin connected to a Wyoming-chartered Special Purpose Depository Institution.[70] And as noted, Tether, the largest stablecoin by assets, is not currently regulated in the U.S. at

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[66] *See* Top Stablecoin Tokens by Market Capitalization, CoinMarketCap, https://coinmarketcap.com/view/stablecoin/.

[67] The USDC Stablecoin's issuer Circle, for example, is regulated by FinCEN as a Money Services Business and holds money transmitter licenses in several states. *See* Circle US Licenses, https://www.circle.com/en/legal/us-licenses.

[68] *E.g.*, Paxos Standard (PAX) and the Gemini Dollar (GUSD) are Trust companies regulated by the New York State Department of Financial Services (NYDFS). *See* Press Release, NYDFS, *DFS continues to foster responsible growth in New York's FinTech industry with new virtual currency product approvals* (Sept. 10, 2018), https://www.dfs.ny.gov/reports_and_publications/press_releases/pr1809101.

[69] *See* Jeremy Allaire, *Our Journey to Become a National Digital Currency Bank*, Circle Blog (Aug. 9, 2021), https://www.circle.com/blog/our-journey-to-become-a-national-digital-currency-bank.

[70] *See* Nate DiCamillo, *Unpacking the Avit, Avanti Bank's New Digital Asset Being Built With Blockstream*, Coindesk (Aug. 12, 2020), https://www.coindesk.com/business/2020/08/12/unpacking-the-avit-avanti-banks-new-digital-asset-being-built-with-blockstream/.

all.[71] The proposed STABLE Act would require all stablecoins to be regulated as banks,[72] while Cornell law professor Dan Awrey proposes that they be treated as money market funds.[73]

Clarifying the regulatory context around stablecoins, and ensuring that they are subject to appropriate obligations, is a critically important step for policy-makers and regulators.[74] A run on a major stablecoin could be devastating for digital asset holders, and could have spillover effects into the larger financial system. Similarly, if the allegations of insufficient backing, fraudulent statements, and market manipulation against Tether turn out to be accurate, it could undermine trust in the entire digital asset trading market, given how deeply embedded Tether is in that market. There are important issues in deciding the proper structure of stablecoin regulation to address these public policy considerations, while not overly restricting innovative activity or excessively compromising Americans' financial privacy. Therefore, I will not advocate for a specific solution here.

Any stablecoin regulatory framework must consider not only investor protection, market integrity, and financial stability, but also the potential role of stablecoins as DeFi onramps and offramps. If stablecoin operators are all treated as a virtual asset service providers subject to anti-money laundering obligations such as Know Your Customer (KYC) rules, that would provide a check that funds entering or leaving the DeFi ecosystem will associated with known, non-sanctioned individuals or entities. It would also provide an aggregation point for law enforcement agencies to monitor activity, with the assistance of sophisticated blockchain analytics tools. While this alone would not eliminate concerns about DeFi being used for criminal activity, it might ameliorate them to a material extent.[75]

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[71] Tether and Bitfinex were sued by the New York Attorney General and agreed to pay a $18.5 million fee for fraudulent activity. The settlement included a commitment that the entities would cease operations in New York. *See* Press Release, Letitia James NY Attorney General (Feb. 23, 2021), https://ag.ny.gov/press-release/2021/attorney-general-james-ends-virtual-currency-trading-platform-bitfinexs-illegal.

[72] *See,* Stablecoin Classification and Regulation Act of 2020 (US Congress H.R.8827), *https://www.congress.gov/bill/116th-congress/house-bill/8827/text?r=1&s=1. See also* Press Release, Congresswoman Rashida Tlaib (MI-13), Tlaib, García and Lynch Introduce Legislation Protecting Consumers from Cryptocurrency-Related Financial Threats (Dec. 2, 2020), https://tlaib.house.gov/media/press-releases/tlaib-garcia-and-lynch-stableact.

[73] *See* Dan Awrey, Bad Money, 106:1 Cornell Law Review 1 (2020); Cornell Legal Studies Research Paper No. 20-38, https://ssrn.com/abstract=3532681.

[74] *See* Kevin Werbach, *Comments regarding Docket No. OP-1747, Proposed Guidelines to Evaluate Requests for Accounts and Services at Federal Reserve Bank* (Letter, July 9, 2021), https://www.federalreserve.gov/SECRS/2021/July/20210721/OP-1747/OP-1747_070921_138743_356123729916_1.pdf.

[75] There are also stablecoins which operate as entirely smart contracts, rather than through fiat backing. The most prominent of these is MakerDAO, which has $19 billion in assets. There are many others, which either use collateral in the form of digital assets to back the stablecoin or dynamically increase and decrease supply to keep the price stable. Several algorithmic stablecoins have failed to maintain their peg during periods of market volatility or due to deliberate attack, although others have so far managed to avoid that outcome. These on-chain stablecoins raise similar regulatory challenges as DeFi services such as AMMs and lending engines. Although, perhaps ironically,

An open question is whether stablecoin regulations would go beyond sanctions enforcement and standard anti-money laundering checks to, for example, incorporate blacklists of transactions with non-compliant DeFi protocols. Such a move could significantly increase regulators leverage against decentralized DeFi protocols. However, it would also raise concerns about pushing activity to unregulated or offshore alternatives, as well as privacy concerns. The technical and policy aspects of such a step should be carefully considered.

App Interfaces

The second point of potential regulatory oversight for DeFi is the centralized component of major services. While the smart contracts themselves run on decentralized blockchains such as Ethereum, users often access their functionality through traditional websites. For example, Uniswap allows users to trade tokens on its Uniswap.org website, by connecting a wallet such as Metamask. This website is operated by the company Uniswap Labs which employs developers and can make changes to the code. For example, Uniswap delisted approximately 100 tokens in July 2021, including synthetic stock tokens, which would represent unauthorized unregistered securities transactions.[76] Users cannot now trade those tokens through the Uniswap app. They can, however, still send them programmatically to the Uniswap smart contract.

Because Uniswap Labs, the company clearly controls the website and develops the end-user app, it has significant legal exposure to illicit or non-compliant activity they facilitate. Explicit declarations by regulators of their intent to take action against DeFi app providers if they fail to meet certain obligations could therefore have a significant impact, even when the protocols themselves are nominally decentralized. Due consideration should be given to the burdens such obligations would impose, and the possibility that DeFi app providers will either move to another jurisdiction or shift away from a corporate form to a decentralized autonomous organization (DAO) structure. Such steps, however, are not costless, nor do they necessarily eliminate regulators' ability to act.

The significance of platform-targeted enforcement depends on how much activity flows through the website or consumer-facing app, and how much is directly sent through the smart contract.[77] The app interfaces are more user-friendly, and therefore tend to be used by less-sophisticated and smaller-scale DeFi market participants. Most retail investors, even those who express a commitment to the ideals of decentralization, tend to care more about user experience. After all,

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MakerDAO's collateral has become increasingly dominated by USDC, a fiat-backed stablecoin, which may make it less difficult to address from a regulatory perspective. *See* Dai Stats, https://daistats.com/#/overview.

[76] *See* Martin Young, *Uniswap delists 100 tokens from interface, including options and indexes*, Cointelegraph (July 26, 2021), https://cointelegraph.com/news/uniswap-delists-100-tokens-from-interface-including-options-and-indexes.

[77] Uniswap reportedly has more volume directly through the smart contract than through the consumer-facing app, users can also execute transactions by the interface of other DeFi applications, such as the DEX aggregator 1inch. It is early, however, to make definitive judgements, given how fast the DeFi market is growing and changing.

centralized platforms dominate social media and investment services. A more decentralized system, all things being equal, is usually harder to use, or worse on some other dimension. The slow processing speed and limited capacity of Bitcoin compared to traditional payment networks is an example. There are technical tradeoffs involved in building effective decentralized systems, and mechanisms to hide the resulting complexity from end uses often wind up recreating new points of gateway control. All this suggests that regulation of application platforms—in other words, the more centralized component of DeFi services—could have significant effects, especially for the more vulnerable investors who are a source of particular concern.

The other side of the coin is how sophisticated an institutional actors will respond. There is some evidence that, although there is a significant and active retail DeFi community, including aggressive risk-taking "degens," it is actually dwarfed by institutional-scale activity. The gas costs of every transaction on Ethereum, which is still the dominant platform for DeFi activity, can easily exceed $100, which limits the scope of small-scale trades.[78] Independent of that fact, the kinds of complex capital allocation and yield generation activities that DeFi offers, as well as the opportunity to trade large amounts of assets with limited "slippage" (corresponding price movement), appeal particularly to sophisticated traders. A recent Chainalysis report found that over 60% of DeFi volume was in transactions exceeding $10 million.[79]

On the one hand, sophisticated traders may be better able to, or more interested in, finding ways to transaction without going through central gatekeepers or subjecting themselves to regulatory controls. On the other hand, many of these are regulated actors, or affiliated with regulated institutions. Regulators know who *they* are, and they will not engage in DeFi activities that expose them to major compliance risk. Recognizing how much capital that might flow into DeFi is controlled by institutional actors subject to regulatory obligations, DeFi service have begun to provide tailored offerings that meet their compliance obligations. For example, Aave, one of the largest DeFi lending platforms, has created a separate set of collateral pools, called Aave Arc, which are only accessible to verified liquidity providers that are identified through KYC.[80] Again, the fact that DeFi services are moving in this direction on their own suggests that, as regulators more clearly identify concerns and paths to compliance, major segments of the DeFi market may adapt in ways that make enforcement more feasible.

There will always be some actors in DeFi, and in the blockchain world more generally, who are committed to evading legal obligations. They may do so for strong ideological reasons, because they see significant profit opportunities, or because they provide services to criminals and other

[78] There are ways to keep some transactions off-chain. Scaling solutions for Ethereum, such as sidechains and layer-2 "rollups," as well as alternative blockchains such as Solana and Avalanche with lower transaction costs, may remove this impediment to small-scale DeFi activity. Exactly how and how quickly, though, remains to be seen.

