NEW YORK UNIVERSITY
JOURNAL OF LAW & BUSINESS

VOLUME 19 FALL 2022 NUMBER 1

THE RISE AND FALL OF CRYPTOCURRENCY: THE THREE PATHS FORWARD

JOEL SELIGMAN*

In a crash reminiscent of the 1929–1933 stock market crash in which prices on the New York Stock Exchange fell 83% between September 1929 and July 1932 or the 2007–2009 financial debacle in which the Dow Jones Industrial Average declined 54% between October 2007 and March 2009,[1] *crypto market capitalization fell 69% between November 2021 and June 21, 2022, collapsing from an aggregate value of $2.9 trillion to $897 billion.*[2] *Bitcoin, the world's leading cryptocurrency, which traded near $68,000 per coin in November 2021, closed at $20,248 per coin on June 21, 2022 (a decline of 70%).*[3] *Coinbase, the leading crypto exchange, fell from an opening price of $381 to $51.58 on June 21, 2002 (a decline of 86%), prompting an 18% layoff of staff.*[4] *Most spectacularly, TerraUSD, a stablecoin supposedly pegged to a nonvolatile currency (but in fact pegged to a far riskier algorithm), collapsed from $119.18 in to 10 cents in May*

* Joel Seligman is a Professor of Law and Dean Emertius at Washington University School of Law and President Emertius at the University of Rochester.

1. JOEL SELIGMAN, MISALIGNMENT: THE NEW FINANCIAL ORDER AND THE FAILURE OF FINANCIAL REGULATION 1–2 (Wolters Kluwer, 2020).

2. *See* Christina Pazzanese, *So what happened to crypto?*, HARV. GAZETTE (July 13, 2022), https://news.harvard.edu/gazette/story/2022/07/so-what-happened-to-crypto/.

3. *Bitcoin* USD, YAHOO!FINANCE (June 21, 2022), https://finance.yahoo.com/quote/BTC-USD/history?period1=1635724800&period2=1655769600&interval=1d&filter=history&frequency=1d&includeAdjustedClose=true.

4. *See* Nathan Becker, Soma Biswas & Alexander Gladstone, *Coinbase to Lay Off 18% of Staff Amid Crypto Meltdown*, WALL ST. J. (June 14, 2022, 8:11 PM), https://www.wsj.com/articles/crypto-exchange-coinbase-to-lay-off-18-of-staff-11655211069.

2021, including a spectacular 82% fall in 24 hours.[5] *Crypto mania had been succeeded by the "Great Crypto Crash of 2022."*[6]

5. *See* Editorial, *Warnings from the Crypto Crash*, WALL ST. J. (May 12, 2022, 7:29 PM), https://www.wsj.com/articles/warnings-from-the-crypto-currency-crash-stablecoin-liquidity-terrausd-11652390321 ("To drum up demand for its currency, Terra's developers created a 'decentralized lending' platform that offered interest rates up to 20%"); TerraLUNA, COINBASE, https://www.coinbase.com/price/terra-luna#:~:text=terra%20is%20on%20the%20decline%20this%20week.&text=the%20current%20price%20is%20%240.000236,all%20time%20high%20of%20%24119.184624; Connor Sephton, *UST Plummets to $0.38 and LUNA Falls 82% in 24 Hours as Do Kwon Fails to Deliver 'Recovery Plan'*, COINMARKETCAP, https://coinmarketcap.com/alexandria/article/ust-plummets-to-0-38-and-luna-falls-82-in-24-hours-as-do-kwon-fails-to-deliver-recovery-plan.

6. *See* Caitlin Ostroff, *Stablecoin TerraUSD Continues Downward Spiral; Bitcoin Gains*, WALL ST. J. (May 13, 2022, 6:03 PM), https://www.wsj.com/articles/stablecoin-terrausd-continues-downward-spiral-bitcoin-gains-11652447027; Alexander Osipovich & Caitlin Ostroff, *Crash of TerraUSD Shakes Crypto. 'There Was a Run on the Bank.'*, WALL ST. J. (May 12, 2022, 12:10 PM), https://www.wsj.com/articles/crash-of-terrausd-shakes-crypto-there-was-a-run-on-the-bank-11652371839. One newspaper article estimated that Do Kwon, a South Korean entrepreneur, was responsible for the $40 billion crash in Luna and TerraUSD. David Yaffe-Bellany & Erin Griffith, *How a Trash-Talking Crypto Founder Caused a $40 Billion Crash*, N.Y. TIMES (May 20, 2022), https://www.nytimes.com/2022/05/18/technology/terra-luna-cryptocurrency-do-kwon.html; David Yaffe-Bellany, *The Coin That Could Wreck Crypto*, N.Y. TIMES (June 17, 2022), https://www.nytimes.com/2022/06/17/technology/tether-stablecoin-cryptocurrency.html. Two journalists in *The Wall Street Journal* put it mildly: "The crypto party is over." Corrie Driebusch & Paul Vigna, *The Crypto Party Is Over*, WALL ST. J. (June 18, 2022, 12:00 AM), https://www.wsj.com/articles/the-crypto-party-is-over-11655524807. Bill Gates was less restrained and described cryptocurrency as an asset class that is "100% based on the greater fool theory" and "somebody's going to pay more for it than I do." Alyssa Lukpat, *Bill Gates Says NFTs and Crypto Are '100%' Based on Greater Fool Theory*, WALL ST. J. (June 15, 2022, 1:25 PM), https://www.wsj.com/articles/bill-gates-says-cryptocurrencies-and-nfts-are-100-based-on-greater-fool-theory-11655302143.

INTRODUCTION

In March 2022, the Biden Administration issued an Executive Order (the "Order") ordering a comprehensive policy review of digital assets.[7] The Order was notable for seeking coordination in a policy review by over 20 federal executive branch departments and regulatory agencies,[8] explicitly stating that:

---

7. Exec. Order No. 14,067, 87 Fed. Reg. 14,143 (Mar. 9, 2022) [hereinafter "Exec. Order on Digital Assets"]. The term *digital asset* was meant to include not only cryptocurrencies, but a wide gamut of derivative products such as stable coins and competitive products such as Central Bank Digital Currencies, popularly known as CBDCs, and tokens, including nonfungible tokens. The Order described the breath of its review in section 9(d): "Regardless of the label used, a digital asset may be, among other things, a security, a commodity, a derivative, or other financial product. Digital assets may be exchange across digital asset trading platforms, including centralized and decentralized finance platforms, or through peer-to-peer technologies."

8. *See id.* §§ 3, 8. Section 3 of the Executive Order delineated:

> The Assistant to the President for National Security Affairs (*APNSA*) and the Assistant to the President for Economic Policy (*APEP*) shall coordinate, through the interagency process described in National Security Memorandum 2 of February 4, 2021 (Renewing the National Security Council System), the executive branch actions necessary to implement this order. The interagency process shall include, as appropriate: the Secretary of State, the Secretary of the Treasury, the Secretary of Defense, the Attorney General, the Secretary of Commerce, the Secretary of Labor, the Secretary of Energy, the Secretary of Homeland Security, the Administrator of the Environmental Protection Agency, the Director of the Office of Management and Budget, the Director of National Intelligence, the Director of the Domestic Policy Council, the Chair of the Council of Economic Advisers, the Director of the Office of Science and Technology Policy, the Administrator of the Office of Information and Regulatory Affairs, the Director of the National Science Foundation, and the Administrator of the United States Agency for International Development. Representatives of other executive departments and agencies (*agencies*) and other senior officials may be invited to attend interagency meetings as appropriate, including, with due respect for their regulatory independence, representatives of the Board of Governors of the Federal Reserve System, the Consumer Financial Protection Bureau (*CFPB*), the Federal Trade Commission (*FTC*), the Securities and Exchange Commission (*SEC*), the Commodity Futures Trading Commission (*CFTC*), the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, and other Federal regulatory agencies.

Section 8 also supported efforts by the G7, G20, the International Finance Stability Board, and FATF (Financial Action Task Force which addresses

"[The Biden Administration] places the highest urgency on research and development efforts into the potential design and deployment options of a United States [Central Bank Digital Currency]."[9]

The Order delineated several objectives and described many challenges relating to digital assets.[10] Particularly, the Order noted the "[c]ybersecurity and market failures at major digital asset exchanges and trading platforms [which] have resulted in billions of dollars of losses,"[11] and, more generally, the increased risks [posed by digital assets] to financial stability.[12] The Order further described digital assets as posing "illicit financial risks," including as a result of "money laundering, cybercrime and ransomware, narcotics and human trafficking and terrorism and proliferation financing"[13] and stated that "[t]he technological architecture of different assets has substantial implications for privacy, national security, the operational security and resilience of financial systems, climate change, the ability to exercise human rights, and other national goals."[14] Finally the Order recognized the implications of digital assets for "energy policy, including as it relates to grid management and reliability, energy efficiency incentives and standards, and sources of energy supply."[15] The Order was tentative in endorsing an approach to resolve this long cavalcade of issues and in determining who, other than through

---

money laundering and terrorist financing) "to address the full spectrum of issues and challenges raised by digital assets, including financial stability, consumer, investor and business risks and money laundering, terrorist financing, proliferation financing, sanctions evasion and other illicit activities."

9. *Id.* § 4(a)(i).

10. *See id.* § 2. In section 2, these included (a) protecting consumers, investors and businesses in the United States; (b) protecting United States and global financial stability and mitigating systemic risk; (c) mitigating the illicit financial and national security risks posed by misuse of digital assets; (d) reinforcing United States leadership in the global financial systems and in technological and economic competitiveness; (e) promoting safe and affordable financial systems; and (f) supporting technological advances that promote responsible development and use of digital assets.

11. *Id.* § 2(a).

12. *Id.* § 2(b).

13. *Id.* § 2(c).

14. *Id.* § 2(f).

15. *Id.* § 5(b)(vii)(B).

coordination by the long list of agencies already involved, would lead the remedial effort.[16]

I.
United States Prohibition of Certain Financial Products, Crypto, and its Derivatives

The United States has an extensive history of regulating and, in some cases, prohibiting certain financial products. After the conspicuous failure of the Continental Congress to issue paper money not backed by gold or silver, Article I Section 8 of the U.S. Constitution reserved only for the federal government the express power to coin money.[17] Article I Section 10 expressly prohibited the States from "[making] anything but gold and silver coin a tender in payment of debts."[18]

President Andrew Jackson's veto of the Second Bank of the United States in 1832 was accompanied by a prohibition of any national bank.[19] In 1836, the United States imposed a requirement that only gold and silver could be used to purchase public lands, which the United States then had in abundance.[20] Finally, the United States prohibited paper money in 1836, which lasted until 1863.[21]

Much of the late U.S. 19th century politics were animated by currency wars. Once paper money was introduced, the United States wrestled with questions such as whether the new paper money could be based on silver and gold or, conversely, only on gold.[22] The controversy led to William Jennings Bryan's immortal Cross of Gold speech in 1896, in which he remarked: "You shall not crucify mankind upon a cross of

16. *See generally id.* § 3 (listing multiple agencies that could be included in the interagency process).

17. *See* Seligman, *supra* note 1, at 143–45.

18. The catastrophic mismanagement of the Revolutionary War economy led to its Continental Dollar being worth as little as one cent on a dollar, giving rise to the phrase "not worth a Continental" and the Continental Congress failing to adequately finance Revolutionary War compensation or supply its military. *Id.* at 142–45.

19. *See id.* at 233.

20. *See id.* at 235.

21. *Id.* at 236–37.

22. *See generally id.* at 261–77 (discussing the shifts in monetary and coinage policy in the legislative and executive branches following the Civil War).

gold," and Bryan's subsequent nomination for U.S. President.[23]

In 1900, Congress enacted the Gold Standard Act effectively designating gold to be the monetary standard of the United States, which it would remain until 1971 when President Nixon ended the convertibility of dollars into gold.[24]

Nearly as fundamental changes occurred in the U.S. life insurance and securities industries. In 1905, the New York Armstrong Commission recommended ending tontine life insurance policies in New York which, in 1905, represented 64% of all life insurance in force nationally.[25] Tontine insurance was a negative lottery system, an insurance product in which several individuals would pool investments in a whole life insurance policy (combining a savings plan with death benefit insurance) with only the living individuals entitled to the benefit of the investment after defined term, typically 20 years or more.[26] The Armstrong Commission sharply criticized high-pressure sales tactics and the high costs of tontine insurance marketing practices. In 1905, New York State prohibited tontine insurance altogether, as did other states that followed New York's approach.[27]

The 1929–1933 stock market crash laid bare similar patterns of high-pressure sales tactics, misleading disclosure, and stock market manipulation. As a result, the U.S. Congress passed the Securities Act of 1933 ("Securities Act"), which prohibited sales of most securities to the public without a prior filing of offering documents with what is now the Securities and Exchange Commission ("SEC"),[28] as well as the Securities Exchange Act of 1934 ("Exchange Act"), which required most securities markets to register with the SEC.[29]

---

23. *Id.* at 273–76.
24. *See id.* at 277.
25. *Id.* at 346, 358.
26. *See id.* at 346.
27. *See id.* at 359–61.
28. *See* JOEL SELIGMAN, THE TRANSFORMATION OF WALL STREET: A HISTORY OF THE SECURITIES AND EXCHANGE COMMISSION AND MODERN CORPORATE FINANCE 39–40 (Aspen Pub. 3d ed. 2003).
29. *See id.* at 99–100.

