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Senate Committee on Agriculture, Nutrition, and Forestry
Examining Digital Assets: Risks, Regulation, and Innovation

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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 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 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

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 violations¹⁰ 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 Agriculture 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

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

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/>.

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

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 Looks Rare Is Rife With Wash Trading—And OK With It*, Decrypt (Jan. 12, 2022), <https://decrypt.co/90317/ethereum-nft-market-looks-rare-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

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-tether>; Jeff 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 many 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>.

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).