[79] *See* Osato Avan-Nomayo, *Institutional investors dominated the DeFi scene in Q2: Chainalysis report*, Cointelegraph (Sept. 8, 2021), https://cointelegraph.com/news/institutional-investors-dominated-the-defi-scene-in-q2-chainalysis-report.

[80] Tim Copeland, *DeFi Permissioned DeFi platform Aave Arc gears up for launch*, The Block (September 27, 2021), https://www.theblockcrypto.com/linked/118822/permissioned-defi-platform-aave-arc-gears-up-for-launch.

illicit actors (or themselves fit into that category). However, enforcement need not be perfect to be effective. There are non-compliant actors in the traditional financial system as well. Most market participants, especially those seeking to become large and successful, do not aspire to target the market of criminals, terrorists, and sanctioned nations. They want to attract large numbers of users. Those users, in turn, want platforms they can trust. They are used to relying on the protections of legal enforcement and consumer protection measures, rather than hoping for honor among thieves. If the burdens of regulatory compliance are not excessive, therefore, the larger DeFi market participants in particular are likely to accommodate them.

This is true even though blockchains are global. There is increasing coordination among major nations around regulatory approaches to blockchain-based systems, starting with financial crime guidelines under the Financial Action Task Force (FATF). Large financial markets are moving to harmonize their rules—with the exception of China, which is imposing considerably more stringent restrictions on its local digital asset economy. Small countries that seek to attract capital with loose regimes run the risk of being sanctioned or cut off from the global financial system. Again, this process is messy, but fundamentally resembles broader efforts to harmonize requirements for increasingly global financial services activity that have been ongoing for decades.

Token Issuers

A final opportunity for regulatory engagement with DeFi is in the tokens that power these services. Tokens do not appear from nowhere. Once they are issued and accessible through blockchain networks, it may be impossible to point to any entity managing them or controlling their distribution. However, there is always a point in time at which tokens are issued. And there is an entity that structured the token issuance, initiates it, and often promotes it or connects it to other deliberate activities.

The moment of token issuance, therefore, is an important regulatory opportunity. It is the point at which there is likely to be some identifiable actor who must engage with the blockchain and the outside world. The first major wave of enforcement actions against blockchain-based services followed the 2017 boom in Initial Coin Offerings (ICOs), in which developers pre-mined tokens and issued them to raise funds for new applications or networks. Even when a token is not a security subject to registration requirements, however, the point of issuance is still the moment at which it is easiest to assess and implement regulatory obligations.

It is not surprising, therefore, that the MiCA framework under development by the European Union focuses heavily on requirements for token issuers.[81] I am not advocating that the U.S. take exactly the same steps as Europe; there are issues with the MiCA rules and the overall legal framework is somewhat different. However, it is a model that bears studying on this side of the Atlantic.

[81] The other major category in MiCA are virtual asset service providers, primarily for financial crime prevention.

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C. The File-Sharing Analogy: Intent Matters

In considering novel developments such as the rise of blockchain and digital asset markets, it is often helpful to look back to historical analogies. In the case of DeFi, important precursors are the rapid rise—and equally rapid fall—of peer to peer (P2P) file sharing applications. While the story is a familiar one in technology circles, the legal resolution of the P2P file-sharing challenges is not as well remembered. And it turns out to be directly relevant to DeFi.

P2P file-sharing threatened to undermine the economic foundations of the music industry, and other media industries as well…or perhaps merely to transform them. It all started with Napster, written by college student Shawn Fanning, and launched in 1999. Within a few months, Napster had more than 20 million downloads and 4 million songs in circulation.[82] These are astronomical numbers considering how much smaller the internet was at that point. App store ecosystems, or even smartphones, did not exist, and most internet users were still on dial-up connections over the telephone network. Napster and other P2P file-sharing applications took off primarily because they allowed people to access commercially-released music for free. At the time, the only way to purchase recorded music was on physical media such as CDs. Streaming was negligible and record labels refused to license online distribution of songs. With Napster, a user could freely download any songs shared by other users of the peer-to-peer network. The music industry saw it as an existential threat.

Napster posed an issue similar to the one we now face with DeFi: how to regulate decentralized activity? The legal issue in the earlier case was copyright infringement rather than financial regulation, but the structure of the problem was the same. Napster itself did not distribute any music. It did not store any music on its servers. It did not create or control the network through which users traded music. It merely distributed software, which connected itself to a dynamic decentralized network by finding other users of the software online at the same time. Napster and its defenders argued that Napster was not, in fact, contributing to infringement; it only provided a neutral tool that could be used to exchange any files of the user's choosing.

The record industry sued Napster, and the case went to the United States Court of Appeals for the Ninth Circuit.[83] Napster lost. The court found that even though Napster did not itself store or transfer music files, Napster maintained a central database of all content accessible on the network at any time. Napster users contributed their own list of files automatically to this database, which other users referenced to identify what was available where. As a result, Napster knew exactly what was being traded on its network. It could clearly see that the vast majority of the activity involved illicit sharing of licensed content. Furthermore, Napster was essential to this activity. Without the dynamic database that Napster maintained, the file sharing network could

[82] *See Napster: 20 million users*, CNN Money July 19, 2000), https://money.cnn.com/2000/07/19/technology/napster/index.htm.

[83] *See* A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004 (9th Cir. 2001).

not operate. In other words, Napster was essentially a DINO—decentralized in name only. It effectively maintained control of essential elements of the network, and therefore could be held legally responsible for the network's activity/ Napster was quickly shut down.[84]

There are today similar DeFi services that are decentralized in name only. Some of these simply associate with the name DeFi for marketing reasons, without having any real decentralization compared to more established services. DeFi Money Market (DMM), for example, was styled as a centralized lending pool that would aggregate participants' capital and pay them interest.[85] It was in fact a fraud. Even as described, however, DMM was centralized: the operator of the pool controlled all the assets. The SEC had little difficulty taking action against DMM.[86]

There are likely to be many more DeFi services that are similarly centralized in practice, or that maintain a significant amount of central control. The SEC in 2018 took action against EtherDelta, an early decentralized exchange (DEX).[87] EtherDelta, like today's DeFi AMMs, did not take custody over users' assets. However, it was controlled by a single developer who controlled the order book, listings, and access to the system. The SEC had little difficulty going after EtherDelta for impermissibly trading unregistered securities.

The more interesting parts of the P2P file-sharing story are what happened after Napster. Newer file-sharing applications architected themselves to remove the central control point that doomed Napster. These apps, most famously Kazaa but also including Grokster, LimeWire, and others, built up the database of available songs in a decentralized way, through direct communications between users' software. There was no central database, and therefore the application developer could not directly see what users were transferring. Nor could the app distributor blacklist certain files. It had no direct control.

Nonetheless, the distributed P2P file-sharing services also lost in court. In *MGM v. Grokster*, the Supreme Court concluded that they were, like Napster, legally responsible for the activity on their network.[88] The legal theory in this case was that, even though these services did not see or allow each individual infringing transfer, they knew and encouraged the creation of a marketplace that was dominated by infringement. In other words, Grokster and Kazaa "induced" the illegal activity. Their marketing materials, business models, internal communications, and the

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[84] The service had a second life as a tool for licensed music distribution, but never regained its prior success.

[85] See Gregory Keough et al., *DeFi Money Market Ecosystem – Earn Interest on Digital Assets Backed By Real-World Assets Represented On-Chain*, Whitepaper (Feb, 2020), https://defimoneymarket.com/files/DMM-Ecosystem.pdf.

[86] See Press Release, SEC, *SEC Charges Decentralized Finance Lender and Top Executive for Raising $30 Million Through Fraudulent Offerings* (Aug. 6, 2021), https://www.sec.gov/news/press-release/2021-145.

[87] *See* Press Release, SEC, *SEC Charges EtherDelta Founder With Operating an Unregistered Exchange* (Nov. 8, 2018), https://www.sec.gov/news/press-release/2018-258.

[88] *See* MGM Studios, Inc. v. Grokster, Ltd., 545 U.S. 913 (2005).

obvious evidence of the market dynamics made clear that the file-sharing applications developers were not just innocent bystanders.

Further reinforcing this test, there was no legal action taken against BitTorrent, a P2P file-sharing protocol optimized for distribution of video. Even though at one point upwards of one third of all internet traffic globally involved BitTorrent transfers,[89] and most of them were not licensed by the content owners, BitTorrent the company did nothing to induce such activity. It merely disseminated open-source software. Its own business was built around offering content owners the ability to distribute licensed video with protections against infringement.[90]

The important point here is that the "why" of activity matters. Even when not explicitly spelled out in the laws or regulation, intent is a significant factor that regulators and enforcement agents consider in deciding whether to take action, and that courts consider in resolving cases. This is relevant in the blockchain context as well. For example, an alarmist study found that the code for child pornographic images, in text form, had been embedded in the Bitcoin blockchain, and suggested that miners might be subject to criminal prosecution for possessing such material.[91] No such prosecutions have occurred. Law enforcement officials understand the distinction between actors who contribute to the scourge of child sexual abuse and those, who through no fault of their own and with no ability to remove it, happen to store data that could theoretically be reconstructed into an illicit image.[92]

One of the important questions for DeFi services will be why they decentralize. There are many legitimate reasons to do so. Decentralization removed power from intermediaries who extract rents, making services cheaper and more broadly accessible. It can make services more efficient while also making them more inclusive and equal. It can make systems more robust and secure, while drawing powerfully on the contributions of more participants. In these cases, the regulatory challenges DeFi poses are unintended side effects. In other cases, however, such as the Kazaa/Grokster architecture, decentralization is a deliberate means of avoiding legal obligations. If breaking the law is the primary benefit of decentralization, which otherwise creates difficulties for the service, it is fair to ask whether regulators should defer action in the name of "innovation." Certainly, there will be many cases where intent is not obvious. That should not prevent use from identifying those where it is.

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[89] *See CacheLogic says 35% of all Internet traffic is now BitTorrent*, ZDNet (November 4, 2004), https://www.zdnet.com/article/cachelogic-says-35-of-all-internet-traffic-is-now-bittorrent/.