Cryptocurrency, as is by now well known,[30] was introduced in a 2008 paper titled: "Bitcoin: A Peer-to-Peer Electronic Cash System," written by Satoshi Nakomoto. Nakomoto, the pseudonym for the author (or authors) of the paper, described a libertarian alternative to the existing U.S. centralized banking system; a system designed to provide electronic transmissions "without relying on trust."[31] In Nakomoto's original vision, people could transfer value directly to each other from anywhere in the world without government-issued currencies, relying on third-party intermediaries, or the need to reconcile records across trading partners.[32] Additional characteristics and features of Nakomoto's envisioned cryptocurrency include the following:

- Bitcoin would be impossible to counterfeit.
- Bitcoin would not require a central bank such as the Federal Reserve System, any central server, or central storage.
- Bitcoin would not require a single administrator, intermediaries, or the need for trade approval.
- Bitcoin transactions could be conducted by anyone, anywhere, and at any time.
- Bitcoin would protect the user privacy.
- Bitcoin would be democratically run.
- Bitcoin system would operate entirely anonymously.
- Bitcoin would provide a means for people without bank accounts to transfer value.[33]

---

30. *See, e.g.*, CAROL GOFORTH & YULIYA GUSEVA, REGULATION OF CRYPTOASSETS 10–11 (2d ed. 2022) (discussing the amount of money and alternatives to Bitcoin involved in cryptocurrency); Gregory S. Rowland & Trevor I Kiviat, *Cryptocurrency and Other Digital Asset Funds for U.S. Investors*, *in* GLOB. LEGAL INSIGHTS 54, 54, 63 (Josias N. Dewey ed., 3d. ed. 2021) (mentioning the proliferation of cryptocurrency assets since Bitcoin's introduction); Mary C. Lacity, *Crypto and Blockchain Fundamentals*, 73 ARK. L. REV. 363, 375–82 (2020) (detailing the expansion of cryptocurrencies and cryptocurrency exchanges); Rebecca M. Bratspies, *Cryptocurrency and the Myth of the Trustless Transaction*, 25 MICH. TECH. L. REV. 1, 2, 15 (2018) (noting the thousands of cryptocurrencies that have followed Bitcoin).

31. SATOSHI NAKOMOTO, BITCOIN: A PEER-TO-PEER ELECTRONIC CASH SYSTEM 1 (2008), https://bitcoin.org/bitcoin.pdf.

32. Lacity, *supra* note 30, at 366.

33. *See* GOFORTH & GUSEVA, *supra* note 30, at 7–9; Rowland & Kiviat, *supra* note 30; Lacity, *supra* note 30, at 367–72; Bratspies, *supra* note 30, at 2.

Nakomoto's model was actualized in 2009 when Nakomoto mined the first Bitcoins to be traded.[34] Bitcoin, which remains the largest cryptocurrency in the world, has a market capitalization of $558.13 billion as of June 10, 2022, representing approximately 46% of the $1.20 trillion global crypto market.[35] Bitcoin began with each coin having a value of 0.003 cents.[36] Over time, the value of each Bitcoin has stunningly increased. In November 2021, each Bitcoin was worth a high closing price of over $68,000, before an eventual 70% decline by June 2022.[37] As of January 2022, over 106 million Bitcoin owners held more than 200 million Bitcoin wallets.[38] As originally envisioned, only 21 million Bitcoins will be created.[39]

Each Bitcoin is registered to a Bitcoin address, and each address has a public key and private key that are cryptographically generated.[40] The private key allows the owner to access funds at the address.[41] The public key is used to validate transactions communicated from the address.[42] Private and public keys are stored in each crypto trader's wallet.[43] Miners confirm Bitcoin transactions in each blockchain (as further described in this Section B).[44] Anybody can become a Bitcoin miner but the computational energy and expansive IT hardware required

34. Bratspies, *supra* note 30, at 14.

35. CoinMarketCap, https://www.coinmarketcap.com (last visited June 10, 2022).

36. Bratspies, *supra* note 30, at 16 (detailing first known commercial use and the programmer who valued those bitcoins at 0.003 cents apiece).

37. *See* Megan DeMatteo, *Bitcoin Price History: 2009 to* 2022, Time (Sept. 12, 2022), https://time.com/nextadvisor/investing/cryptocurrency/bitcoin-price-history/.

38. *How Many People Own & Use Bitcoin?*, https://buybitcoinworldwide.com/how-many-bitcoin-users/ (last visited Sept. 28, 2022).

39. Jamie Redman, *Satoshi's 21 Million Mystery: One-Millionth of the Bitcoin Supply Cap is Now Worth $1 Million*, Bitcoin (Mar. 7, 2021), https://news.bitcoin.com/satoshis-21-million-mystery-one-millionth-of-the-bitcoin-supply-cap-is-now-worth-1-million/.

40. Jerry Brito & Andrea Castillo, Bitcoin: A Primer for Policymakers 7 (2d ed. 2016) (providing overview of lifecycle of a bitcoin transaction).

41. *Id.* at 7, 34, 65.

42. *Id.* at 7.

43. *Id.*

44. *Id.* at 7–9.

for Bitcoin mining serve as significant barriers to entry.[45] The miners keep the blockchains unalterable by requiring "Proof of Work" (as further described in Part II) and by creating new chains to protect the system.[46] Miners are rewarded for validating transactions with Bitcoins and fees. All transactions are recorded in a ledger or blockchain, which contains previous "blocks" back to the initial block of a chain.[47] In the Bitcoin system, the blockchain contains a record of every transaction ever conducted in the blockchain.[48] The blockchain ledger enables anyone with access to view any transaction.[49]

Over time, Nakamoto's initial Bitcoin model has evolved considerably. Wallets can now be held by "full clients," who have access to the entire blockchain, or "lightweight clients," who use simplified payment verification and only have access to a local copy of the blockchain.[50] Most cryptocurrency participants do not use full nodes, those responsible for an entire blockchain network, and instead often join mining pools to

---

45. *See, e.g.*, Aoyon Ashraf & Eliza Gkritsi, *Why Do Old-Line Businesses Enter Crypto Mining? Simple: Fat Profits*, CoinDesk (Mar. 23, 2022, 1:33 PM), https://www.coindesk.com/layer2/miningweek/2022/03/23/why-do-old-line-businesses-enter-crypto-mining-simple-fat-profits/ (quoting bitcoin miner CEO that "[t]here are a lot more barriers to entry than people realize when mining at an industrial scale (as opposed to home mining where barriers are coming down)").

46. Bitcoin utilized Nakomoto's peer-to-peer currency system. Proof of Work is the consensus algorithm in Bitcoin used to prevent attacks on the system. *Explained: What is Proof of Work (POW) in Blockchain*, Bybit Learn (Dec. 8, 2020), https://learn.bybit.com/blockchain/what-is-proof-of-work-in-blockchain/; Kirsty Moreland, *What is Proof-of-Work*, Ledger Academy (Oct. 23, 2019), https://www.ledger.com/academy/blockchain/what-is-proof-of-work. There are multiple steps in mining. These initially included: (1) A request to transfer a specified number of Bitcoins from one address to another; (2) the request is sent to another Bitcoin address; (3) miners validate that the transferor has sufficient Bitcoin in a wallet to avoid double-spending; (4) the transaction is validated using cryptographic algorithms; (5) the new transaction is added to the end of the blockchain. *See* Brito & Castillo, *supra* note 40; *see, e.g.*, Fergus O'Sullivan, *What is Crypto Mining and How Does it Work?*, How-To Geek (Dec. 12, 2021), https://www.howtogeek.com/771391/what-is-crypto-mining-and-how-does-it-work/.

47. Bratspies, *supra* note 30, at 12.

48. *Id.*

49. *Id.*

50. *See* Andreas M. Antonopoulos, *Mastering Bitcoin*, O'Reilly, https://www.oreilly.com/library/view/mastering-bitcoin/9781491902639/ch01.html (last visited Dec. 13, 2022).

minimize the variance of their income and reduce the expense of maintaining a full node.[51]

As with Continental dollars, tontine insurance, and pre-1933 securities, Bitcoin (and subsequent cryptocurrencies) has faced significant marketing and product integrity issues, as well as severe environmental problems. Bitcoin, which was initially just a payout system, has experienced slow transaction times and high transaction costs, with the Federal Reserve System reporting in January 2022 that Bitcoin is only capable of supporting roughly five transactions per second at a cost of up to $60 per transaction.[52] Bitcoin, and cryptocurrencies generally, have been used in illegal transactions such as money laundering, tax evasion, or the trade of illegal goods.[53] Additionally, bitcoin, and cryptocurrencies generally, remain subject to price volatility. For example, on May 13, 2021, Bitcoin lost 12% of its market capitalization after Elon Musk announced that Tesla would no longer accept Bitcoins.[54]

Bitcoins, and cryptocurrencies generally, are vulnerable to crypto thefts. As of 2017, Reuters estimated $1.2 billion was stolen between 2017 and May 2018.[55] In one notable example,

---

51. Bratspies, *supra* note 30, at 22.

52. Bd. of Governors of the Fed. Rsrv. Sys., Money and Payments: The U.S. Dollar in the Age of Digital Transformation 11 n.13, https://www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf [hereinafter "The U.S. Dollar in the Age of Digital Transformation"].

53. *See, e.g.*, *Cryptocurrency Money Laundering Rises 30% in 2021*, Fin. Magnates (Jan. 27, 2022, 7:13 AM), https://www.financemagnates.com/cryptocurrency/news/cryptocurrency-money-laundering-climbs-30-in-2021/ (In 2021, cyber criminals laundered over $8.6 billion in digital currencies). In November 2021, it was reported that the Internal Revenue Service (IRS) Criminal Investigation Unit seized $3.5 billion for tax fraud during Fiscal 2021 including $1 billion linked to the darknet Silk Road. *See* Michael Bellusci, *IRS Seized $3.5B in Cryptocurrency During Fiscal 2021*, CoinDesk (Nov. 18, 2021), https://www.coindesk.com/policy/2021/11/18/irs-seized-35b-in-cryptocurrency-during-fiscal-2021/. In 2021, Werner Vermaak listed 13 countries as the leading tax havens for cryptocurrency including those that entirely or largely exclude crypto trading from capital gains taxation. *See* Werner Vermaak, *Where Are the World's Crypto Tax Havens in 2021?*, CoinMarketCap (2021), https://coinmarketcap.com/alexandria/article/where-are-the-worlds-crypto-tax-havens-in-2021.

54. Rishi Iyenger, *Bitcoin plunges 12% after Elon Musk tweets that Tesla will not accept it as payment*, CNN Bus. (May 13, 2021, 9:43 AM), https://www.cnn.com/2021/05/12/tech/elon-musk-tesla-bitcoin.

55. Gertrude Chavez-Dreyfuss, *About $1.2 billion in cryptocurency stolen since cybercrime group*, Reuters (May 24, 2018, 10:59 AM), https://

reported in February 2022, Ilya Lichtenstein and Heather Morgan reportedly attempted to sell $4 billion worth of Bitcoin, which had been stolen from the cryptocurrency exchange Bitfinex in 2016 when the same Bitcoins were valued at just $71 million. The couple was charged with money laundering in what the *Guardian* labeled the "heist of the century."[56] The incidence of crypto thefts continue.[57]

---

www.reuters.com/article/us-crypto-currency-crime/about-1-2-billion-in-cryptocurrency-stolen-since-2017-cybercrime-group-idUSKCN1IP2LU.

56. Edward Helmore, *'Heist of the century': US bitcoin case tests ability to crack down on cybercrime*, THE GUARDIAN (Feb. 14, 2022, 2:00 PM), https://www.theguardian.com/law/2022/feb/14/us-bitcoin-case-cybercrime; *see also* Ali Watkins & Benjamin Weiser, *Modern Crime, a Tech Couple And a Trail of Siphoned Crypto*, N.Y. TIMES, Feb. 13, 2022, at A1; Dustin Volz & Ian Talley, *Justice Department Says It Seized $3.6 Billion Worth of Bitcoin Stolen in 2016 Hack*, WALL ST. J. (Feb. 8, 2022, 9:21 PM), https://www.wsj.com/articles/justice-department-says-it-seized-3-6-billion-in-stolen-cryptocurrency-exchange-hack-11644339381 (roughly 94,000 of 119,754 stolen Bitcoins were recovered); Paul Vigna, *How the Feds Tracked Down $3.6 Billion in Stolen Bitcoin*, WALL ST. J. (Feb. 9, 2022, 5:51 PM), https://www.wsj.com/articles/how-the-feds-tracked-down-3-6-billion-in-stolen-bitcoin-11644447110; David Yaffe-Bellany, *Theft, Fraud and Lawsuits at the World's Biggest NFT Marketplace*, N.Y. TIMES (June 6, 2022), https://www.nytimes.com/2022/06/06/technology/nft-opensea-theft-fraud.html; Paul Vigna, *Search Continues for Source of TerraUSD Bank Run*, WALL ST. J. (June 4, 2022, 11:00 AM), https://www.wsj.com/articles/search-continues-for-source-of-terrausd-crypto-bank-run-11654348117 (focusing on how two digital token firms, luna and TerraUSD collapsed and commenting "[i]n DeFi, it isn't easy to understand who provides money for loans, where the money flows or how easy it is to trigger currency meltdowns. This is one reason regulators are concerned about the impact of DeFi on investors and the broader financial system.")