[90] Ironically, the BitTorrent company was eventually purchased by Tron, a blockchain network. *See* Ingrid Lunden, *BitTorrent is selling for $140M to Justin Sun and his blockchain startup Tron,* TechCrunch (Jun. 18, 2018), https://techcrunch.com/2018/06/18/bittorrent-tron/.

[91] *See* Hamza Shaban, *People are using bitcoin's system to share child pornography, researchers say*, The Washington Post (Mar. 22, 2018), https://www.washingtonpost.com/news/the-switch/wp/2018/03/22/people-are-using-bitcoins-system-to-share-child-pornography/.

[92] *See* Kevin Werbach, Arvind Narayanan and James Grimmelmann, *Why Porn on the Blockchain Won't Doom Bitcoin* (Wired Online, March 29, 2018), https://www.wired.com/story/why-porn-on-the-blockchain-wont-doom-bitcoin/.

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IV. Recommendations

The rise of digital assets, and the overlapping trends increasingly described as Web 3, is not a fad. These are volatile markets that have crashed before and will crash again. There is a good deal of irrational exuberance in the current crypto market, or rational exuberance about short-term speculative profits that are nonetheless not sustainable or generalizable. And as detailed earlier, there are serious risks and abuses associated with cryptocurrencies which policy-makers must address. None of this, however, calls into question the basic value proposition for blockchain as a foundational technology and digital assets a means of powering financial and other services.

Congress should take a three-pronged approach to the regulatory questions that cryptocurrencies raise. This is in addition to the normal oversight process for the various agencies addressing issues under their jurisdiction, and coordination with the Executive Branch. The three components of an effective approach are capacity building, addressing "low hanging fruit" aggressively, and engaging in a long-term examination the existing financial regulatory legal regime.

A. Capacity Building

The first step is to recognize that cryptocurrencies and blockchain pose thorny new challenges which regulators may be ill-prepared to address. There are also important questions relevant to the future of DeFi and other digital asset-based markets where even experts in the industry do not have good answers. Steps should be taken to improve the state of knowledge, and where possible to provide breathing space and help policy-makers gain a greater understanding of market dynamics.

One part of this step is to ramp up public research and development efforts, as well as experimentation by government agencies with blockchain-based solutions. There are many important research questions related to blockchain and cryptocurrencies that have not been subject to sufficient academic attention, especially regarding the business and financial dynamics rather than purely the computer science foundations. Public funding of research and government operating as a convenor of public sector, private sector, and academic experts should both receive higher priority, given the potential importance of digital assets and blockchain.

Other countries provide significant support for research and development in this area. For example, the European Union has funded blockchain research for several years through its Horizon 2020 initiative, as well as other mechanisms.[93] The EU Blockchain Observatory and

[93] *See* European Commission on Shaping Europe's digital future, Blockchain funding and investment, https://digital-strategy.ec.europa.eu/en/policies/blockchain-funding.

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Forum[94] and European Blockchain Service Infrastructure[95] are convening experts, developing standards, and coordinating responses to important issues. Chinese officials often describe blockchain as part of the country's "New Infrastructure" strategy, along with other strategic technologies such as 5G wireless and artificial intelligence.[96]

At the same time as government supports external research, agencies need to build the internal capacity to address tricky cryptocurrency-related questions effectively. Some mechanisms that have proven effective in similar contexts include:[97]

> Specialized regulatory units. A targeted group with qualified staffing, such as the SEC's FinHub, can serve as an initial gateway to gain experience in new technology, interact with the industry and provide guidance. This knowledge can be shared with policy-makers and actions may include issuing non-action letters under existing regulatory regimes.
>
> Incentivizing information flow. Disclosure is one of the most common tools of financial regulation. Even when the applicability of existing disclosure requirements on DeFi platforms is uncertain, efforts to encourage broad and consistent information disclosure may prove fruitful for regulatory analysis.
>
> Regulatory sandboxes. Policy-makers may decide to establish regulatory forbearance programs such as sandboxes, where companies may test and operate their technology in a limited scope and therefore with limited regulatory risks. The sandbox gives start-ups a chance to address regulatory compliance concerns and gives regulators a better understanding of the risks and benefits of a new space.
>
> Coordinating government action. In some cases, it may be useful to bring together different government entities for a harmonized response. Such efforts are already underway, through vehicles such as the President's Working Group on Financial Markets, the Financial Stability Oversight Counsel, and the digital asset policy "sprint" between the OCC, FDIC, and Fed. More coordination will likely be valuable, however, including coordination with state authorities and regulators outside the U.S.

This list is not intended to be comprehensive. Nor does it presuppose any policy outcomes. The point of all the ideas listed in this section is to improve both the process and the substance of regulatory engagement with blockchain and digital asset firms, whatever direction that engagement takes.

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[94] European Commission initiative EU Blockchain Observatory and Forum, https://www.eublockchainforum.eu/.

[95] European Commission on Shaping Europe's digital future, European Blockchain Services Infrastructure, https://digital-strategy.ec.europa.eu/en/policies/european-blockchain-services-infrastructure.

[96] See Jane Wu, *Blockchain as an Infrastructure: A Deep Dive Into China's DLT Strategy,* Cointelegraph (Jun. 23, 2020), https://cointelegraph.com/news/blockchain-as-an-infrastructure-a-deep-dive-into-chinas-dlt-strategy.

[97] This list is derived from a section of the DeFi Policy-Maker Toolkit, *see supra* note 3.

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B. Short-Term: Low-Hanging Fruit

The blockchain sector is developing and growing fast. Some needed policy actions do not require significant gestation and debate; they should be adopted as quickly as possible.

First, there are a number of situations where laws and regulations were written with language that fails to effectively accommodate digital assets and the distinctive features of blockchain-based systems. These are generally situations of un-intended consequences. Unclear or ill-fitting statutory language creates impediments for market participants that do not service any public policy objective.

In preparation for this testimony, I surveyed several legal experts from different areas of the digital asset space, and asked them what "low-hanging fruit" Congress could address in the near term. The following is a non-exhaustive list:

- The Infrastructure Investment and Jobs Act includes language classifying digital asset service providers as "brokers" subject to IRS reporting requirements. As drafted, it could cover actors, such as cryptocurrency miners, who have no means of complying and do not function as intermediaries targeted by the language. A bipartisan amendment was offered to address this oversight. Despite no direct opposition, it was not included in the final bill.
- The Infrastructure bill also included language incorporating digital assets into Section 6050I of the Internal Revenue Code, which requires those making transactions over $10,000 in their "trade or business" to report the counterparties' social security number and other personal information. Without clarification or narrowing, this could sweep in a great deal of transactional activity that does not require reporting in the analogous situation involving traditional assets.
- Under current IRS guidance, any cryptocurrency transaction, even for payments, can constitute a taxable event. A *de minimis* exemption has been proposed in multiple sessions of Congress, but has not been adopted.
- Section 409A of the Internal Revenue Code provides exemptions for compensation involving "service recipient common stock" and "incentive stock option" plans, but does not appear to address the equivalent scenario in which compensation is provided on a deferred and scheduled based in the form of tokens.

There are other areas which, though somewhat more complicated, call for rapid action to resolve significant market uncertainty or address under-regulated activity. I have already mentioned one: implementing a consistent regulatory structure for stablecoins. Others include:

- Allocation of authority over digital assets between the SEC and CFTC, given the ambiguity of when these assets function as securities, commodities, or something else, and the confluence of spot and derivatives markets.

- Clarity on the definition of a qualified custodian for digital assets. Custody of digital assets is very different at a technical and operational level from custody of traditional financial assets. However, the market has become far more sophisticated in custody solutions than a few years ago.

- A pathway for a digital asset firm to gain broad access to the banking system, FDIC insurance, and payments networks, including Federal Reserve master account. There are many appropriate reasons for banks and bank regulators to be concerned about risks of digital assets. That does not mean that mechanisms for addressing those risks can never be identified.

At the same time such efforts are underway to facilitate legitimate digital asset activity, significantly stronger action must be taken against the bad actors. There is no reason for firms to make efforts to comply with the rules if they see that others who demonstrably do not suffer no ill consequences. Put simply, there is a great deal of obvious fraud and regulatory avoidance in the blockchain world. There has been for some time.

While a few fraudulent actors have been subject to enforcement actions, many have not. Limits on enforcement resources and the difficulty of successfully bringing cases are certainly part of the explanation. It is infeasible to pursue every case that appears to involve illicit activity. However, regulators and law enforcement should prioritize large and visible cases of fraud and theft, and seek to set examples. If funding is the limiting factor, the Congress should consider additional appropriations.

At the same time as action is taken against the obvious bad actors, investigative resources should be devoted to the large players in the blockchain ecosystem who have been credibly accused of market manipulation, such as Tether and Binance.[98] Most of these purport not to operate in the U.S.; some claim to have no headquarters at all; others shift between jurisdictions whenever questions are raised about their activities. Any enforcement action will therefore require significant cooperation with foreign law enforcement authorities. The effort is worth it. In the current environment, regulated U.S.-based actors transact with, and apparently derive significant benefits from, these offshore entities. In other situations, individual and firms take steps to nominally remove themselves from the U.S., while still enjoying the benefits of citizenship and easy access to U.S. capital markets.

[98] It is for regulators and law enforcement to decide whether these allegations are accurate. I raise them to note that they are long-standing and not unsupported by available evidence. *See supra* notes 8, 71. Furthermore, even if cryptocurrency markets do not constituted trading in securities, that does not mean that market integrity concerns should be ignored.

Such conduct blurs the distinction between compliant and non-compliant service providers, and calls into question the integrity of the entire market. It may turn out that, after investigations, there is smoke but not fire. If that is the case, termination of investigations should help bring confidence to the market. If, on the other hand, even a portion of the allegations of systemic manipulation are true, many investors and other market participants are being taken advantage of, at massive scale. And it is only a matter of time before the shell game ends, with potentially disastrous consequences.

C. Re-Thinking Financial Regulation

Long-term, I do not think we can escape from the conclusion that blockchain and digital assets, along with other fintech developments, will contribute to a fundamental reshaping of our financial markets, and have major impacts in many other domains.

The fact that the relevant laws and, in many cases, judicial decisions establishing common-law doctrines, are decades old, is not itself a problem. We venerate the Constitution because its broad language can be interpreted to address issues the Framers themselves would never experience. It makes no sense to adopt new laws, and narrowly tailored laws, for every significant technological change. Laws and rules that are technology-specific tend to advantage or disadvantage one technological approach, which should not be the role of government, and quickly become outdated as newer technologies emerge.

However, there are situations where laws or regulatory structures do need to be re-evaluated. There is broad consensus, for example, that the accredited investor regime is an increasingly poor fit for the current investing environment, a problem that digital assets magnify. More generally, information disclosure, the centerpiece of the securities regulatory structure, means something different in a blockchain context where all transactions are transparent and cryptographically guaranteed although interpreting the transaction data and associating it with market participants may be more challenging than in traditional finance. And the highly fragmented financial regulatory structure that is almost entirely unique to the U.S. deserves a closer look in an era of digital convergence. A structure of multiple specialized agencies has benefits, but it also creates opportunities for regulatory arbitrage and confusion.

In 1996, after several years of effort, Congress passed the Telecommunications Act, which rewrote the outmoded Communications Act of 1934. There are many problems with the 1996 Act, not the least that it failed to anticipate how important the internet would become in the communications, media, and technology sectors. However, we would be worse off trying to regulate today under the old law, which could barely be stretched to cover cable television. At some point, frameworks that poorly fit new technologies are, in effect, no longer technology neutral.

The re-think I am describing will take time. It will address many issues beyond blockchain. Some of the necessary changes are along the lines of the previous section, going more to clarifying language for a new context than changing the basic regulatory structure. Others,

however, are deeper. The exercise of identifying high-level public policy goals, studying best practices for addressing them, balancing competing interests, and setting forth a modern framework will produce benefits in itself. And if successful, it could position the U.S. to maintain its leadership in the global financial system as it moves through its next technological transition.

V. Conclusion

I have attempted to set out a series of actions that Congress, agencies, Executive Branch Departments, and the Federal Reserve could take to address the dangers of cryptocurrencies and digital assets while both recognizing and facilitating their benefits. This list is not comprehensive; nor does it entirely represent a divergence from current approaches. There is significant activity underway in individual agencies and through coordination efforts such as the President's Working Group on Financial Markets. Legislation has been introduced in many of these areas, and other legislative proposals are no doubt under development.

Perhaps the most important point to make is that, for all the rhetoric about how the U.S. is losing out to more tolerant jurisdictions, or to China's aggressive state-led central bank digital currency, the reality is that America is one of the largest and most important markets for development of blockchain technology and activity in the digital asset economy. Many of the key development teams and companies are based in the U.S. or have significant presence here. That is true of an even larger percentage of the investment and market activity. The U.S. is the most sophisticated and most advanced capital market in the world, and also the home of a large percentage of the world's most important technology firms. The factors that have put the U.S. in such a prominent position do not disappear in the blockchain world. While it is true that the global nature of blockchains and their ability to remove barriers to participants allows individuals from anywhere in the world to contribute, that is a dynamic leading U.S.-based firms have taken advantage of for a long time.

Of course, we cannot assume that the U.S. will always and automatically be a leader on the blockchain sector, or any other sector. China's multi-pronged efforts to develop blockchain as a strategic technology and to bend digital assets into a state-superintended environment should not be dismissed. Nor should initiatives in Europe and in jurisdictions such as Singapore, Japan, Russia, and elsewhere be ignored. We need to do what worked so successfully in the early days of the commercial internet: articulate policy goals; clarify where uncertainty is an unnecessary check on innovation; take action where it is warranted; and adapt both our policy tools and our legal structures to take into account the deep changes underway.

There are many hard questions still to resolve, and many pieces to the blockchain regulatory puzzle. That should not stop us from moving forward to realize the incredible potential that digital assets and blockchain present.

QUESTIONS AND ANSWERS

FEBRUARY 9, 2022

U.S. Senate Committee on Agriculture, Nutrition, and Forestry
Examining Digital Assets: Risks, Regulation, and Innovation
February 9, 2022
The Honorable Rostin Behnam
Questions for the Record

Chairwoman Debbie Stabenow

1. Many digital asset platforms offer multiple services to customers or act in various roles. For example, some platforms act as counterparties to their clients' trades, meaning that they benefit from client losses. Others list tokens in which they have previously invested, without disclosure to customers. Such conduct is not permitted for traditional exchanges or is strictly regulated. Does serving in multiple roles present conflicts of interest for digital asset platforms?

Under such an arrangement, where a digital asset platform serves multiple roles, there is the potential for conflicts of interest. As the CFTC has experienced, most notably in retail foreign currencies, such arrangements may incentivize platforms to operate in an uncompetitive manner that ultimately benefit the platform's interests over those of customers. To the extent that such digital asset platforms are not required to adopt and implement reasonably designed conflict of interest policies and procedures that mandate the disclosure to their customers of any material incentive or conflict of interest, customers are harmed.

   a. How are such conflicts addressed for traditional exchanges currently regulated by the CFTC?

CFTC-regulated contract markets, as part of their compliance with statutorily mandated "core principles," are required to establish and enforce rules minimizing conflicts of interest and establish a process for resolving such conflicts. Acceptable practices to comport with these core principles includes being vigilant for conflicts between an exchange's own commercial interests and the interests of their various constituents, including customers and market participants. CFTC-regulated exchanges have sometimes operated affiliated market-makers that raise similar, although more limited, conflict of interest concerns. The Commission has typically addressed such conflicts by, for example, requiring exchanges to notify Commission staff when the exchange is investigating suspicious trading activity by its affiliated market-maker, or requiring that an exchange notify market participants that an affiliated entity was trading on the exchange.

   b. If given authority over the market for spot digital asset commodities, how would you propose addressing potential conflicts so that customers are protected?

The conflict of interest rules required by the Commodity Exchange Act and implemented through CFTC regulations have proven effective in protecting customers and ensuring market integrity for the derivatives market. If given authority over the market for spot digital asset commodities, I believe applying a similar regulatory regime to the one that currently exists within the CEA to spot digital asset trading platforms would also be effective for the digital asset market. Transparency

into the commercial incentives of the digital asset platforms would allow customers to make informed choices as to whether to trade on the platform, and the risks inherent with such trading

2. Hackers have stolen billions of dollars of digital assets from crypto platforms. Crypto assets may be a promising new asset class, but also provide another opportunity for bad actors to profit from the increasing digitization of our financial system. How does the CFTC oversee current registrants with respect to cybersecurity and ensure that registrants maintain appropriate system safeguards?

CFTC-regulated contract markets and clearinghouses are required to establish and maintain system safeguards in line with generally accepted best practices in order to prevent and mitigate cybersecurity breaches and related operational risks. The CFTC has experience with overseeing entities maintaining such system safeguards in relation to taking custody of digital assets, and have required special measures such as regular cybersecurity audits and insurance to mitigate the risk of hacks.

   a. If given authority over the market for spot digital asset commodities, how would you propose addressing hacking and other cyber risks in this market? Does the CFTC need additional authorities or resources to address cyber threats in the digital asset space?

The system safeguard rules required by the Commodity Exchange Act and implemented through CFTC regulations have proven to be effective in the markets traditionally overseen by the CFTC. I expect having the ability to apply a similar cybersecurity regulatory regime to spot trading platforms would also be effective for the digital asset market. However, the nature of digital asset technology presents very unique cyber threats as seen in the growing prevalence of hacks resulting in stolen funds from digital asset exchanges. That said, to adequately implement a program similar to what is currently in place for entities traditionally overseen by the CFTC, the agency would need additional resources to hire full-time personnel that possess specialized technical knowledge, and to conduct appropriate oversight on the large number of trading platforms currently operating in this space. We currently do not employ staff with such specific expertise.

Ranking Member John Boozman

1. In 2010, the Dodd Frank Act split regulation of the swaps market between the CFTC and the SEC. Should Congress follow a similar path with respect to digital asset regulations?

The broad universe of digital assets invariably captures assets that both meet the definition of a security and those that do not and are otherwise treated as commodities. As a result, it is expected that both agencies will play a role in regulating the digital asset market. At the CFTC, we are in regular communication with the SEC about issues related to digital assets, including those relating to our respective jurisdictions. The path that Congress chose for the regulation of the swaps market following the passage of the Dodd-Frank Act has proven effective. I would welcome any direction that Congress deems necessary to provide clarity and regulatory structure around the role each agency plays with respect to the digital asset market.

2. Cybersecurity, particularly the safety of customer assets, continues to play a large role in conversations focusing on digital asset markets. If the CFTC is given more regulatory authority over spot markets, what cybersecurity and customer protection measures could help combat vulnerabilities we've observed in this space?

As addressed above, requiring spot digital asset exchanges to comply with certain core principles such as those related to cybersecurity and customer protection allows the CFTC to implement regulations specifically designed to mitigate the cybersecurity risks you have identified. I expect that regulations already in place with respect to CFTC-regulated derivatives markets could be very helpful for addressing these vulnerabilities, such as requiring exchanges to follow generally accepted standards for system safeguards around custody and business continuity as well as empowering the CFTC with oversight and enforcement capabilities.

3. Some policymakers have voiced concerns about "off chain transactions" and their impact on transparency and investor protection. These off chain transactions are digital asset trades which are not recorded on the public distributed ledger.
    a. Do off chain transactions undermine the blockchain and the double spend solution?

Since the emergence of the digital asset market, there have been market participants that prefer to entrust their assets to trading platforms, and to conduct transactions with other platform customers, which allows for so-called "off chain transactions." Without clear certainty, the continued growth of trading platforms has not practically undermined the purported innovation of blockchain-based digital assets since the emergence of the market. The trading platforms currently manage billions of dollars in digital assets in a manner that presents unique regulatory considerations for the CFTC, and with little to no indication that the use of off chain transactions on such platforms will abate in the future, these unique regulatory challenges will likely remain.

    b. Should digital asset trading platforms be required to report off chain transactions to a trade repository to promote transparency and investor protection?