57. In March 2022, a different set of hackers stole more than $500 million of Ethereum and the stablecoin USDC of the online game, Axie Infinity. Paul Vigna & Sarah E. Needleman, *Hackers Steal $540 Million in Crypto from 'Axie Infinity' Game*, WALL ST. J. (Mar. 29, 2022, 6:13 PM), https://www.wsj.com/articles/hackers-steal-540-million-in-crypto-from-axie-infinity-game-11648585535. Later in April, the United States linked North Korea to the theft, later identified as being worth $615 million. *U.S. Ties North Korean Hacker Group Lazarus to Huge Cryptocurrency Theft*, REUTERS (Apr. 14, 2022, 7:31 PM), https://www.reuters.com/technology/us-ties-north-korean-hacker-group-lazarus-huge-cryptocurrency-theft-2022-04-14/; *see also* David Uberti, *Hackers Stole More Than $600 Million in Crypto. Laundering It Is the Tricky Part*, WALL ST. J. (Apr. 6, 2022, 10:08 AM), https://www.wsj.com/articles/hackers-stole-more-than-600-million-in-crypto-laundering-it-is-the-tricky-part-11649237401; David Uberti, *How Hackers Target Bridges Between Blockchains for Crypto Heists*, WALL ST. J. (Apr. 5, 2022, 5:30 AM), https://www.wsj.com/articles/how-hackers-target-bridges-between-blockchains-for-

Bitcoin faces other weaknesses. Because Bitcoin requires each user to retain a private key, a unique system of 64 numbers and letters, Bitcoin accounts can easily become inaccessible. For example, a Welsh crypto trader allegedly lost access to a Bitcoin account worth roughly $500 million dollars.[58] In addition, bitcoin, and cryptocurrencies generally, face sharp criticism regarding energy consumption. Digiconomist's 2022 Energy Consumption Index estimated that Bitcoin's "network now consumes more energy than a number of countries."[59]

---

crypto-heists-11649151001; Mengqi Sun & David Smagalla, *Cryptocurrency-Based Crime Hit a Record $14 Billion in 2021*, WALL ST. J. (Jan. 6, 2022, 6:20 PM), https://www.wsj.com/articles/cryptocurrency-based-crime-hit-a-record-14-billion-in-2021-11641500073 ("The volume of cryptocurrency transactions grew to $15.8 trillion in 2021, up 567% from 2020 . . . . Illicit transactions totaled $14 billion in 2021, up 79% from $7.8 billion the previous year. But illicit transactions only made up 0.15% of cryptocurrency transaction volume in 2021."); Paul Vigna, *Crypto Thieves Get Bolder by the Heist, Stealing Record Amounts*, WALL ST. J. (Apr. 22, 2022, 5:30 AM), https://www.wsj.com/articles/crypto-thieves-get-bolder-by-the-heist-stealing-record-amounts-11650582598. By 2021, cryptocurrency jumped from the seventh riskiest scam in 2020 to the second riskiest. *Cryptocurrency Scams Increased in 2021*, REG.-HERALD (Apr. 12, 2022), https://www.register-herald.com/news/cryptocurrency-scams-increased-in-2021/article_44b4cfea-323c-5038-8dac-5e36678a6808.html.

58. *See* D.T. Max, *Half a Billion in Bitcoin, Lost in the Dump*, NEW YORKER (Dec. 6, 2021), https://www.newyorker.com/magazine/2021/12/13/half-a-billion-in-bitcoin-lost-in-the-dump.

59. *Bitcoin Energy Consumption Index*, DIGICONOMIST, https://digiconomist.net/bitcoin-energy-consumption (last visited Oct. 12, 2022). The report goes on to explain why:

> The machines performing the 'work' are consuming huge amounts of energy while doing so. Moreover, the energy used is primarily sourced from fossil fuels . . . .
>
> . . . .
>
> New sets of transactions (blocks) are added to Bitcoin's blockchain roughly every 10 minutes by so-called miners. While working on the blockchain, these miners aren't required to trust each other. The only thing miners have to trust is the code that runs Bitcoin . . . .
>
> . . . .
>
> The continuous block mining cycle incentivizes people all over the world to mine Bitcoin. As mining can provide a solid stream of revenue, people are very willing to run power-hungry machines to get a piece of it. Over the years this has caused the total energy consumption of the Bitcoin network to grow to epic proportions, as the price of the currency reached new highs . . . .

Id. In 2022, "[a] consortium of environmental groups launched a campaign . . . to change bitcoin's code to decrease . . . energy use." Paul Vigna,

Bitcoin mining's carbon footprint is comparable to New Zealand's for 36.95 million tons of carbon emissions annually.[60] One study estimated that Bitcoin alone could generate enough carbon dioxide to raise global temperatures by 3.6 degrees Fahrenheit in three decades.[61]

In 2015, Ethereum ("ETH"), the second most widely traded cryptocurrency in the world with a market capitalization of $136 billion as of June 21, 2022,[62] was created and attempted to address some of the limitations of Bitcoin.[63] Ethereum popularized smart contracts, the use of cryptocurrencies other than its own ETH, and nonfungible tokens ("NFTs").[64] A fundamental limitation of Bitcoin was that it initially only provided a means to trade with other Bitcoin wallets. Ethereum smart contracts, in contrast, allowed Ethereum wallets to

---

Evironmental Groups Pressure Bitcoin Community to Lower Energy Use, WALL ST. J. (Mar. 29, 2022, 1:10 PM), https://www.wsj.com/articles/environmental-groups-pressure-bitcoin-community-to-lower-energy-use-11648509353. In June 2022, the New York State legislature enacted a two-year moratorium on reactivating fossil fuel power plants for cryptocurrency mining. Jimmy Vielkind, *New York Legislature Approves Bill to Limit Cryptocurrency Mining*, WALL ST. J. (June 3, 2022, 12:12 PM), https://www.wsj.com/articles/new-york-legislature-approves-bill-to-limit-cryptocurrency-mining-11654272723. The crypto industry launched an intense lobbying effort to dissuade Governor Hochul from signing the bill creating the moratorium. Luis Ferré-Sadurní, Grace Ashford, Dana Rubinstein & David Yaffe-Bellany, *Fight Looms over New York's Bid to Slow Crypto-Mining Boom*, N.Y. TIMES (June 7, 2022), https://www.nytimes.com/2022/06/07/nyregion/cryptomining-ban-ny.html.

60. Ryan Browne, *Bitcoin's Wild Ride Renews Worries About Its Massive Carbon Footprint*, CNBC (Feb. 5, 2021, 4:32 AM), https://www.cnbc.com/2021/02/05/bitcoin-btc-surge-renews-worries-about-its-massive-carbon-footprint.html?utm_term=autofeed&utm_medium=social&utm_content=Main&utm_source=Twitter#Echobox=1612517697.

61. Patrick J. Kiger, *Cryptocurrency Has a Huge Negative Impact on Climate Change*, HOWSTUFFWORKS (May 17, 2021), https://science.howstuffworks.com/environmental/conservation/issues/cryptocurrency-climate-change-news.htm.

62. *See Historical Data for Ethereum*, COINMARKETCAP, https://coinmarketcap.com/currencies/ethereum/historical-data/ (last visited Oct. 12, 2022).

63. *See What Is Ethereum?*, COINBASE, https://www.coinbase.com/learn/crypto-basics/what-is-ethereum (last visited Oct. 12, 2022).

64. *See* Bratspies, *supra* note 30, at 15, 34, 38. Regarding tokens, see discussion *infra* p. 13.

trade with a wide array of other applications and popularized Decentralized Finance ("DeFi").[65]

Ethereum's innovators were inspired by the same libertarian enthusiasm as Bitcoin's creator(s). As one Ethereum developer put it, in summarizing Ethereum's model: "No lawyers, no bankers, no accountants, everything is outsourced to the blockchain[.]"[66] Similar to Bitcoin, Ethereum represents a vision of a new decentralized world order based on the blockchain.[67] Ethereum also, like Bitcoin, relies on a blockchain, nodes, a 64-character hexadecimal private key, transaction fees, and miners with their Proof of Work.[68] Ethereum blocks are validated approximately every 12 seconds compared with Bitcoin's validation time of approximately ten minutes.[69]

Unlike Bitcoin, which relies on energy intensive Proof of Work, Ethereum switched to a much less energy intensive "Proof of Stake" system.[70] Staking provides a short cut to validation by allowing investors to put their cryptocurrencies in the blockchain by relying on a third-party consensus mechanism to verify a transaction.[71] One opinion writer in the *New York Times* explained the difference in energy consumption between Proof of Work and Proof of Stake as follows:

---

65. Fabian Schär, *Decentralized Finance: On Blockchain- and Smart Contract-Based Financial Markets*, 103 FED. RSRV. BANK ST. LOUIS REV. 153, 153–54 (2021).

66. Daniel Rasmussen, *Three Books to Map Crypto's Confusing New Landscape*, WALL ST. J. (Mar. 11, 2022, 11:13 AM), https://www.wsj.com/articles/three-books-to-map-cryptos-confusing-new-landscape-reviews-bitcoin-ethereum-11647015103?page=1.

67. *Id. See generally* LAURA SHIN, THE CRYPTOPIANS: IDEALISM, GREED, LIES, AND THE MAKING OF THE FIRST BIG CRYPTOCURRENCY CRAZE (2022) (discussing some crypto-investors desire to create a decentralized currency that no government can control as the "ultimate cypherpunk act").

68. *Proof-of-Work*, ETHEREUM (Sept. 26, 2022), https://ethereum.org/en/developers/docs/consensus-mechanisms/pow/; *Ethereum Accounts*, ETHEREUM (Sept. 26, 2022), https://ethereum.org/hr/developers/docs/accounts/.

69. *Gary DeWaal Discusses Ether and the Ethereum Blockchain with Forbes*, KATTEN (Apr. 5, 2021), https://katten.com/gary-dewaal-discusses-ether-and-the-ethereum-blockchain-with-forbes.

70. *Proof-of-Stake (POS)*, ETHEREUM (Oct. 10, 2022), https://ethereum.org/en/developers/docs/consensus-mechanisms/pos/.

71. *What Is Staking?*, COINBASE, https://www.coinbase.com/learn/crypto-basics/what-is-staking (last visited Oct. 13, 2022).

> Briefly, [in Proof of Work,] you prove your work by doing those quintillions of calculations. You prove your stake by pledging cryptocoins that you own. As in a company's shareholder vote, the people with the most coins have the biggest say.
>
> The difference in energy consumed per transaction between the [Proof of Work and Proof of Stake] systems is like the difference in height between the world's tallest building and a single screw . . . .[72]

Nonetheless, whatever its weaknesses as a currency and defects as an energy glutton, Bitcoin trading became a hot speculative investment, with Bitcoin described as "digital gold."[73] Bitcoin is traded on futures markets, by stock market exchange traded funds ("ETFs") and by custody services from major securities firms including Fidelity and Coinbase.[74]

The years 2020–2022 belonged to crypto. In February 2022, Statista estimated that 10,397 different cryptocurrencies existed worldwide.[75] In 2021, Pew Research estimated that 16% of U.S. adults, including 31% of those between 18 and 29 years of age, had invested in, traded, or used a cryptocurrency.[76] In 2022, one consumer survey reported that 44% of all crypto owners first purchased crypto within the past year and an additional 31% had purchased crypto within the past one to two years.[77] In 2021, "venture capitalists backed . . . 460

---

72. Peter Coy, Opinion, *I Spoke to the Experts. Bitcoin Isn't Going to Change*, N.Y. TIMES (Apr. 20, 2022), https://www.nytimes.com/2022/04/20/opinion/bitcoin-mining-climate-change.html.

73. *See* Ryan Browne, *The Case for Bitcoin as 'Digital Gold' Is Falling Apart*, CNBC (Feb. 25, 2022, 8:07 PM), https://www.cnbc.com/2022/02/23/the-case-for-bitcoin-as-digital-gold-is-falling-apart.html.

74. *See* Karen Hube, *It's Not Just Bitcoin. How to Invest in the Crypto Economy*, BARRON'S (Feb. 26, 2022), https://www.barrons.com/articles/bitcoin-investing-crypto-economy-51645632880.

75. *Number of Cryptocurrencies Worldwide from 2013 to February 2022*, STATISTA (Feb. 2022), https://www.statista.com/statistics/863917/number-crypto-coins-tokens/.

76. Andrew Perrin, *16% of Americans Say They Have Ever Invested in, Traded or Used Cryptocurrency*, PEW RSCH. CTR. (Nov. 11, 2021), https://www.pewresearch.org/fact-tank/2021/11/11/16-of-americans-say-they-have-ever-invested-in-traded-or-used-cryptocurrency/.