As conveyed in my testimony, in my opinion, digital asset trading platforms present risks that generally would be best addressed through a federal market regulatory regime. Looking to the existing regime under the CEA for derivatives exchanges, a similar regulatory regime would involve registration along with trade reporting obligations by registered digital asset exchanges. To the extent that Congress determines a different regulatory structure is preferable, I think that it will be important to ensure some level of transparency into off chain transactions on these platforms, which could be accomplished through a trade reporting repository.

4. Building from Question #3 to all panelists regarding "off chain transactions", do you have an estimate of the number/percentage of off chain transactions done on US digital asset trading platforms in the last 12 months?

No. If you would like, I would be happy to have CFTC staff look at available data and provide an estimate at the soonest possible time.

5. I understand there is interest among some market participants to have the CFTC examine current regulatory models when it comes to intermediaries and risk management. What are your thoughts on proposals to reexamine the role of certain intermediaries in derivative markets?

Several market participants have requested the CFTC examine current regulatory models, specifically the role of certain intermediaries in derivatives markets. The staff is carefully and cautiously considering these proposals. Critical to such analysis is ensuring the agency protect customers and ensure market resiliency through sound risk management. Consideration of these proposals will take place through that lens, and also ensuring the CFTC continue its historical practice of supporting the development of new technology and innovation in U.S. markets.

6. While I believe it is clear digital assets do not currently pose any type of systemic risk to the economy, does the CFTC believe there are lessons learned in the wake of the 2008 financial crisis that legislators can use as we develop potential legislation to regulate these assets?

The 2008 financial crisis demonstrated that when poorly understood and highly leveraged speculative financial products become integrated into the broader financial system without appropriate transparency and regulatory oversight, there is the possibility that the impacts of a market downturn will be exacerbated and extend beyond market participants. Digital assets are similarly becoming embedded in the broader financial system and the excitement around this technology is leading markets participants to take on highly speculative positions, often with leverage, in these complex assets. As a result, when considering legislation for the digital asset market, I think it is equally necessary to recognize the importance of a comprehensive regulatory structure that ensures transparency and oversight, and that allows for regulatory interventions when necessary.

Senator Reverend Raphael Warnock

1. Congratulations on your confirmation as Chairman of the CFTC, Mr. Behnam. As we consider the complexities of regulating digital assets, I remain concerned about the connection this technology has with our unfolding climate crisis.

   I have been contacted by residents of Adel, Georgia regarding a Bitcoin mining facility that is operating in their community. My constituents are concerned about the energy-intensive operations of this facility, as well as the loud noises from the facility that now blanket their community.

   Chairman Benham, in your testimony, you state that you have directed the CFTC's Climate Risk Unit and LabCFTC to examine the climate implications of digital assets. You also note that your staff have initiated conversations with other federal entities regarding the relationship between digital assets and climate.

a. As the market is currently structured and regulated, what risks do you believe digital assets pose to our fight against the climate crisis, and specifically, to small communities such as Adel who are home to these mining operations?

Certain digital assets, especially those that rely on *proof of work* mining, consume an extremely large amount of electricity in order to validate transactions among network participants. Bitcoin miners are generally incentivized to consume more electricity as the value of Bitcoin rises and are able to easily move their geographical operations in order to take advantage of cheaper energy sources. To the extent that this industry continues to grow, without improved public awareness through education and disclosures, there is a risk that this energy-intensive part of the digital asset industry will not prioritize clean and renewable energy sources for their operations, which conflicts with many fundamental initiatives related to fighting the climate crisis, and consequently presenting new challenges for communities like Adel.

b. Which federal entities is CFTC engaging to better understand the connection between digital assets and climate? As those conversations progress, will you commit to providing your findings to the members of this Committee?

Staff at the CFTC regularly engage in discussions with other federal authorities related to digital asset issues, including the Treasury Department, the Securities and Exchange Commission, the Federal Reserve, and others. Those conversations cover a wide range of topics, which has included discussions on the climate impact of these assets. Moreover, the Climate Risk Unit at the CFTC and LabCFTC have engaged with departments and agencies across the federal complex to understand what work is being done on this particular issue. I commit to keeping this Committee apprised of our progress.

c. What additional authorities or resources does CFTC require from Congress to more effectively understand the climate implications of digital assets?

As I stated in my written testimony, I believe that any regulatory regime covering digital assets must include measures to bring additional transparency to the conduct that underlies digital asset networks in order to fully understand the climate risk implications. In my view, that would likely involve statutory authority to require exchanges or other market participants to collect, report, and disclose information about the energy consumption necessary to support these networks. The amount of emissions and other environmental effects that are generated from digital asset mining and networks depends on the energy mix used to power these operations. Additional statutory authority for the CFTC would benefit from coordination with other Federal agencies that have the expertise and resources to measure and monitor the energy generation mix, emissions, and other environmental effects that are attributable to digital asset mining and networks.

Senator Roger Marshall, M.D.

1. The CFTC website currently indicates "Bitcoin is a commodity, and commodity futures trading is required to take place on futures exchanges regulated and supervised by the CFTC." However SEC Chairman Gary Gensler seems to think crypto is a security.

a. What defining characteristics make crypto like Bitcoin and Ethereum a commodity?

As multiple federal courts have recognized, Bitcoin and other "virtual currencies" constitute commodities to the extent that they function as a medium of exchange, unit of account, or store of value. However, regardless of whether a particular digital asset constitutes a commodity, securities laws may apply based on application of a multi-prong test initially set forth in *SEC v. H.J. Howey Co.* by the Supreme Court. Because Bitcoin and Ether are virtual currencies, and there are public indications that the SEC does not think that transactions in either asset are covered by the *Howey* standard, futures referencing Bitcoin and Ether are required to take place on exchanges regulated and supervised by the CFTC.

b. What would be the market implications if Chair Gensler suddenly deemed Bitcoin and/or Ethereum as a security?

Securities are generally excluded from CFTC jurisdiction.

2. In a House Financial Services Committee Hearing, SEC Chairman Gary Gensler said crypto could pose a systemic risk to the economy if the amount of money invested in them continues to grow at current pace;
   a. Would you like to elaborate or refute this risk, and is there a way to foster the American cryptocurrency while protecting the US dollar?

Although I personally do not think that digital assets currently pose a systemic risk to the broader economy, I believe this market presents unique risks as I detailed in my testimony, and continued growth could lead to systemic risk. In my opinion, a federal regulatory approach is the best way to protect U.S. consumers and U.S. economic interests.

3. Regulating an emerging market that was designed with an anti-regulation philosophy built in is a difficult task;
   a. Are there any oversight mechanisms/procedures unique to digital assets that could be implemented without dissuading domestic capital?

In the context of cybersecurity threats to digital asset trading platforms, the public nature of most blockchains has proven to be a tool for regulators and law enforcement seeking to identify bad actors and illegal activity. A more comprehensive federal regulatory regime would benefit from relying on more detailed blockchain analytical tools to support existing oversight mechanisms.

4. Crypto exchanges are buying other exchanges that have traditional CFTC licenses which may give participants in the traditional CFTC space pause.

   a. How do you think this type of action could impact the traditional agriculture and energy futures market?

Financial technology has frequently led to evolutions in CFTC-regulated markets, most notably in the transition from open outcry in trading pits to electronic high-speed trading, which dominates today. With these changes, the CFTC has been proactive in evolving to ensure these changes are accompanied by appropriate safeguards to ensure market integrity and customer protections. To the extent that current trends signal a continued evolution in market structure around issues such as disintermediation and retail participation, the CFTC will be proactive in evolving where the Commodity Exchange Act permits to ensure that traditional agriculture and energy futures markets continue to operate in a manner that serves

the important functions of risk transfer and price discovery, which are foundational to our derivatives markets.

b. Can you assure us that, as innovation comes, traditional safeguards for orderly markets and security remain in place and we don't create two sets of standards?

Yes. Digital asset spot markets present some unique risks not present in traditional CFTC-regulated derivatives markets. However, the safeguards needed to ensure orderly markets and security are similar. I strongly believe that it is important to ensure that the digital asset market is meeting the same standards U.S. market participants expect from CFTC-regulated markets.

U.S. Senate Committee on Agriculture, Nutrition, and Forestry
Examining Digital Assets: Risks, Regulation, and Innovation
February 9, 2022
Ms. Sandra Ro
Questions for the Record

Chairwoman Debbie Stabenow

1. Many digital asset platforms offer multiple services to customers or act in various roles. For example, some platforms act as counterparties to their clients' trades, meaning that they benefit from client losses. Others list tokens in which they have previously invested, without disclosure to customers. Such conduct is not permitted for traditional exchanges or is strictly regulated. Does serving in multiple roles present conflicts of interest for digital asset platforms? If not, why not?

    a. What are digital asset exchanges doing to manage conflicts or potential conflicts on their platforms?

Crypto exchanges often offer multiple services, including custody, lending, borrowing, and market making. Just as in traditional financial markets and trading venues, these multi-service models can create conflicts of interest. Crypto exchanges can mitigate and manage such conflicts by following clear and established best practices and rules around disclosure, segregation of information, well-aligned compliance teams, and secure and well-configured IT systems and architecture.

Concerns over conflict of interest have prompted some regulators, such as those in New York, Hong Kong, the United Kingdom, and Switzerland, to require crypto exchanges to register and become licensed with the regulator.

Certain players in the crypto industry have proactively taken steps to address conflicts of interest that may arise from providing different services. For example, Global Digital Finance (GDF), a global members association that advocates for adoption of best practices for digital assets, has developed Codes of Conduct in conjunction with industry, to which firms can and do adhere.[1]

Central to these codes are disclosure policies about levels of compensation for listing tokens, a clear outline of services provided, information on how the firm adheres to regulation, as well as a commitment on behalf of firms to implement processes and measures that ensure security, proper settlement, and custody, as well as offering clients the best possible price within the parameters of their order.

2. Hackers have stolen billions of dollars of digital assets from crypto platforms. What system safeguards can exchanges implement to protect from cyber attacks?

[1] https://www.gdf.io/code/

a. Are there specific standards that regulators could require that would make digital asset platforms more resilient to cyber threats?

Like traditional financial institutions and other businesses handling sensitive personal financial information, crypto platforms are frequent targets for cyber-attacks. While attacks on crypto platforms have drawn significant public attention, some of those that have drawn the most attention have been older cases (e.g., Bitfinex in 2016[i]) and involve overseas exchanges.

With a public, traceable, immutable ledger of every transaction ever conducted, most cryptocurrencies and blockchains allow law enforcement to follow the money in a way that would not be possible with cash or some other forms of payment. Blockchain technology has also enabled the recovery of criminal proceeds and could prove to be a critical tool for combating cybercrime, as well as other types of illegal activity. Moreover, continually improving blockchain analytics capabilities enhance law enforcement's capacity to identify hackers and other malicious actors.

Responsible crypto platforms recognize that they are targets for cyber-attacks and have dedicated enormous resources to hardening themselves against such intrusions. The measures that crypto platforms need to implement to protect themselves from cyber-attacks are similar to those that should be deployed by any other financial institution or business holding large quantities of valuable data, and include:

- Updating intrusion prevention systems frequently
- Conducting regular back-up of systems
- Ensuring back-ups are protected from potential attacks
- Training personnel at least yearly against phishing, social engineering, and other forms of cyber-attacks, and on how to respond when faced with a potential attack
- Deploying technology solutions to strengthen the security posture of their organization by, among other things, maintaining up-to-date antivirus software and operating system patches, restricting access to file and printer sharing services and software installation capabilities, IP whitelisting, ensuring two-factor authentication (2FA), and enforcing additional strong password and authorization policies
- Regular third-party certified audits of code such as smart contracts, session security, access controls, storage systems, and personnel (e.g., enhanced due diligence beyond basic background checks for key personnel); and
- Developing and testing incident response plans

When it comes to standards that regulators could consider, bug bounties may be useful in detection as platforms continue to grow. For example, in February 2022, a white-hat hacker discovered a vulnerability in Coinbase's new "Advanced Trading" platform; Coinbase quickly shut the platform down, fixed the vulnerability, and awarded the hacker a $250,000 bounty.[ii]

It would also be prudent for key infrastructure providers to offer Customer Due Diligence in the U.S. that is compliant with Patriot Act/Bank Secrecy Act or Financial Action Task Force recommendations, customer education programs regarding the latest crypto fraud and scams, and transactions diligence.

However, in the cybersecurity space, regulating compliance with narrow or overly specific standards is not generally effective, as standards can change as technology evolves. It is more

appropriate to require platforms providing services to U.S. customers to have appropriate security measures in place and to make accurate disclosures to their customers regarding those practices, much like the approach taken for other financial services companies in the Gramm-Leach-Bliley Act (GLBA). Additionally, Congress could consider insurance requirements for virtual asset service providers to mitigate some risks of theft and loss. However, such requirements should be balanced so as not to cause prohibitive costs for young innovative companies and inadvertently build barriers to entry.

Ranking Member John Boozman

1. In 2010, the Dodd Frank Act split regulation of the swaps market between the CFTC and the SEC. Should Congress follow a similar path with respect to digital asset regulations?

A similar division of regulatory responsibilities would be prudent to consider as a starting framework, but not necessarily comprehensive.

The CFTC and SEC have a demonstrated history of effective collaboration and cooperation that can and should be leveraged to allocate responsibilities and provide clarity to the market regarding the dividing line between digital assets that are and are not securities, or whose offering constitutes an offer or sale of securities.

There are regulatory gaps in market supervision at the federal level for spot digital assets, and such regulation and supervision currently occurs primarily at the state level, most notably in New York[iii], which supervises not only money service businesses but also exchanges and custodians. The CFTC and the SEC pursue related, but distinct, statutory mandates and policy imperatives. Similar to the division of regulatory responsibility with respect to Title VII derivatives instruments, there are certain digital assets which are and should be considered securities, whereas there are certain other digital assets that are and should continue to be characterized as commodities. Responsibility for regulatory requirements regarding the sale of digital assets which are securities is most appropriately allocated to the SEC, and responsibility with respect to the regulation of digital assets which are commodities is most appropriately allocated to the CFTC. For example, the specific capital formation, consumer protection, and investor disclosure interests that the SEC needs to address in respect of the sale of securities should be carefully carved out of any regulatory authority of the CFTC over digital assets. By leveraging the existing but distinct CFTC and SEC regulatory frameworks and applying those frameworks to digital assets in a deliberate manner, existing regulatory approaches to exchanges, designated contract markets, swap execution facilities, alternative trading systems, swap dealers, security-based swap dealers and broker dealers can all be appropriately brought to bear in the pursuit of a principled regulated environment for digital asset trading.

In this regard, it is important that there be clarity as to such division of regulatory responsibility. The bifurcated regulatory approach to swaps and security-based swaps under Title VII of the Dodd-Frank Act[iv] provides a clear example for how the regulation of digital assets can be shared between the CFTC and SEC in a manner that promotes regulatory clarity. Like the approach under the Dodd-Frank Act, Congress should impose a statutory obligation for a joint rulemaking

whereby the CFTC and SEC clearly identify and define different categories of digital assets (such as utility tokens, payment tokens, stablecoins, etc.) and allocate regulatory responsibility for each, as appropriate, to specific regulatory bodies. In addition, any law adopted by Congress to clarify the regulation of digital assets should provide for federal preemption of state law to ensure that additional money transmitter and other state licenses are no longer necessary for entities that are otherwise registered with the CFTC or SEC as an exchange, trading utility, dealer or broker, or similar.

2. Cybersecurity, particularly the safety of customer assets, continues to play a large role in conversations focusing on digital asset markets. If the CFTC is given more regulatory authority over spot markets, what cybersecurity and customer protection measures could help combat vulnerabilities we've observed in this space?

Rather than seeking to impose specific, one-size-fits-all requirements on any crypto platform within its jurisdiction, the CFTC should seek to ensure that any company it regulates – whether crypto-related or not – has appropriate cybersecurity and customer protection measures in place and makes accurate disclosures regarding those measures to U.S. customers. In this area, the CFTC may consider borrowing from existing cybersecurity standards.

GBBC member companies operating within this space have asked for the following to be considered in the development and implementation of cybersecurity measures:

- Clarity from the CFTC regarding acceptable exploration in blockchain and crypto; and
- A safe space to innovate without the risk of disproportional fines and scrutiny

However, as mentioned in a previous response, in the cybersecurity space, regulating compliance with narrow or overly prescriptive standards is not generally effective. Standards change as technology evolves, and it is more prudent to require platforms offering services to U.S. customers to have appropriate security measures in place and to make accurate disclosures to their customers regarding those practices, like the approach taken for other financial services companies in the Gramm-Leach-Bliley Act (GLBA).

3. Some policymakers have voiced concerns about "off-chain transactions" and their impact on transparency and investor protection. These off-chain transactions are digital asset trades which are not recorded on the public distributed ledger.

    a. Do off-chain transactions undermine the blockchain and the double spend solution?

On chain transactions provide transparency, security, and immutability of transaction confirmation. However, potential downsides include slow transaction times and high costs during peak periods. During times of network congestion, virtual asset service providers (VASPs) may utilize off-chain transactions to facilitate faster transactions at lower costs.

Generally, off-chain crypto transactions do not undermine blockchain and the double spend solutions. For example, state channels (second layer blockchain solution) allow users to complete Bitcoin transactions directly off the blockchain and minimize the use of on chain operations. This alternative uses smart contracts, which define the rules under which an off-chain transaction can occur. Each off-chain transaction creates new states and must be signed by the respective parties. The new state invalidates any previous states and thus, there should be no potential for double spending.

To use a state channel, each party must open a channel transaction and deposit the appropriate amount of currency. Parties can then begin to make off-chain transactions using the channel, and the smart contract ensures there is no double-spending. The combined transactions will equal the total amount of deposited currency. When the channel is closed, the final tally is added to the blockchain. These off-chain transactions are often processed by layer two protocols, such as the Lighting Network and Liquid Network on the Bitcoin blockchain and Polygon and Plasma on the Ethereum blockchain. Even still, off-chain transactions represent a fraction of total crypto transactions and continue to evolve.

b. Should digital asset trading platforms be required to report off-chain transactions to a trade repository to promote transparency and investor protection?

Depending on the level of reporting requirements, there may be some merit to disclosing certain higher value, off-chain transactions involving digital asset trading platforms. However, this is a nascent area of development that is evolving quickly and should be analyzed in-depth before any prescriptive regulation is implemented.

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[i] https://www.justice.gov/opa/pr/two-arrested-alleged-conspiracy-launder-45-billion-stolen-cryptocurrency
[ii] https://www.coindesk.com/business/2022/02/12/coinbase-trading-vulnerability-exposed-by-repeat-white-hat-hacker/
[iii] https://www.dfs.ny.gov/apps_and_licensing/virtual_currency_businesses/bitlicense_faqs
[iv] https://www.law.cornell.edu/wex/dodd-frank_title_vii_-_wall_street_transparency_and_accountability

Senate Committee on Agriculture, Nutrition & Forestry
Examining Digital Assets: Risks, Regulation, and Innovation
February 9, 2022
Mr. Samuel Bankman-Fried
Questions for the Record

Chairwoman Debbie Stabenow

1. Many digital asset platforms offer multiple services to customers or act in various roles. For example, some platforms act as counterparties to their clients' trades, meaning that they benefit from client losses. Others list tokens in which they have previously invested, without disclosure to customers. Such conduct is not permitted for traditional exchanges or is strictly regulated. Does serving in multiple roles present conflicts of interest for digital asset platforms? If not, why not?

First, FTX generally does not trade for its own account on its own platforms. The exception is FTX US Derivatives (FUSD), which does have an affiliated entity that performs market-making functions and is a participant on FUSD as well as other platforms. This entity, however, was created at the request of the U.S. Commodity Futures Trading Commission at the time the CFTC issued the swap execution facility (SEF) license to the platform, and while affiliated has a separate and independent management team with strict controls to prevent inappropriate access to information not available to other market participants. This market-making entity is being removed from the FTX corporate structure.