77. Allison Whaley, *Paxos Survey Finds Consumers Want Easier Access to Crypto*, PAXOS (Feb. 9, 2022), https://paxos.com/2022/02/09/paxos-survey-finds-consumers-want-easier-access-to-crypto/; *see also* Tara Seigel Bernard, *Everyone Has Crypto FOMO, but Does It Belong in Your Portfolio?*, N.Y. TIMES

blockchain projects, spending nearly $12.75 billion [compared to] . . . $2.75 billion [spent] in 2020" on just 155 projects.[78] Investors included prominent financial institutions and individuals such as Goldman Sachs, JP Morgan, and BlackRock.[79] By 2021, cryptocurrency was used in several popular financial services such as Robinhood, Venmo, and CashApp.[80] Visa and MasterCard were linking credit and debit cards to crypto brokerage sites.[81] Commercial banks and other enterprises today use cryptocurrency in commercial transactions. As of December 29, 2021, approximately 34,000 ATMs worldwide could engage in Bitcoin transactions.[82] In 2021, it was estimated that Bitcoin was accepted by 2,300 businesses.[83] In March 2021, PayPal allowed purchases with Bitcoin and Ethereum.[84] In Jan-

(Mar. 25, 2022), https://www.nytimes.com/2022/03/24/your-money/bitcoin-investing-cryptocurrency.html (a survey of financial advisers found 16 percent "had allocated crypto to their clients' portfolios in 2021, up from 9 percent in 2020").

78. Ephrat Livni, *Tales from Crypto: A Billionaire Meme Feud Threatens Industry Unity*, N.Y. TIMES (Jan. 18, 2022), https://www.nytimes.com/2022/01/18/business/dealbook/web3-venture-capital-andreessen.html.

79. Brandy Betz, *JPMorgan Backs $20M Round for Blockchain Infrastructure Startup Ownera*, COINDESK (Sept. 14, 2022, 9:16 AM), https://www.coindesk.com/business/2022/09/14/jp-morgan-backs-20m-round-for-blockchain-infrastructure-startup-ownera/; Paul Vigna, *How Goldman Sachs, JPMorgan are leading Wall Street's blockchain charge*, FIN. NEWS (Aug. 23, 2022, 7:15 AM), https://www.fnlondon.com/articles/goldman-sachs-jpmorgan-blockchain-onyx-crypto-banking-202208233; Justin Baer, *Wall Street Reluctantly Embraces Crypto*, WALL ST. J. (May 1, 2022, 5:33 AM), https://www.wsj.com/articles/wall-street-reluctantly-embraces-crypto-11651347654 ("Goldman has started executing trades on both over-the-counter bitcoin options as well as futures listed with CME Group Inc., operator of the world's biggest derivatives exchange.").

80. *See* Laura Hautala, *PayPal, Venmo and CashApp simplify cryptocurrency for beginners*, CNET (Nov. 3, 2021, 7:59 PM), https://www.cnet.com/personal-finance/crypto/paypal-venmo-and-cashapp-simplify-cryptocurrency-for-beginners/.

81. Hube, *supra* note 74.

82. Hassan Maishera, *Total Number of Bitcoin ATMs Globally Grows to Around 34,000*, YAHOO! (Dec. 29, 2021), https://www.yahoo.com/video/total-number-bitcoin-atms-globally-104028217.html.

83. Sarah Brady, *What Is Bitcoin and How Does It Work?*, TOM'S GUIDE (July 22, 2022), https://www.tomsguide.com/features/what-is-bitcoin-and-how-does-it-work.

84. *PayPal Launches "Checkout with Crypto,"* PAYPAL NEWSROOM (Mar. 30, 2021), https://newsroom.paypal-corp.com/2021-03-30-PayPal-Launches-Checkout-with-Crypto.

uary 2022, Eric Adams, Mayor of New York City, requested that his first three paychecks be paid in Bitcoin.[85] In April 2022, Fidelity, the nation's largest retirement plan provider, became the first to authorize investors to add Bitcoin to their 401(k) plans.[86] Outside of the United States, other countries are beginning to adapt to cryptocurrency as well.[87]

Beginning with the Bitcoin Market in 2010, there are now more than 500 cryptocurrency exchanges.[88] Some 99% of crypto transactions are made through centralized exchanges ("Centralized Exchange Platforms").[89] Centralized Exchange Platforms revolutionized crypto trading. Coinbase, the largest

---

85. Dana Rubinstein et al., *Eric Adams, a Bitcoin Booster, Is Taking First Paycheck in Crypto*, N.Y. TIMES (Jan. 20, 2022), https://www.nytimes.com/2022/01/20/nyregion/eric-adams-bitcoin-cryptocurrency.html.

86. Anne Tergesen, *Fidelity to Allow Retirement Savers to Put Bitcoin in 401(k) Accounts*, WALL ST. J. (Apr. 26, 2022, 10:43 AM), https://www.wsj.com/articles/fidelity-to-allow-retirement-savers-to-put-bitcoin-in-401-k-accounts-11650945661.

87. El Salvador recognized Bitcoin as legal tender, which to date has been little used. Kejal Vyas & Santiago Pérez, *Can Bitcoin Be a National Currency? El Salvador Is Trying to Find Out*, WALL ST. J. (Feb. 17, 2022, 10:59 AM), https://www.wsj.com/articles/bitcoin-national-currency-el-salvador-11645026831. In 2022, Dubai created the Dubai Virtual Assets Regulatory Authority, "reflect[ing] Dubai's vision to become one of the leading jurisdictions for entrepreneurs and investors in blockchain technology." *Dubai Issues Its First Crypto Law Regulating Virtual Assets*, HUNTON ANDREWS KURTH (Apr. 7, 2022), https://www.huntonprivacyblog.com/2022/04/07/dubai-issues-its-first-crypto-law-regulating-virtual-assets/.

88. Kai Sedgwick, *The Number of Cryptocurrency Exchanges Has Exploded*, BITCOIN.COM (Apr. 11, 2018), https://news.bitcoin.com/the-number-of-cryptocurrency-exchanges-has-exploded/.

89. Alex Topchishvili, *Why Decentralized Exchanges Are the Future of Crypto Trading*, MEDIUM (May 16, 2018), https://medium.com/totle/why-decentralized-exchanges-are-the-future-of-crypto-trading-89aac3c81e0. A decentralized exchange, in contrast, does not require a transfer of crypto assets to a third party but is a peer-to-peer system. Andrew Loo, *Cryptocurrency Exchanges*, CORP. FIN. INST. (Aug. 30, 2022), https://corporatefinanceinstitute.com/resources/knowledge/other/cryptocurrency-exchanges/. They are anonymous and do not require an investor to complete a know your customer opening form. *Id.* But they have key disadvantages. An investor who does not remember keys or passwords can lose the total value of the accounts. *Id.* Professor Kristin Johnson generalized about crypto exchanges:

> Coinbase, Gemini, Bittrex and Binance are all examples of centralized exchanges. Users deposit their funds direction into a pooled wallet that is controlled by the exchange; the exchange takes custody of traders' deposited assets, and the exchange directly engages in matching buy and sell orders.

exchange by the end of 2021, "had 89 million retail users, 11,000 institutions[ ] and 210,000 ecosystem partners."[90] Coinbase customers could trade over 150 different cryptocurrencies including Bitcoin, Ethereum, and Dogecoin, use a Visa Debit Card, and even borrow against their accounts using Bitcoin as collateral.[91] Coinbase became a publicly traded company, listing on the Nasdaq on April 14, 2021.[92] A 2022 survey found that 60 percent of trading was conducted by four centralized platforms (Coinbase, 21 percent; PayPal, 20 percent; Robinhood, 10 percent; and Square's Cash App., 9 percent).[93]

To address the volatility of Bitcoin, several cryptocurrencies rely on stablecoins, pegging the value of the cryptocurrency to a stable currency. Tether, the largest stablecoin in the world with a market capitalization of $67 billion as of June 21, 2022, is pegged to the U.S. dollar.[94] Other stablecoins have

---

> Centralized exchanges create accounts that store customer funds. The exchanges maintain "hot" wallets connected to the platform's network to facilitate trading. Centralized exchanges generally enable traders to execute, clear, and settle buy/sell orders.

Kristin N. Johnson, *Regulating Decentralized Finance: Cryptocurrency Exchanges*, 62 WM. & MARY L. REV. 1911, 1953 (2021) (footnotes omitted).

90. Shikhar Goel, *How Does Coinbase Make Money — Business Model*, STRATEGY STORY (May 28, 2022), https://thestrategystory.com/2022/05/28/how-does-coinbase-make-money-business-model/.

91. *See* Kevin Voigt, *Coinbase Review 2022: Pros, Cons and How It Compares*, NERDWALLET (Mar. 2, 2022), https://www.nerdwallet.com/reviews/investing/brokers/coinbase#:~:text=0.00%25-,Number%20of%20cryptocurrencies,number%20than%20many%20other%20platforms.

92. Sunil Dhawan, *Coinbase Listing on Nasdaq! Largest US Cryptocurrency Exchange Debuts on Wall Street*, FIN. EXPRESS (Apr. 15, 2021, 10:23 AM), https://www.financialexpress.com/investing-abroad/featured-stories/coinbase-listing-on-nasdaq-largest-us-cryptocurrency-exchange-debuts-on-wall-street/2233344/; *see* Coinbase Global, Inc., Annual Report (Form 10-K) (Feb. 25, 2022).

93. Whaley, *supra* note 77.

94. Darya Rudz, *Tether Burning $11.1 Billion USDT Stablecoins*, COINSPEAKER (June 21, 2022), https://www.coinspeaker.com/tether-burning-11-1-billion-usdt-stablecoins/; MacKenzie Sigalos & Ryan Browne, *Tether, world's biggest stablecoin, cuts its commercial paper holdings to zero*, CNBC (Oct. 13, 2022, 8:43 PM), https://www.cnbc.com/2022/10/13/tether-worlds-biggest-stablecoin-cuts-commercial-paper-to-zero.html#:~:text=the%20world's%20biggest%20stablecoin%2C%20tether,%2Dstyle%20%E2%80%9Cbank%20run.%E2%80%9D&text=via%20Getty%20Images-,Tether%2C%20the%20world's%20largest%20stablecoin%2C%20has%20slashed%20back%

been pegged to fiat currencies like the Euro and can also be pegged to commodities such as gold, silver, oil, or even to other cryptocurrencies. Stablecoins are backed by a fiat currency with the full faith and credit of the issuing government.[95] However, as the experience of TerraUSD painfully illustrates, not all stablecoins are truly stable. Unlike traditional stablecoins, several stablecoins are so-called "algorithmic stablecoins." Algorithmic stablecoins are not backed by specific assets but rely on an algorithmic program to maintain a relationship to the pegged asset.[96]

Crypto tokens have also become increasingly popular. Tokens are digital assets that represent other types of assets both fungible, such as airline frequent flyer miles, and nonfungible, such as NFTs for a particular object like artwork or real estate property.[97] In either case, fungible or nonfungible, the crypto token can be exchanged for the asset.

In 2021, Justin Scheck noted in the *Wall Street Journal* that NFT trading "has also become a haven for fakes and scammers trying to get users' money or access to their newfangled assets[.]"[98] Growth on the NFT market nonetheless was meteoric, from $95 million in 2020 to $25 billion in 2021,[99] led by the Bored Ape Yacht Club, a series of 10,000 digital images of languid simians in various shades.[100] The speculative value of

---

20its%20commercial,according%20to%20a%20blog%20post.

95. Adam Hayes, *Stablecoin*, INVESTOPEDIA (May 11, 2022), https://www.investopedia.com/terms/s/stablecoin.asp.

96. *See* Ostroff, *supra* note 6; Hayes, *supra* note 95. *See generally* Monika Ghosh, *Everything You Need to Know About Stablecoins and How They Work*, JUMPSTART (June 2, 2021), https://www.jumpstartmag.com/stablecoins-and-how-they-work/.

97. *See* Devin Finzer, *The Non-Fungible Token Bible: Everything You Need to Know About NFTs*, OPENSEA: BLOG (Jan. 10, 2020), https://opensea.io/blog/guides/non-fungible-tokens/.

98. Justin Scheck, *OpenSea's NFT Free-for-All*, WALL ST. J. (Feb. 12, 2022, 12:00 AM), https://www.wsj.com/articles/openseas-nft-free-for-all-11644642042.

99. Elizabeth Howcroft, *NFT Sales Hit $25 Billion in 2021, but Growth Shows Signs of Slowing*, REUTERS (Jan. 11, 2022, 10:50 AM), https://www.reuters.com/markets/europe/nft-sales-hit-25-billion-2021-growth-shows-signs-slowing-2022-01-10/.

100. Bored Ape Yacht Club, OPENSEA, https://opensea.io/collection/boredapeyachtclub (last visited Oct. 2, 2022). Most of us own portfolios of stocks and bonds. Adventurous investors are sprinkling in Bored Apes and CryptoPunks. These cartoonish sounding characters are not anything like

limited edition artistic NFTs is highly volatile and the unregulated trading markets are subject to the same risks of manipulation and fraud that plague other forms of cryptocurrency.[101] By May 2022, the sale of NFT digital tokens had declined 92% from a peak of 225,000 tokens in September 2021 to 19,000 tokens.[102]

II.
Potential Responses to Crypto

A. *Prohibition*

One option available to lawmakers in response to crypto proliferation is flat prohibition.

In September 2021, China, acting through its People's Bank, banned all digital currencies and deemed all virtual currency transactions, including services that provide foreign exchange to Chinese citizens, illegal.[103] The Chinese ban fo-

---

traditional investments – they have no physical properties, do not pay dividends or interest and provide no claims to future cash flows. But they are among the most popular nonfungible tokens or NFTs, a type of digital collectible or digital asset. Prized NFTs now cost more than a new Ferrari – Bored Apes are going for an average minimum price of $248,000 on trading platform OpenSea. A CryptoPunk recently sold for $11.75 million. Abby Schultz, *'Covid Alien' CryptoPunk Sells for $11.75 million in Sotheby's Sale*, Barron's (June 10, 2021, 10:49 AM), https://www.barrons.com/articles/covid-alien-cryptopunk-sells-for-10-million-in-sothebys-sale-01623336573.

101. Zachary Small, *Can an Art History Frame Help Expand the NFT Market?*, N.Y. Times (Apr. 14, 2022), https://www.nytimes.com/2022/04/14/arts/design/nft-art-market-sothebys.html; Lewis White, *Most NFT Sales Are People Buying Their Own NFTs, Evidence Suggests*, Stealth Opinion (Feb. 11, 2022, 9:54 AM), https://stealthoptional.com/crypto/nft-sales-nft-wash-trading.

102. Paul Vigna, *NFT Sales are Flatlining*, Wall St. J. (May 3, 2022, 7:15 AM), https://www.wsj.com/articles/nft-sales-are-flatlining-11651552616.

103. Amy Qin & Ephrat Livni, *China Cracks Down Harder on Cryptocurrency With New Ban*, N.Y. Times (Sept. 24, 2021), https://www.nytimes.com/2021/09/24/business/china-cryptocurrency-bitcoin.html; Ralph Jennings, *How China's Ban on Cryptocurrency Will Ripple Overseas*, Voice of America (Oct. 2, 2021, 3:06 AM), https://www.voanews.com/a/how-china-s-ban-on-cryptocurrency-will-ripple-overseas-/6254329.html; Francis Shin, *What is Behind China's Cryptocurrency Ban?*, World Econ. F. (Jan. 31, 2022), https://www.weforum.org/agenda/2022/01/what-s-behind-china-s-cryptocurrency-ban/ (People's Bank emphasized curtailing financial crime and proscribing capital flight); David Pan, *China Steps Up Crypto Clampdown with Threat of Jail Sentences*, Bloomberg (Feb. 25, 2022, 7:14 AM), https://www.bloomberg.com/news/articles/2022-02-25/china-steps-up-crypto-clampdown-with-threat-of-jail-sentences#xj4y7vzkg; Anne Stevenson-Yang, *Crypto vs. China's Digital Cur-*

cused solely on cryptocurrency. In January 2022, China concluded that NFTs could continue to be traded in China.[104] Paradoxically, the gravitation of Bitcoin mining from China, where mining relied in part on hydropower, to other nations such as the U.S. and Kazakhstan, where mining is more reliant on fossil fuels, appears to have aggravated the negative environmental consequences of cryptocurrency mining.[105]

While U.S. law does ban specified products and behaviors thought to bring about negative externalities, such as the consumption of illegal drugs, the case for proscribing cryptocurrency solely on the grounds that it is speculative, or even risky, is not persuasive. Securities and other investments in the United States often are speculative, but the basic aim of U.S. securities regulation is to facilitate disclosure of material facts relevant to an investment, rather than blanket prohibition.[106] The federal securities laws long ago rejected "merit" regulation of securities issuance, that is, regulation based on an SEC Commissioner's view of the "soundness" of a particular investment.[107] Any crypto regulatory efforts should take the same basic approach, focusing on disclosure rather than prohibi-

---

rency: Never the Twain Shall Meet, FORBES (Jan. 12, 2022, 8:51 AM), https://www.forbes.com/sites/annestevenson-yang/2022/01/12/crypto-vs-chinas-digital-currency-never-the-twain-shall-meet/?sh=1e6a66107555 ("China dislikes the energy consumption and greenhouse gasses associated with cryptocurrency mining").

104. Dorian Batycka, *How the Chinese Government Is Trying to Reinvent the NFT Market Without Cryptocurrency and With State Control Instead*, ARTNET (July 5, 2022), https://news.artnet.com/market/china-nft-market-2137934 ("With cryptocurrencies and traditional NFTs backed by tokens like Ethereum banned in China, the country is offering certain services that, . . . , could allow access for those willing to conform to compliance and current regulations[.]").

105. *See, e.g.*, Hiroko Tabuchi, *China Banished Cryptocurrencies. Now, 'Mining' is Even Dirtier*, N.Y. TIMES (Feb. 25, 2022) https://www.nytimes.com/2022/02/25/climate/bitcoin-china-energy-pollution.html.

106. *See, e.g.*, LOUIS LOSS, JOEL SELIGMAN & TROY PAREDES, SECURITIES REGULATION 776–79 (Wolters Kluwer, 6th ed. 2021). SEC Chair Gensler put this simply in an interview reflecting on his first year as Chair: "You want to raise money from the public and the public wants to take the risk, that's fine, as long as you register with the SEC and you give them full and fair disclosure and don't lie to them." Ephrat Livni, *Gary Gensler Reflects on First Year as the S.E.C. Chair*, N.Y. TIMES (Apr. 16, 2022), https://www.nytimes.com/2022/04/16/business/dealbook/gary-gensler-sec.html.

107. SELIGMAN, *supra* note 1, at ch. 1.

tion, regardless of whether or not cryptocurrency is a deemed to be a security.

At least two aspects of cryptocurrency, as exemplified by Bitcoin, are unique as compared to other financial instruments and could serve as potential justifications for lawmakers seeking to prohibit crypto.

First, energy consumption by Bitcoin miners poses a significant threat to the United States, especially in view of a climate change crisis that President Biden has labelled "the existential threat of our times."[108] The climate change crisis in part involves a reduction of energy consumption and was a reason that China banned cryptocurrency.[109]

The United States should address excessive energy consumption in crypto products by prohibiting those products that require more than a specified level of energy consumption. This approach would resemble early regulation of life insurance policies, by which lawmakers successfully eliminated the tontine insurance component of life insurance policies, while preserving life insurance generally.[110] Similarly, by focusing on energy consumption levels, the United States could prohibit particularly energy consumptive crypto products, without prohibiting *all* crypto products. Additionally, a "phase-in" of such a prohibition would permit Bitcoin and other excessive energy consumers to restructure their business model in line with regulatory requirements while ultimately banning only those crypto products that are unable to reduce their respective energy consumption levels below the specified amount.

Even a selective prohibition of this sort would likely face opposition from some in the federal government or particular States, such as Texas, that have welcomed crypto miners for

---

108. Jennifer Dlouhy & Josh Wingrove, *Biden Calls Climate Change 'Existential Threat of Our Times'*, BLOOMBERG (Dec. 19, 2020, 3:00 PM), https://www.bloomberg.com/news/articles/2020-12-19/biden-calls-climate-change-existential-threat-of-our-time#xj4y7vzkg.

109. Isabella Kaminski, *Chinese court rules bitcoin mining harms the climate*, CLIMATE HOME NEWS (July 21, 2022, 10:22 AM), https://www.climatechangenews.com/2022/07/21/chinese-court-rules-bitcoin-mining-harms-the-climate/#:~:text=A%20Chinese%20court%20has%20quashed,targets%20and%20energy%2Dintensive%20activities.

110. *See supra* text accompanying notes 25–27.

one reason or another.[111] Crypto serves as a significant source of potential revenue, as sales of cryptocurrency held by investors may be taxed as property transactions and subject to ordinary income taxation or held and taxed as a capital asset.[112] Nonetheless, the extreme step of prohibition, or at least selective prohibition, can be justified by the excessive energy demands of Bitcoin and other cryptocurrencies.

The second basis for prohibiting cryptocurrencies, cited in China's ban and equally applicable in the United States, involves crypto's secrecy which can, in turn, facilitate illegal transactions including tax evasion, money laundering, and the financing of international terrorists.[113] Here, too, a selective

---

111. Nicholas Pongratz, *Texas Crypto Mining Leads to Rising Power Bills for All*, BeInCrypto (Mar. 16, 2022), https://beincrypto.com/texas-crypto-mining-leads-to-higher-power-bills-for-all/. By December 2021, "thirty-three states and Puerto Rico have pending legislation in the 2021 legislative season. Seventeen states enacted legislation or adopted resolutions." Heather Morton, *Cryptocurrency 2021 Legislation,* NCSL (Dec. 16, 2021). By April 2022, Florida, Kentucky and Wyoming had passed laws making it easier to create or operate a crypto company in their states. *See* Eric Lipton & David Yaffe-Bellany, *Crypto Industry Helps Write, and Pass, Its Own Agenda in State Capitols*, N.Y. Times (Apr. 10, 2022), https://www.nytimes.com/2022/04/10/us/politics/crypto-industry-states-legislation.html; *see generally* Goforth & Guseva, *supra* note 30, at ch. 14. For state-by-state summary of state rules as of March 15, 2021, see Matthew Kohen, *State Regulations on Virtual Currency and Blockchain Technologies*, Carlton Fields (Apr. 9, 2021), https://www.carltonfields.com/insights/publications/2021/state-regulations-on-virtual-currency-and-blockchain-technologies-(updated-march-2021).

112. *See* Lyle Doly, *Sold Crypto in 2021? 5 Things to Know about your Taxes*, The Ascent (Feb. 17, 2022), https://www.fool.com/the-ascent/cryptocurrency/articles/sold-crypto-in-2021-5-things-to-know-about-your-taxes/. The Biden administration is contemplating additional tax revenue. In 2022, the White House estimated that closing the crypto reporting gap could net up to $28 billion in new tax revenue over the next 10 years. *See* Joint Comm. on Tax'n Rep. 33-21, *Estimated Revenue Effects of the Provisions in Division H of an Amendment in the Nature of a Substitute to H.R. 3684* (2021); Robert W. Wood, *IRS Gives Crypto Tax Warning: Don't Forget to Report*, Forbes (Mar. 20, 2022, 1:49 PM), https://www.forbes.com/sites/robertwood/2022/03/20/irs-gives-crypto-tax-warning-dont-forget-to-report/; Brady Dale, *Biden Targets Crypto Wealth for $11 Billion in New Tax Revenue*, Axios (Apr. 4, 2022), https://www.axios.com/2022/04/04/biden-targets-crypto-wealth-for-11-billion-in-new-tax-revenue.

113. *See* James Fanelli, *Cryptocurrency Guru Sentenced to More Than Five Years in Prison over North Korea Trip*, Wall St. J. (Apr. 13, 2022, 3:53 PM), https://www.wsj.com/articles/cryptocurrency-guru-sentenced-to-more-than-five-years-in-prison-over-north-korea-trip-11649789150 (detailing an unsuccessful

prohibition is preferable to a general one. The United States could prohibit all crypto products that do not provide law enforcement agencies with the access necessary to detect violations of and enforce its criminal laws. This type of prohibition would cut to the heart of the libertarian "trust no one" view of government and dampen the appeal of guaranteed and complete anonymity offered by Bitcoin and similar cryptocurrencies.[114] Bitcoin's anonymity invites crime. Its approach is exceptional. In the United States, enforcement either as facilitated by federal enabling laws or with appropriate subpoenas generally provides agencies with access to crime records of crimes. It provides no comfort whatever that after several days the United States was able to recover some or all of the ransomware that Colonial Pipeline paid in Bitcoin to ransomware operations in 2021.[115] This is exactly backwards. The fact that Bitcoin generally is untraceable invites crime.

B. *Regulation*

Another option in responding to crypto mania, and the predominant U.S. response to this point, is increased regulation. In the absence of a clear national policy, several federal agencies today are engaged in those regulatory efforts.

Bitcoin was unusual in that it was created without raising any funds.[116] Subsequent cryptocurrency projects have sought investor support through initial coin offerings ("ICOs"), Security Token Offerings ("STOs"), and initial exchange offerings ("IEOs"). In an ICO, the investor provides funds to the issuer and receives tokens or coins in exchange. Fundraising via these various offering methods has been substantial. Between 2014 and 2018, ICOs raised approximately $14 billion. In 2018 alone, 119 STOs raised over $17 billion. Since 2018,

---

effort to instruct North Korea on how to circumvent sanctions using the blockchain). *But see* Jon Sindreu, *If Crypto Can't Be Used to Evade Russian Sanctions, What Is the Point?*, WALL ST. J. (Apr. 12, 2022, 7:43 AM), https://www.wsj.com/articles/if-crypto-cant-be-used-to-evade-russian-sanctions-what-is-the-point-11649763827 (referencing uncertainty as to how widespread crypto has been in sanctions evasion).

114. *See* NAKOMOTO, *supra* note 31.

115. *See* Nicole Perlroth et al., *Pipeline Investigation Upends Idea That Bitcoin Is Untraceable*, N.Y. TIMES (June 9, 2021), https://www.nytimes.com/2021/06/09/technology/bitcoin-untraceable-pipeline-ransomware.html.

116. *See* Lacity, *supra* note 30, at 390.