To be sure, it has been common historically that new trading platforms when created also have affiliated market-making entities on those new platforms – the reason is plain: to ensure during the early days of trading on the platform that adequate liquidity is available. In these circumstances, appropriate restrictions, and systems to manage conflicts of interests and protect against unfair access to market data must be in place, as is and was true with the FUSD affiliated market maker. Second, as it relates to Alameda Research, that entity is not affiliated with FTX – the entity has in common some shareholders with FTX, but it is a legally distinct company with an independent management team and no common governance.

Third, as it relates to trading platforms investing in blockchain-network projects with related tokens, FTX has rigorous policies and procedures related to the standards for token listings on its platforms. Those standards reflect a host of legal, regulatory and market considerations related to the token project to ensure compliance and appropriate risk disclosures, which address facts and circumstances that include whether FTX has separately invested in a token project. Under such facts and circumstances, FTX believes that listing such a token does not present any conflicts so long as the trading platform is not somehow able to manipulate the market price of the token. Again, the listing-standards procedures would address this, as would the rule books, user agreements, and relevant policies and procedures governing the platforms that contain requirements to ensure market integrity, prevent fraudulent and manipulative practices on the platform, and ensure fair and equal access to market data for all platform participants.

   a. What is FTX doing to manage conflicts or potential conflicts on its platform?

See response to previous question. FTX platforms have governing rule books, user agreements, and relevant policies and procedures that contain requirements to ensure market integrity, prevent fraudulent and manipulative practices on the platform, and ensure fair and equal access to market data for all platform participants, as well as otherwise manage any real or perceived conflicts of interest. FTX deploys market-surveillance technology on its platforms to determine abusive trading practices, which include fraudulent trading practices and stratagems to manipulate asset pricing. Its CFTC-regulated platform is specifically mandated to deploy this type of tool on the platform, which is subject to review by the agency. The CFTC also has anti-fraud authority to police all trading in any commodity, which includes digital assets, so manipulative activity subject to that authority is policed by the CFTC. Additionally, the onboarding process for FTX platforms includes KYC/AML protocols to determine the identity and authentication of users, thus helping minimize fraudulent conduct in this respect.

2. Hackers have stolen billions of dollars of digital assets from crypto platforms. What system safeguards can exchanges implement to protect from cyber attacks?

To protect against the loss of assets from theft, FTX maintains a robust cybersecurity program and digital-wallet architecture to ensure the safety of assets on the platforms. Its CFTC-regulated platform, FUSD, in particular is governed by systems-safeguard regulation enforced by the agency and that subjects the platform to standardized testing and independent audits.

   a. Are there specific standards that regulators could require that would make digital asset platforms more resilient to cyber threats?

FTX believes that the CFTC's systems-safeguard regime is sufficiently robust and stringent to adequately protect against the risks of cyber threats against digital-asset platforms. The CFTC has years of experience reviewing the application of this regime to platforms like FUSD, which offers a physical-custody solution for digital assets and therefore has presented the issues to the CFTC that attend the unique characteristics of securing digital wallets. More broadly applying this regime to more digital-asset platforms would bring needed standardization and best practices to all of the industry.

Ranking Member John Boozman

1. In 2010, the Dodd Frank Act split regulation of the swaps market between the CFTC and the SEC. Should Congress follow a similar path with respect to digital asset regulations?

The well-worn tests for determining whether a contract, agreement or transaction is a security under U.S. federal law begins with the framework laid out by the decision in *SEC v. W.J. Howey & Co.* From that case, the hundreds of court decisions interpreting it, and ongoing SEC guidance, all assets, including digital assets, may be evaluated. FTX believes that this body of precedent continues to provide a reasonable framework for determining whether transactions involving a given digital asset should be subject to the securities laws but does leave open some questions related to specific digital assets.

FTX believes, however, that continued product innovation will always present new facts and circumstances. A sensible and practical regulatory approach for digital assets is to keep jurisdiction over securities with the SEC, recognizing that some digital assets, or investment contracts related to them, will qualify as securities, but clarify and provide additional authority to the CFTC to supervise the spot trading of digital assets that *are not* securities (e.g., Bitcoin, Ether, Sol, etc.). Additionally, as explained in my written testimony, the Congress should build on the existing regime for the agencies to share jurisdiction over a platform that lists for spot trading non-security digital assets as well as digital assets that are securities, which would bring about the regulatory, operational, capital and risk efficiencies described in my testimony and in the *FTX's Key Principles for Market Regulation of Crypto Assets* submitted therewith.

FTX also observes that a practical and creative approach by the CFTC to interpreting its authorities also could bring a considerable amount of spot-trading volumes related to non-security digital assets without any congressional action, including and particularly as it relates to retail commodity transactions described on section 2(c)(2)(d) of the Commodity Exchange Act and the agency's related interpretive guidance.

2. Cybersecurity, particularly the safety of customer assets, continues to play a large role in conversations focusing on digital asset markets. If the CFTC is given more regulatory authority over spot markets, what cybersecurity and customer protection measures could help combat vulnerabilities we've observed in this space?

FTX believes that the CFTC's systems-safeguard regime is sufficiently robust and stringent to adequately protect against the risks of cyber threats against digital-asset platforms. The CFTC has years of experience reviewing the application of this regime to platforms like FUSD, which offers a physical-custody solution for digital assets and therefore has presented the issues to the CFTC that attend the unique characteristics of securing digital wallets. More broadly applying this regime to more digital-asset platforms would bring needed standardization and best practices to all of the industry.

3. Some policymakers have voiced concerns about "off chain transactions" and their impact on transparency and investor protection. These off-chain transactions are digital asset trades which are not recorded on the public distributed ledger.
    a. Do off chain transactions undermine the blockchain and the double spend solution?

No. For a variety of technical reasons, FTX has concluded that it is not efficient or necessary to support its trading markets with a public blockchain. Instead, FTX market operations are conducted with proprietary software and private databases under the control of FTX to best promote market integrity, efficiency, and the optimal user experience. Incidentally, this is generally how traditional exchanges work as well, with centralized and controlled data bases and technology systems supporting the operations of the market, and customer accounts updated and

balanced at different points in time during the trading day (i.e., within an internal, centralized ledger).

Digital assets are transferred from a user's own digital wallet to the relevant FTX-controlled digital wallet, and on FTX, private database notates and ledgers all customer accounts and the balances of digital assets in those accounts. A user's trading activity will result in their balances fluctuating, but their digital assets will remain in the FTX-controlled wallet until the user decides to withdraw those assets from the FTX platform. At the time the user withdraws from the platform, the public blockchain ledger would be updated as the digital asset is transferred away from the FTX platform and into the customer's own digital wallet.

Additionally, FTX platforms have governing rule books, user agreements, and relevant policies and procedures that contain requirements to ensure market integrity, prevent fraudulent and manipulative practices on the platform, and ensure fair and equal access to market data for all platform participants, as well as otherwise manage any real or perceived conflicts of interest. FTX deploys market-surveillance technology on its platforms to determine abusive trading practices, which include fraudulent trading practices and stratagems to manipulate asset pricing. Its CFTC-regulated platform is specifically mandated to deploy this type of tool on the platform, which is subject to review by the agency. The CFTC also has anti-fraud authority to police all trading in any commodity, which includes digital assets, so manipulative activity subject to that authority is policed by the CFTC. Additionally, the onboarding process for FTX platforms includes KYC/AML protocols to determine the identity and authentication of users, thus helping minimize fraudulent conduct in this respect.

This body of technology systems, governance, conflicts management and regulatory oversight ensures that the chances of double spending a digital asset due to off-chain activities involving that asset are de minimis if not non-existent.

b. Should digital asset trading platforms be required to report off chain transactions to a trade repository to promote transparency and investor protection?

FTX provides free data related to trading on its platforms. Order book data as well as post-trade information can be viewed and are accessible. FTX US Derivatives (FUSD) is the CFTC-registered platform that is subject to the agency's trade-reporting regulations and requirements, which apply to off-chain activity. If the transaction is a swap, it must be reported to a swap data repository (SDR) under the agency's regulations. Futures and options contracts also are subject to CFTC trade-reporting requirements. Any spot trading activity that falls under the CFTC's supervision also should be subject to appropriate trade reporting.

4. Some proponents of decentralized finance argue that removing intermediaries in certain financial transactions can help lower costs, expand access to financial services to currently unbanked consumers, and reduce settlement times. What are your views regarding intermediaries in both spot and derivative markets, and is there room for improvement which would allow for the removal of inefficiencies, while still protecting against risk?

First, intermediation is not required on FTX's centralized platforms or exchanges, where access to the platforms is permissioned by FTX. Any user or investor can access FTX directly by visiting our web sites or by downloading our apps on a mobile device. FTX understands "decentralized finance" to refer to automated software protocols that facilitate trading or the exchange of digital assets without permissioned access to, or centralized control over, that software protocol, and which also do not require intermediation to those protocols. In other words, non-intermediation is a feature of both centralized and decentralized trading environments involving digital assets.

Second, and as explained more fully in my written testimony and in *FTX's Key Principles for Investor Protections* submitted therewith, intermediation is not necessary to protect investors and manage risks involving digital assets. In fact, FTX strongly believes that non-intermediated market structures are risk reducing because they minimize operational complexity, lower interconnections and therefore interconnection risks in markets, and reduce conflicts of interests.

The risk-management programs on FTX platforms require all requisite customer collateral to be custodied with our platforms and are designed to prevent net customer balances from going into negative value, at which point the risk engines on the platforms take steps to reduce positions in an orderly way to try and keep the customer's account solvent. This risk-management approach is implemented in an ecosystem where data on order books for those assets is fully transparent to the public. FTX also requires customer collateral in support of their trading positions to be placed in custody with FTX before trading. All these features of FTX's non-intermediated market structure and operations better protect investors than what we observe with traditional marketplaces.

5. I understand FTX has experienced impressive growth since you helped create the exchange back in 2019. Beyond the cryptocurrency arena, do you envision FTX-US expanding into agriculture derivative markets, as well?

FTX has no plans to list agricultural derivatives currently. FUSD always engages with the CFTC before any new products are listed, and all listings follow the protocols outlined by the CFTC's regulations.

Senator Roger Marshall, M.D.

1. I noted that you are offering non-crypto products on your exchange outside of the U.S. Some of these products are core to this Committee's constituency. Do you have plans to offer these products in the U.S. and blend those with crypto trading and mix traditional agriculture with crypto?

FTX US must follow all relevant laws and regulations, including those enforced by the CFTC as well as the SEC, which include protocols and processes for listing products. Any future product listings in the U.S. market would be subjected to those requirements. FTX has no plans to list agricultural products or derivatives currently.

U.S. Senate Committee on Agriculture, Nutrition, and Forestry

Examining Digital Assets: Risks, Regulation, and Innovation

February 9, 2022

Ms. Perianne Boring

Questions for the Record

Senator Debbie Stabenow

1. **Many digital asset platforms offer multiple services to customers or act in various roles. For example, some platforms act as counterparties to their clients' trades, meaning that they benefit from client losses. Others list tokens in which they have previously invested, without disclosure to customers. Such conduct is not permitted for traditional exchanges or is strictly regulated. Does serving in multiple roles present conflicts of interest for digital asset platforms? If not, why not?**
    a. **What are digital asset exchanges doing to manage conflicts or potential conflicts on their platforms?**

Digital asset trading platforms play an important function in the blockchain ecosystem. These trading platforms can facilitate the sale of digital assets, without the need for intermediaries. Exchanges provide a place for price discovery of digital tokens, which is one of the key components of secure and successful blockchains. They also serve as a means by which new blockchain applications and projects can get their tokens distributed to potential users of the application.

Exchanges can also serve as custodians of digital assets, enabling an environment for the purchasers of digital assets to hold their tokens.

Customers must be able to rely on these platforms to provide clear disclosures and transparency on conflicts in order to ensure the markets continue to be conducted with integrity, without manipulation, and free of conflicts of interest. We believe that trading platforms should not trade against their clients or hold undisclosed interests in tokens that they list.

2. **Hackers have stolen billions of dollars of digital assets from crypto platforms. What system safeguards can exchanges implement to protect from cyberattacks?**

a. Are there specific standards that regulators could require that would make digital asset platforms more resilient to cyber threats?

One of the advantages of digital assets is that they are inherently secure–it is near impossible to "hack" a blockchain. The security within blockchain is derived from the basic essence of the "block" itself. Each "block" contains a cryptographic key designed only for that block and verified only by the type of consensus mechanism (Proof of Stake, Proof of Work, etc.) that officially creates the block. We typically do not see cyberattacks on blockchains themselves, but rather of the companies that manage digital assets for customers such as digital asset exchanges, and on customers themselves. Some of these platforms require heightened security measures of customers such as two factor authentication, daily withdrawal limits, withdrawal address white labeling, frequent customer reverification and other industry standard customer security measures. Some exchanges carry insurance to cover cyberattacks and customer losses and have robust custody solutions. Some platforms pass SOC 1 and SOC 2 security audits.[1] Just as with any industry, having robust cybersecurity practices and investment in cyberdefense is critical.

Ranking Member John Boozman

1. **In 2010, the Dodd Frank Act split regulation of the swaps market between the CFTC and the SEC. Should Congress follow a similar path with respect to digital asset regulations?**

In the context of the swaps markets, Congress gave the CFTC and the SEC clear guidance on which products would be regulated by the CFTC, which would be regulated by the SEC and in some very limited cases, which products would be regulated by both agencies. We believe that providing a clear definition of digital assets that identifies what products constitute a digital asset commodity to be regulated by the CFTC and a digital asset security, regulated by the SEC, would provide greater clarity to market participants and further the growth and development of responsible innovation within the industry.

2. **Cybersecurity, particularly the safety of customer assets, continues to play a large role in conversations focusing on digital asset markets. If the CFTC is given more regulatory authority over spot markets, what cybersecurity and customer protection measures could help combat vulnerabilities we've observed in this space?**

We have observed that many digital assets trading platforms require heightened security measures of customers such as two factor authentication, daily withdrawal limits, withdrawal address white labeling, frequent customer reverification and other industry standard customer

[1] https://assets.ey.com/content/dam/ey-sites/ey-com/cs_cz/topics/consulting/ey-soc2-thought-leadership-march-2021.pdf

security measures. Some exchanges carry insurance to cover cyberattacks and customer losses and have robust custody solutions. Some platforms pass SOC 1 and SOC 2 security audits. Just as with any industry, having robust cybersecurity practices and investment in cyberdefense is critical. Currently these are all voluntary and generally speaking, exchanges have a financial interest in having best in class customer asset protection and cybersecurity because a hack or loss of customer assets can be devastating to the business. If the CFTC were to regulate this industry, implementing principles that required these types of safety and security measures would be beneficial to the industry and customers.

3. **Some policymakers have voiced concerns about "off chain transactions" and their impact on transparency and investor protection. These off chain transactions are digital asset trades which are not recorded on the public distributed ledger.**
   a. **Do off chain transactions undermine the blockchain and the double spend solution?**
   b. **Should digital asset trading platforms be required to report off chain transactions to a trade repository to promote transparency and investor protection?**

Off chain transactions do not undermine the blockchain and they do not undermine the double spend benefits of blockchain. If a transaction doesn't happen on-chain, it does not impact the blockchain. For functional purposes many exchanges maintain an internal ledger of trades and transactions and only settle "on chain" when funds leave the platform to third party (non-exchange) wallets. This can be seen as similar to one bank customer paying another bank customer via a check or online bill pay. The bank does not physically move cash from one account to another, rather they simply debit or credit the respective accounts within the bank. For security and efficiency purposes digital asset trading platforms do not make on chain transfers for every trade. Rather they keep an internal ledger. If a customer seeks to move their digital assets from one exchange to another, or from an exchange to a private wallet, that transaction would occur "on chain" and would be recorded on a public blockchain.

Reporting trades that occur on a digital asset trading platform to a third party would be unnecessary, duplicative and unduly burdensome. As Sam Bankman Fried stated in his testimony FTX provides trade data free of charge in real time to the public. This is also true of most if not all other digital asset trading platforms like FTX. Reporting to a third party would be duplicative and unnecessary.

U.S. Senate Committee on Agriculture, Nutrition, and Forestry
Examining Digital Assets: Risks, Regulation, and Innovation
February 9, 2022
Mr. Kevin Werbach
Questions for the Record

Ranking Member John Boozman

1. In 2010, the Dodd Frank Act split regulation of the swaps market between the CFTC and the SEC. Should Congress follow a similar path with respect to digital asset regulations?

There are roles for both the SEC and CFTC in regulation of digital asset markets. Many digital assets are clearly securities, and some are not. As long as the securities classification is the dividing line between SEC and CFTC authority, Congress should empower both agencies to oversee relevant trading activity, and should provide them with resources commensurate with the task. As with the swaps market, the two agencies will need to coordinate and divide responsibilities in order to ensure smooth oversight of the market.

2. Cybersecurity, particularly the safety of customer assets, continues to play a large role in conversations focusing on digital asset markets. If the CFTC is given more regulatory authority over spot markets, what cybersecurity and customer protection measures could help combat vulnerabilities we've observed in this space?

The CFTC should study the steps that other financial regulators take in addressing information security considerations. It should also look at best practices in digital asset custody and analytics, which are both major growth areas in the private sector. The CFTC and other regulators should work with industry to identify the standard practices that successful entities in the digital asset space use for security and customer protection, and use those as a benchmark for enforcement against entities that fail to take such steps. This could be done through a digital asset information security advisory body, coordination with auditors and insurance providers, or even potentially in conjunction with a self-regulatory organization. Effective cybersecurity practices and customer protection measures should be a condition for licensing digital asset trading venues (when licensure is required).

3. Some policymakers have voiced concerns about "off chain transactions" and their impact on transparency and investor protection. These off chain transactions are digital asset trades which are not recorded on the public distributed ledger.

    a. Do off chain transactions undermine the blockchain and the double spend solution?
    b. Should digital asset trading platforms be required to report off chain transactions to a trade repository to promote transparency and investor protection?

Generally speaking, digital asset trades through centralized exchanges are not made on-chain. The exchanges take custody of assets and net them, similar to traditional exchanges. This does not challenge the security and double-spend resistance of the relevant blockchain. The recording of assets on the chain is not affected by off-chain activity. However, it does open up significant

security risks, market integrity issues, and potentially systemic risk when digital assets are rehypothecated or lent off-chain. Investors may not really have the assets they believe they control if there are too many claims, even when the assets still exist only once on the chain.

Transactions in decentralized finance (DeFi) are fully on-chain, although they raise other risks, which were addressed in the *DeFi Policy-Maker Toolkit* that the Wharton Blockchain and Digital Asset Project and World Economic Forum published in 2021.

I have not considered whether trading platforms should be required to report off-chain transactions to a repository. However, to the extent these are trades or swaps, they would be subject to regulation.

4. In your written testimony you state the question is not whether a digital asset is a security versus a commodity, or which agency should be "the" regulator of these assets. However, isn't the lack of regulatory certainty regarding the definition of these assets, and the proper role federal agencies should play in regulating digital assets, a major reason numerous actions have recently been brought against market participants?

Clarifying the dividing lines between securities and non-securities activity in the digital asset space is important. However, the majority of enforcement actions by the SEC and CFTC involving digital assets are situations where (in the SEC's case) there is little doubt that securities are involved; basic registration, disclosure, or Know Your Customer requirements were not met; or there is fraud and market manipulation.

I agree that greater clarity what requirements are applicable for digital asset issuers and trading venues is needed, along with clear paths to compliance with the obligations that are identified. This is an issue for every financial regulator. However, regulatory clarity must go along with effective substantive content of regulation.

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