IEOs allow investors to fund transactions with coins and buy tokens.[117] AirDrops provide an alternative way to create a new crypto product – an issuer simply distributes free tokens to existing accounts to launch a product.[118] The Bored Ape Yacht Club[119] did so in March 2022, quickly becoming among the most well-known NFTs and briefly saw the value of ApeCoins double.[120]

As cryptocurrency has soared in popularity and secured investor funds, the intensity of regulatory concern has increased. In August 2021, in remarks to the Aspen Security Forum, SEC Chair Gary Gensler recognized that: "Right now, [the SEC does not] have enough investor protection in crypto. Frankly at this time, it's more like the Wild West. . . . The asset class is rife with fraud, scams and abuse in certain applications."[121] Gensler stressed:

> In my view, the legislative priority should center on crypto trading, lending and DeFi platforms. . . . Right now large parts of the field of crypto are sitting astride of – not operating within – regulatory frameworks that protect investors and consumers, guard against illicit activity, ensure for financial stability, and yes, protect national security.[122]

Under the broad definition of security in 2(a)(1) of the Securities Act and 3(a)(10) of the Securities Exchange Act, the

---

117. *See* Marco Dell'Erba, *From Inactivity to Full Enforcement: The Implementation of the "Do No Harm" Approach in Initial Coin Offerings*, 26 MICH. TECH. L. REV. 175 (2020). *But see* Amiah Taylor, *Watch Out for "Rug Pull" Scam That's Tricking Investors Out of Millions*, FORTUNE (Mar. 3, 2022), https://fortune.com/2022/03/02/crypto-scam-rug-pull-what-is-it/ (In 2021, dishonest crypto developers who absconded with funds stole $2.8 billion from investors, 31 percent of all crypto scam revenue that year).

118. Andrey Sergeenkov, *What Is a Crypto Airdrop?*, COINDESK (Jan. 18, 2022, 10:31 AM), https://www.coindesk.com/learn/what-is-a-crypto-airdrop/.

119. *See* The Bored Ape Yacht Club, *supra* note 100.

120. *See* Vishal Chawla, *Someone Borrowed 5 Bored Apes to Claim $1.1 Million of APE Tokens*, THE BLOCK (Mar. 18, 2022, 9:49 AM), https://www.theblock.co/post/138410/someone-borrowed-5-bored-apes-to-claim-1-1-million-of-ape-tokens; *Historical Price Chart of ApeCoin*, COINMARKETCAP, https://coinmarketcap.com/currencies/apecoin-ape/ (last visited Oct. 2, 2022).

121. Gary Gensler, Chairman, Sec. Exch. Comm'n, Remarks Before the Aspen Security Forum (Aug. 3, 2021).

122. *Id.*

SEC has authority to regulate crypto products when they satisfy the Howey test.[123] In this test, the SEC and the courts have concluded that a crypto platform or coin is an investment contract, which is defined as a type of security.[124] In *SEC v. W.J. Howey Co.*, the U.S. Supreme Court held that a combination of a small real estate investment in an orange grove and a service contract employing the seller or a third party to manage the cultivation and sale of the oranges was an investment contract under the Securities Act when there was (i) an investment of money, (ii) in a common enterprise, and (iii) an expectation of profits from the efforts of the promoter or a third party.[125] Whether *Howey* is satisfied and, thus, whether a crypto product is deemed a "security" subject to applicable regulation, usually turns on whether a transaction in a crypto product creates an expectation of profits because of the managerial efforts of others, such as the organizer of the crypto platform or token program.[126]

In 2021, Cornerstone Research published a summary of SEC Cryptocurrency Enforcement.[127] Through the end of 2021, the SEC had brought 97 cryptocurrency-related litigation claims and administrative actions, issued 20 trading suspensions, and imposed approximately $2.35 billion in total monetary penalties against digital asset market participants.[128] Gensler, in his 2021 remarks to the Aspen Security Forum,

123. *See* SEC v. W.J. Howey Co., 328 U.S. 293 (1946).

124. *See* William Hinman, Director, Sec. Exch. Comm'n, Remarks at the Yahoo Finance All Markets Summit: Crypto (June 14, 2018) (for staff amplification of analysis of when a crypto product was a security); Press Release, U.S. Sec. & Exch. Comm'n, Joint Statement on Activities Involving Digital Assets (Oct. 5, 2019) https://www.sec.gov/news/public-statement/cftc-fincen-secjointstatementdigitalassets (recognizing that digital assets include instruments that may qualify under applicable U.S. laws as securities, commodities, and security- or commodity-based instruments such as futures or swaps).

125. *See* W.J. Howey Co., 328 U.S. at 298–99.

126. *See Framework for "Investment Control" Analysis of Digital Sales*, U.S. SEC. & EXCH. COMM'N (Apr. 3, 2019), https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets.

127. CORNERSTONE RSCH., SEC CRYPTOCURRENCY ENFORCEMENT (2021), https://www.cornerstone.com/wp-content/uploads/2022/01/SEC-Cryptocurrency-Enforcement-2021-Update.pdf.

128. *Id.* at 1.

took pride in the fact that the SEC, up to such point, had not yet lost a case.[129]

In July 2017, the SEC published the notable investigation report, "Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO" ("DAO Report").[130] The SEC ultimately determined not to pursue an enforcement action against the DAO, a decentralized autonomous organization, including the German corporation "Slock.it" and other parties.[131] A DAO is different in operation from a corporation with leadership centralized in a board of directors and senior executives. The DAO Report addressed ICOs, tokens, smart contracts, and the federal securities law requirements for crypto products to register both as a security and as an exchange, as applicable.

In April and May 2016, the DAO offered and sold approximately 1.15 billion DAO Tokens in exchange for 12 million Ether, the virtual currency used on the Ethereum Blockchain.[132] When the DAO offering was closed, the DAO was valued at $150 million:

> All funds raised were to be held at an Ethereum Blockchain "address" associated with The DAO and DAO Token holders were to vote on contract proposals, including proposals to The DAO to fund projects and distribute The DAO's anticipated earnings from the projects it funded. The DAO was intended to be "autonomous" in that project proposals were in the form of smart contracts that exist on the Ethereum Blockchain and the votes were administered by the code of The DAO.[133]

The DAO created DAO Tokens proportional to the amount of Ether paid. DAO intended to earn profits by funding projects that provided DAO Token holders a return on their investment. For a project to be considered for funding with DAO, contractors were required to submit proposals to

---

129. *See* Gensler, *supra* note 121.

130. Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO, Exchange Act Release No. 81,207, 5 SEC Dock. 117 (July 25, 2017) [hereinafter DAO Report].

131. *Id.*

132. Rosario Girasa, Regulation of Cryptocurrencies and Blockchain Technologies 76 (2018).

133. *See* DAO Report, *supra* note 130.

DAO that included a written smart contract that would be included in the Ethereum Blockchain and posted on the DAO website.[134] Each DAO proposal was required to be approved by one or more of DAO's curators, individuals chosen by Slock.it, before being submitted to a shareholder vote.[135]

Applying the *Howey* test, the SEC Report concluded that DAO tokens were "securities," in pertinent part, because investor profits were derived from the managerial efforts of Slock.it, its co-founder, and the DAO curators, while DAO token holder voting rights were limited.[136]

DAO was required to register its initial coin offering under § 5 of the Securities Act because DAO had not established a valid exemption. The Report also found that the DAO system was an "Exchange" under § 3(a)(1) and Rule 3b-16(a) of the Exchange Act because it was an:

> [O]rganization, association, or group of persons . . . considered to constitute, maintain, or provide "a marketplace or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange," if such organization, association, or group of persons: (1) brings together the orders for securities of multiple buyers and sellers; and (2) uses established, non-discretionary methods (whether by providing a trading facility or by setting rules) under which such orders interact with each other, and the buyers and sellers entering such orders agree to the terms of the trade.[137]

---

134. Alex Ivanovs, *What is a DAO? Examples of DAO Crypto Projects*, GEEKFLARE (Aug. 28, 2022), https://geekflare.com/finance/dao-crypto-projects/.

135. DAO became newsworthy when an unknown individual or group diverted approximately $50 million, or one-third of the total Ether raised in the DAO 2016 offering. MARY C. LACITY, BLOCKCHAIN FOUNDATIONS: FOR THE INTERNET OF VALUE 286 (2020).

136. DAO Report, *supra* note 130, at 13.

137. *Id.* at 16–17. DAO did not satisfy any of the available exemptions from Rule 3b-16(a) such as that provided by Alternative Trading Systems. Subsequently, the SEC proposed to amend Rule 3b-16 which will facilitate Commission cases against cryptocurrency exchange platforms. *See SEC Appears to Target Crypto Trading Venues with Proposed Stealth Regulation*, DENTONS (Feb. 15, 2022), https://www.dentons.com/en/insights/alerts/2022/febru-

In December 2021, there were more than 4,000 decentralized anonymous organizations or DAOs with an aggregate value of $13 billion.[138] In August 2021, Gensler reported that nearly three-fourths of trading on all crypto trading platforms involved a Stablecoin and a token.[139] The SEC also supported the "Report on Stablecoins" ("Stablecoin Report") released in 2021 by the President's Working Group on Financial Markets, the Federal Deposit Insurance Corporation ("FDIC"), and Of-

---

ary/15/sec-appears-to-target-crypto-trading-venues-with-proposed-stealth-regulation.

In 2022, after Coinbase Global refused to voluntarily register with the SEC as an exchange, the Commission initiated a study of ways to register crypto trading platforms as exchanges. Paul Kiernan, *SEC Weighs Path Forward for Crypto Trading Platforms*, WALL ST. J. (Apr. 4, 2022, 4:03 PM), https://www.wsj.com/articles/sec-weighs-path-forward-for-crypto-trading-platforms-11649101184; *see also* Alex Gailey, *The SEC Announced New Crypto Regulation Initiatives This Week. Here's What Investors Should Know*, NEXTADVISOR (Apr. 5, 2022), https://time.com/nextadvisor/investing/cryptocurrency/sec-new-crypto-regulation-gensler/ (announcing plans to register and regulate crypto exchanges); SEC Staff Accounting Bulletin No. 121, 87 Fed. Reg. 21015 (Apr. 11, 2022) (expressing staff views on accounting for entities that have obligations to safeguard crypto assets); Mark R. Hake, *XRP Crypto Looks Stronger Now That Ripple Has Gained Ground Fighting the SEC*, INVESTOR PLACE (Apr. 25, 2022, 9:57 AM), https://investorplace.com/2022/04/xrp-crypto-could-benefit-from-an-end-to-the-end-of-the-sec-lawsuit-by-q1-next-year/ (discussing Ripple Labs' ongoing litigation with the SEC).

Particularly after the 2022 Crypto Crash, private litigation increased. *See, e.g.*, James Fanelli, *Crypto Industry Sees Surge in Lawsuits as Investor Losses Pile Up*, WALL ST. J. (June 1, 2022, 8:00 AM), https://www.wsj.com/articles/as-crypto-losses-hit-investors-litigation-picks-up-11654084801; Anne Tergesen, *Suit Targets a Hurdle to Crypto in 401(k)s*, WALL ST. J. (June 2, 2022, 9:42 AM), https://www.wsj.com/articles/401-k-provider-sues-labor-department-over-handling-of-crypto-in-retirement-plans-11654177362?no_redirect=true; *see also* Tiffany Hsu, *All Those Celebrities Pushing Crypto Are Not So Vocal Now*, N.Y. TIMES (May 17, 2022), https://www.nytimes.com/2022/05/17/business/media/crypto-gwyneth-paltrow-matt-damon-reese-witherspoon.html (the Crypto Crash has increased scrutiny of stars and online influencers who promote crypto); David Yaffe-Bellany, *A Crypto Emperor's Vision: No Pants, His Rules*, N.Y. TIMES (May 14, 2022), https://www.nytimes.com/2022/05/14/business/sam-bankman-fried-ftx-crypto.html (Sam Bankman-Fried raised more than $40 billion in fewer than three years by the age of 30).

138. Eric Lipton & Ephrat Livni, *Reality Intrudes on a Utopian Crypto Vision*, N.Y. TIMES (Mar. 8, 2022), https://www.nytimes.com/2022/03/08/us/politics/cryptocurrency-dao.html ("Many DAOs were wrestling with challenges, including huge financial losses from software flaws and hacks, internal divisions and allegations of improper diversion of community funds.").

139. Gensler, *supra* note 121.

fice of the Comptroller of the Currency.[140] By October 2021, the market capitalization of Stablecoins issued by the largest Stablecoin issuers exceeded $127 billion.[141] The Stablecoin Report highlighted:

> Stablecoins and stable-coin related activities present a variety of risks. Speculative digital asset trading, which may involve the use of stablecoins to move easily between digital asset platforms or in decentralized finance (DeFi) arrangements, presents risks related to market integrity and investor protection. These market integrity and investor protection risks encompass possible fraud and misconduct in digital asset trading, including market manipulation, insider trading, and front running, as well as a lack of trading or price transparency.[142]

Now the Working Group recommends that Congress promptly enact legislation to ensure that stablecoins are subject to federal regulation.[143] In 2021, the Department of Treasury ("DOT") announced that it would require any transfer of $10,000 or more in cryptocurrency to be reported to the Internal Revenue Service.[144]

---

140. *See* U.S. Dep't of Treasury, President's Working Group on Financial Markets, Fed. Deposit Ins. Corp. & the Off. of the Comptroller of the Currency (Nov. 2021), https://home.treasury.gov/system/files/136/StableCoinReport_Nov1_508.pdf [hereinafter "Stablecoin Report"].

141. *Id.* at 7.

142. *Id.* at 1.

143. *Id.* at 16.

144. U.S. Dep't of Treasury, The American Families Plan Tax Compliance Agenda (2021). In May 2021, the Department of Treasury stated in The American Families Plan Tax Compliance Agenda that the President's tax proposal sought to include additional resources for the IRS to address the growth of crypto assets: "Although cryptocurrency is a small share of current business transactions, such comprehensive reporting is necessary to minimize the incentives and opportunity to shift income out of the new information reporting regime." *Id.* at 21.

> Despite constituting a relatively small portion of business income today, cryptocurrency transactions are likely to rise in importance in the next decade, especially in the presence of a broad-based financial account reporting regime. Within the context of the new financial account reporting regime, cryptocurrencies and cryptoasset exchange accounts and payment service accounts that accept cryptocurrencies would be covered.

Id.

A number of other federal regulatory agencies have taken parallel steps. In 2014, the Commodity Futures Trading Commission ("CFTC") defined virtual crypto currencies as a "Commodity" subject to CFTC oversight under the Commodity Exchange Act.[145] The CFTC position can be harmonized with the SEC enforcement position under *Howey*. When a cryptocurrency such as Bitcoin or Ethereum is used solely for peer-to-peer transactions, it does not satisfy the investment contract requirement that profits be generated from the efforts of others since the decentralized owners of Bitcoin and Ethereum control the governance of the systems.[146]

Since registering TechExchange in 2014 to trade Bitcoin swaps, the CFTC has registered crypto futures markets often relying on self-certification, rather than prior review by a regulatory agency.[147]

In February 2022 testimony to the U.S. Senate Committee on Agriculture, CFTC Chair Rostin Behnam noted that the CFTC had brought nearly 50 enforcement actions in the digi-

---

145. Commodity Futures Trading Comm'n v. McDonnell, 287 F. Supp. 3d 213, 217 (E.D.N.Y. 2018) (affirming CFTC jurisdiction over virtual currencies as commodities and concurrent jurisdiction depending on facts and circumstances of the SEC, the Department of Justice and state criminal agencies, the DOT or FinCen, the IRS and state regulation, or a combination of agencies); Commodity Futures Trading Comm'n v. My Big Coin Pay, Inc., 334 F. Supp. 3d 492, 498 (D. Mass. 2018) (finding Bitcoin engages in futures trading in virtual currencies).

146. In 2016, the CFTC brought an enforcement action against a Bitcoin exchange that was offering unregistered futures. *In re* BFXNA, Inc., CFTC Docket No. 16-19 (June 2, 2016); *see generally* CFTC Retail Commodity Transaction Involving Digital Assets, 85 Fed. Reg. 37734, 37734–35 (June 24, 2020).

147. *See* Press Release, CME Group, CME Group Self-Certifies Bitcoin Futures to Launch Dec. 18 (Dec. 1, 2017), https://www.cmegroup.com/media-room/press-releases/2017/12/01/cme_group_self-certifiesbitcoinfuturestolaunchdec18.html; Press Release, Cboe, Global Markets, Inc., Cboe Submits Product Certification for Bitcoin Futures (Dec. 1, 2017), https://ir.cboe.com/sites/cboe-ir-v1/files/cboe/news-and-events/press-releases/2017/cboe-xbt-self-certification-statement-12-1-17.pdf. For background on CFTC self-certification, see U.S. COMMODITY FUTURES TRADING COMM'N, CFTC BACKGROUNDER ON OVERSIGHT OF AND APPROACH TO VIRTUAL CURRENCY FUTURES MARKETS (Jan. 4, 2018), https://www.cftc.gov/sites/default/files/idc/groups/public/%40customerprotection/documents/file/backgrounder_virtualcurrency01.pdf; U.S. COMMODITY FUTURES TRADING COMM'N DIGITAL ASSETS PRIMER (2020), https://www.cftc.gov/media/5476/DigitalAssetsPrimer/download; Johnson, *supra* note 89, at 1987.

tal asset space since 2014, but required additional resources to adequately address the digital sector.[148]

In October 2021, Deputy Attorney General Lisa Monaco announced that the Department of Justice ("DOJ") had begun a new "Civil Cyber-Fraud Initiative."[149] The initiative is similar to the work of the DOT's "Financial Crimes Enforcement Network" ("FinCEN"), which is intended "to safeguard the financial system from illicit use, combat money laundering and its related crimes including terrorism, and promote national security through the strategic use of financial authorities and the collection, analysis, and dissemination of financial intelligence."[150] FinCEN focuses on money laundering, Domestic and Foreign Financial Transactions Reporting Requirements, and the Bank Secrecy Act, which FinCEN has used to characterize virtual currencies as a type of reportable account.[151]

While the foregoing efforts are extensive and appropriate, they alone are inadequate to provide effective comprehensive regulation of crypto products, and important gaps and omissions remain in the current regulatory scheme. For instance, no agency is currently charged with coordination of crypto regulatory efforts, systematic examination of crypto products,

---

148. *Testimony of Chairman Rostin Behnam Regarding "Examining Digital Assets: Risks, Regulation and Innovation" Before the S. Comm. on Agric., Nutrition, and Forestry*, 117th Cong. (2022) (statement of Rostin Behnam, Chairman, Commodity Futures Trading Comm'n).

149. Press Release, Dep't of Just., Deputy Attorney General Lisa O. Monaco Announces New Civil Cyber-Fraud Initiative (Oct. 6, 2021), https://www.justice.gov/opa/pr/deputy-attorney-general-lisa-o-monaco-announces-new-civil-cyber-fraud-initiative.

150. *Mission*, FIN. CRIMES ENF'T NETWORK, https://www.fincen.gov/about/mission.

151. *See* GOFORTH & GUSEVA, *supra* note 30, at 133–34, 167; U.S. DEP'T. OF TREASURY, FIN. CRIMES ENF'T NETWORK, FIN-2013-G001, GUIDANCE FOR APPLICATION OF FINCEN'S REGULS. TO PERS. ADMINISTERING, EXCHANGING, OR USING VIRTUAL CURRENCIES 1 (2013). Bitcoin was characterized as money subject to the criminal money transmitting and money laundering statute, 18 U.S.C. § 1960, in *United States v. Faiella*, 39 F. Supp. 3d 544 (S.D.N.Y. 2014). *See also* United States v. Murgio, 209 F. Supp. 3d 698, 707 (S.D.N.Y. 2016) (criminal convictions for engaging in an unlicensed money transmitting business, trading Bitcoin). In 2015, FinCEN assessed a $700,000 fine for violations of the Bank Secrecy Act and failing to maintain an adequate anti-money laundering program against Ripple Labs, Inc. and a subsidiary in its first civil enforcement action. Press Release, U.S. Dep't. of Treasury, Fin. Crimes Enf't Network, FinCEN Fines Ripple Labs Inc. in First Civil Enforcement Action Against a Virtual Currency Exchanger (May 5, 2015).

or the development and prescription of forward-looking solutions in this fast-evolving space, which appears to introduce new issuers and products on a daily basis.

As was the case in the Dodd–Frank Act of 2010 ("Dodd–Frank"),[152] which created a new Bureau of Consumer Financial Protection ("CFPB"),[153] the case for a new standalone agency to address crypto products is strong. Crypto products are different in kind than existing currencies, securities, and commodities. Agencies regulating consumer finance before the establishment of the CFPB had long expressed the concern that coordinated regulation among the agencies in a setting where regulators prioritized their own individual concerns would not lead to the effective regulation that a standalone agency could produce. Bank regulators, for example, prioritized the safety and solvency of banks over consumer protection.[154] The same problems now threaten crypto regulation.

Two alternatives exist to a new standalone crypto product regulatory agency. The first is to continue relying on the plethora of existing agencies to regulate crypto. As mentioned, this type of multi-regulatory agency approach was widely ineffective and criticized[155] in the aftermath of the 2007–2009 financial crisis, which originated in the housing industry but ultimately led to the systemic financial crisis.[156] The crisis resulted in stock prices falling 54%, global stock market losses of $35 trillion, the U.S. unemployment rate more than doubling from

152. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010).

153. *See* SELIGMAN, *supra* note 1, at 1,122–25.

154. *See id.* at 1,124 (quoting Elizabeth Warren characterizing the limits of the Federal Reserve System, Office of the Comptroller of the Currency and Office of Thrift Supervision in making the case for the CFPB: "[T]heir main mission is to protect the financial stability of banks and other financial institutions, not to protect consumer.").

155. *See, e.g.*, U.S. DEP'T. OF TREASURY, BLUEPRINT FOR A MODERNIZED FINANCIAL REGULATORY STRUCTURE (2008) (urging consolidation of specified regulators); BIPARTISAN POL'Y CTR., DODD-FRANK'S MISSED OPPORTUNITY: A ROAD MAP FOR A MORE EFFECTIVE REGULATORY ARCHITECTURE (2014) (urging consolidation of specific bank and investment regulators); The Volcker Alliance, Reshaping the Financial Regulatory System: Long Delayed, Now Crucial (2015) (criticizing the "highly fragmented, outmoded and ineffective" existing system of financial regulation in the United States).

156. *See* SELIGMAN, *supra* note 1, at 17–18.

4.5 to 10.1%, and the U.S. federal deficit exploding from $459 billion in 2008 to $1.413 trillion in 2009.[157] The separate-regulator model employed to address the financial crisis was beset by ineffectual communication and coordination between the regulatory agencies, regulatory arbitrage in which private banks, securities, and commodities firms sought the most accommodating regulator, and consequential gaps and omissions in examinations, investigations, and enforcement.[158] There is little reason to believe that the same problems would not plague crypto regulation efforts if no single agency is placed in charge of the industry.

The consensus view concerning the inability of a system of largely separate regulatory agencies to address a systemic financial crisis led to the enactment of Dodd–Frank and its creation of a Financial Stability Oversight Council ("FSOC").[159] The FSOC members included representatives from several agencies, including the Secretary of Treasury, the Comptroller of the Currency, the Director of the Treasury's Bureau of Consumer Financial Protection, the Chair of the SEC, the Chair of the FDIC, the Chair of the CFTC, the Director of the Federal Housing Finance Agency, and the Chair of the National Credit Union Administration.[160]

FSOC represents a halfway house to effective regulation. The FSOC is largely advisory and can attempt to persuade, but usually cannot direct, constituent agencies to adopt new standards.[161] From the perspective of former Secretaries of the Treasury, Tim Geithner and Hank Paulson, and former Federal Reserve Chair Ben Bernanke, Dodd–Frank failed to simplify the ludicrously byzantine mess of U.S. financial regulation.[162]

---

157. *Id.* at 2.

158. *See id.* at 119–24, ; U.S. GOV'T ACCOUNTABILITY OFF., GAO-13-180, FINANCIAL REGULATORY REFORM: FINANCIAL CRISIS LOSSES AND POTENTIAL IMPACT OF DODD-FRANK (2013). *See generally* THE FINANCIAL CRISIS INQUIRY COMMISSION, THE FINANCIAL CRISIS INQUIRY REPORT: FINAL REPORT OF THE NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES (2011).

159. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010).

160. *Id.*

161. LOSS, SELIGMAN & PAREDES, *supra* note 107, at 515–30.

162. BEN BERNANKE, TIMOTHY GEITHNER & HENRY PAULSON, FIREFIGHTING: THE FINANCIAL CRISIS AND ITS LESSONS 112–29 (2019) ("We would have liked

The Government Accountability Office summarized the deficiencies of the post Dodd–Frank model of financial regulation in 2016, citing repeated examples in which fragmented U.S. regulatory structures complicated securities and derivatives regulation (which duties were split between the SEC and the CFTC), limited insurance oversight, provided inconsistent safety, soundness, and consumer protection oversight, delayed regulatory action, complicated the U.S. position in international negotiations, and limited the country's capacity to fully and effectively monitor systemic risk.[163]

A single regulatory agency, in contrast, could address the full gamut of current crypto products including those now regarded as "currencies," "securities," "commodities," or none of the above. Such an agency could also provide regulatory oversight to new products such as coins, tokens, and NFTs, trading platforms (whether currently regulated by the SEC, CFTC, or not at all), and alternative means of trading through securities broker-dealers, commodities futures dealers, mutual funds, and ETFs. The new agency could also focus on new products, trading platforms, and other means of trading likely to emerge in the future and hold a seat or otherwise be represented on the Financial Stability Oversight Board.

Under a single regulator model, a new enabling law would be enacted to provide comprehensive regulation of all crypto products and means of crypto trading and would particularly focus on current gaps and omissions in the regulatory scheme. As is always the case with new financial regulations, the proof is in the details and in developing the new enabling law, Congress would likely seek testimony from some, or all, of the current agencies involved in crypto regulation, including

---

to see more restructuring of the antiquated financial regulatory system, . . . with . . . several redundant agencies consolidated to create more consistency and accountability. But . . . this felt like a war of choice rather than a war of necessity.")

163. *See* U.S. GOV'T ACCOUNTABILITY OFF., GAO-16-175, FINANCIAL REGULATION: COMPLEX AND FRAGMENTED STRUCTURE COULD BE STREAMLINED TO IMPROVE EFFECTIVENESS (2016).

those acting under the Biden administration,[164] as well as stakeholders in the crypto industry.[165]

Ultimately, an effective enabling law should provide for registration of all "crypto products" whether denominated as "currency," "security," "commodity," "property," or any other instrument. The intent of a broad, generic definition would be to include all current cryptocurrencies, coins, including ICOs and whether in the form of stablecoins or otherwise, tokens, including NFTs, and other digital assets used as crypto products. Such a broad definition would also be sufficiently elastic to cover new crypto products under any, and all, future labels.

Three aspects of a new crypto product registration system are particularly consequential. First, lawmakers must craft definitions carefully.[166] Besides a capacious definition of "crypto products," the new act would need to broadly define the "issuer" of new products to distinguish between those responsible for initiating the new product and mere investors. For example, in a DAO, mere members would be excluded from the definition of "issuer" but those who organized the DAO or registered the DAO would be covered. Other definitions would address important gatekeepers involved in preparing and marketing new crypto products. In existing federal securities law, this would include underwriters, dealers, accountants, attorneys, and other experts who certify aspects of a registration statement.[167] The chosen terminology of the new act is less important than ensuring that all relevant intermediaries in the sales and marketing process are covered. Currently, sponsors are pivotal but undefined actors in the sale of many securities offerings.[168] Sponsors in the marketing and sale of new crypto products should be included as intermediaries, subject to regulation, when they are compensated for their efforts.

---

164. *See* Exec. Order on Digital Assets, *supra* note 7.

165. *See* LOSS, SELIGMAN & PAREDES, *supra* note 106, at 457–515 (discussing that the SEC had considerable success with such a broad approach involving the industry when it developed rules for crowdfunding securities offerings).

166. *See generally id.* at 1101–504 (detailing the Securities Act of 1933 approach to definitions).

167. See *id.* at 647–1138, for a discussion of distribution techniques, the basic prohibitions of §5, and the registration procedure of the Securities Act.

168. *See generally* Andrew Tuch & Joel Seligman, *The Further Erosion of Shareholder Protection: Expanded Exemptions, SPAC Mergers and Direct Listings*, IOWA L. REV. (forthcoming 2022).

Secondly, the new act should provide for considerable disclosure, similar to the federal securities law disclosure requirements. With the sale of new registered crypto products, effective regulation would include requiring public disclosure of the specific business and property of the new product, and whether the registrant, its key intermediaries, or its governing board (if applicable) are involved in any legal proceedings. Further required disclosure would cover information about the registrant's assets (crypto or otherwise), other financial data including the actual or potential dilution of crypto product values, discussion by the management of the registrant of their analysis of the financial and competitive conditions, conflicts of interest and compensation of the issuers, other intermediaries, and management of the firm, and finally, all other "material" information.[169]

Important characteristics of the current securities registration model under the Securities Act include a waiting period before a new security can be sold to the public, fraud remedies for material misrepresentations or material omissions, which can be enforced by the SEC, DOJ (in criminal cases), and private investors, as well as a stop order procedure by which the SEC can prevent the sale of a given security to the public when the registration statement is deemed inadequate.[170] The current model provides a framework for crypto registration, but challenging issues would need to be resolved for crypto products, specifically, concerning whether a waiting period is necessary and whether new product disclosures should be limited to a disclosure document. The crypto model should also carefully consider the elements of fraud, related remedies, and enforcement options, which have all proved controversial under the Securities Act and Exchange Act.[171]

---

169. Sec. Act Rel. 5893, 13 SEC Dock. 1217, 1218 (1977); Report of the Advisory Comm. on Corp. Disclosure to the SEC, House Comm. on Interstate & Foreign Commerce, 95th Cong., 1st Sess. 428–469 (Comm. Print 95-29 1977). See LOSS, SELIGMAN & PAREDES, *supra* note 106, for a discussion of Regulations S-K and S-X, which address SEC textual and financial disclosures.

170. See LOSS, SELIGMAN & PAREDES, *supra* note 106, at 147–708, for a discussion of SEC, DOJ, and private enforcement of the federal securities laws. See *id.* at 1098–101, for a discussion of the SEC stop order procedure under the Federal Securities Act.

171. *See* Private Securities Litigation Reform Act of 1995, Pub. L. No. 104-67, 109 Stat. 737; LOSS, SELIGMAN & PAREDES, *supra* note 106, at 314–17 (dis-

Regulation should not be limited to an initial registration statement and the provision of fraud remedies. Rather, crypto products should be subject to continuous periodic disclosure requirements, employing the same basic framework for textual and financial disclosure as would be used in the initial disclosure requirements similar to those in the federal securities laws,[172] recordkeeping, voting and confidentiality provisions.[173]

Third, the act would need to carefully design exemptions. For example, if the Federal Reserve System implements a Central Bank Digital Currency ("CBDC") as described in Section C, the CBDC would be regulated by the Federal Reserve, rather than by the new single crypto products regulatory agency. The act may also consider exempting *de minimis* offerings[174] and secondary trading, that is the resale of initial crypto product offerings, which normally would not require registration under the existing federal securities laws.[175] Lawmakers must also contemplate how exemptions would be designed, if at all, for initial founders and designers of crypto products before they are sold to the public. The Securities Act, in its definition of "sale" in § 2(a)(3), permits underwriters to engage in preliminary negotiations with issuers[176] and allows founders and designers of new products to receive unregistered stock in private offerings.[177] Comparable provisions would need to be customized for crypto products. Unlike the current federal securities model[178], the crypto model should not exempt intrastate offerings. Such an exemption would

---

cussing how the Private Securities Litigation Reform Act cut back on private rights of action).

172. *See* LOSS, SELIGMAN & PAREDES, *supra* note 106, at 776–79 (discussing the disclosure philosophy).

173. For a discussion of broker-dealer recordkeeping requirements and voting under the federal securities laws (via proxies), see LOUIS LOSS, JOEL SELIGMAN & TROY PAREDES, SECURITIES REGULATION 3–15, 454–555 (5th ed. 2018). For a discussion on confidentiality provisions of the Acts, see *id.* at 1005–08.

174. These can be compared to limited offerings under the federal securities laws. *See generally* LOSS, SELIGMAN & PAREDES, *supra* note 106, at 325–517.

175. For a discussion of § 4(a)(1) of the Securities Act, see *id.* at 523–31.

176. *Id.* at 817–18.

177. *Id.* at 325–523.

178. 15 U.S.C. § 77c(a)(11).

make little sense in the crypto space, as crypto products are inherently designed to be bought and sold globally.[179]

Regulation would also reach trading platforms, whether denominated exchanges or otherwise. As previously discussed, hackers and thieves frequently target such platforms in carrying out illegal activities.[180] Pursuant to the Exchange Act, exchanges are registered with the SEC whether in the form of organized exchanges, such as the New York Stock Exchange, or securities dealer trading in the over-the-counter market, such as the Nasdaq.[181] Crypto platforms or exchanges, like securities exchanges, should be subject to substantive regulation, reporting requirements, and fraud liability with relevant exemptions for, as one example, *de minimis* trading.[182]

Finally, the new regulatory regime would need to consider the role, if any, of self-regulatory organizations as well as broker-dealer regulation. Unlike securities trading, where the Financial Industry Regulatory Authority buttresses SEC and DOJ enforcement,[183] no comparable self-regulatory organization

---

179. *See e.g.*, Exec. Order on Digital Assets, *supra* note 7 ("With respect to digital assets, my Administration will seek to ensure that . . . appropriate global financial system connectivity and platform and architecture interoperability are preserved; and the safety and soundness of the global financial system and international monetary system are maintained.").

180. *See* discussion, *supra* notes 56–58; SELIGMAN, *supra* note 28, at 19–20 (quoting President Roosevelt's speech scorning "the reckless promoter, the Ismael or Insull whose hand is against every man's" as a need for securities regulation).

181. *See* LOSS, SELIGMAN & PAREDES, *supra* note 173, at 18. In January 2022, the Commission proposed rule amendments to expand the federal securities law's definition of *exchange* to require some Cryptoplatforms to be subject to SEC regulation either as exchanges or as Alternative Trading Systems. *See* Press Release, U.S. Sec. & Exch. Comm'n, SEC Proposes Amendments to Include Significant Treasury Markets Platforms Within Regulation ATS (Jan. 26, 2022), https://www.sec.gov/news/press-release/2022-10. If the amendments are adopted, there will inevitably be lengthy litigation concerning the SEC's authority to regulate Cryptoplatforms, potentially motivating the cryptocurrency industry's focused opposition on the rule. *See* Paul Kiernan, *Cryptocurrency Firms Push Back Against Proposal to Police Treasury Markets*, WALL ST. J. (Apr. 28, 2022, 12:35 PM), https://www.wsj.com/articles/cryptocurrency-firms-push-back-against-proposal-to-police-treasury-markets-11651064581. In any event, it will not reach cryptoplatforms subject to the CFTC, *see supra* notes 146–148, or possibly some that will remain unregulated.

182. *See* LOSS, SELIGMAN & PAREDES, *supra* note 173, at 2–3, 6–7, 9–10, 98, 390–91.

183. *See id.* at 215–17, 190–91.

currently governs crypto products. Nonetheless, it is unclear that such a self-regulatory organization is actually needed. When the SEC and CFTC began jointly regulating the swap markets after Dodd–Frank Act was passed,[184] they did so without a new self-regulatory organization.[185] As for broker-dealer regulation, the SEC currently has separate oversight of broker-dealers.[186] Certain aspects of broker-dealer regulation, such as regulation of margin or loans to investors, would likely need to be retained, but given the frequency with which crypto trading is initiated without intermediaries,[187] the need for robust broker-dealer regulation in a new comprehensive regulatory scheme would be limited.

Importantly, crypto firms and crypto investors have strong incentives to actually seek additional federal regulation. For example, regulation would be accompanied by the creation of a customer protection corporation for crypto products, similar to the current Securities Investor Protection Corporation ("SIPC"), which would charge covered crypto firms an annual assessment (in SIPC, $^1/_2$ of 1%) and create a fund to insure each crypto customer account up to a specified amount (in SIPC, up to $500,000 for each account).[188]

---

184. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, 124 Stat. 1376 (2010).

185. *See* LOSS, SELIGMAN & PAREDES, *supra* note 173, at 809–10, 824–25, 836.

186. For a discussion of registration, exemptions and discipline, see *id.* at 587–89, 608–09. For a discussion of broker-dealer substantive regulation, including margin or loans to investors, see *id.* at 70–71, 77–90.

187. *See* Kate Ashford, *What is Bitcoin and How Does It Work?*, FORBES (June 8, 2022, 5:12 PM), https://www.forbes.com/advisor/investing/cryptocurrency/what-is-bitcoin/#:~:text=bitcoin%20is%20a%20decentralized%20digital,cryptographic%20proof%20instead%20of%20trust.%E2%80%9D ("Bitcoin is a decentralized digital currency that you can buy, sell and exchange *directly, without an intermediary like a bank.*").

188. For a discussion of SIPC, see LOSS, SELIGMAN & PAREDES, *supra* note 173, at 268–80, for a discussion of SIPC. In June 2022, United States Senators Cynthia Lummis and Kirsten Gillibrand proposed the Lummis-Gillibrand Responsible Financial Innovation Act, S. 4356, 117th Cong. (2022), which among other things generally transferred authority to regulate cryptoproducts deemed to be "securities" to the Commodity Futures Trading Commission and relied on digital asset exchanges and futures commission merchants to be the primary regulator of segregation of digital assets, trading in registered digital assets, and standards and procedures to ensure the safety of customer money, assets and property.

C. *Competition with Crypto*

A third distinct approach to addressing crypto proliferation, and which the Federal Reserve System recently proposed, is direct competition.

In January 2022, the Board of Governors of the Federal Reserve System ("Federal Reserve" or "Federal Reserve System") published a research paper, "Money and Payments: The U.S. Dollar in the Age of Digital Transformation," which the Fed called "the first step in a public discussion between the Federal Reserve and stakeholders about Central Bank Digital Currencies (CBDCs)."[189] The paper defined a CBDC "as a digital liability of a central bank that is widely available to the general public. In this respect, it is analogous to a digital form of money."[190] Notably, "a CBDC would be a liability of the Federal Reserve, not of a commercial bank."[191]

The Fed acknowledged:

> While the existing U.S. payment system is generally effective and efficient, certain challenges remain. In particular, a significant number of Americans currently lack access to digital banking and payment services. Additionally, some payments – especially cross-border payments – remain slow and costly.
>
> Digital financial services and commercial bank money have become more accessible over time, and increasing numbers of Americans have opened and maintain bank accounts. Nonetheless, more than 7 million – or over 5 percent of U.S. households – remain unbanked. Nearly 20 percent more have bank accounts, but still rely on more costly financial services such as money orders, check-cashing services, and payday loans.[192]

Two months later in his comprehensive Executive Order,[193] President Biden ordered the Federal Reserve to go further, stating in part:

---

189. *See* THE U.S. DOLLAR IN THE AGE OF DIGITAL TRANSFORMATION, *supra* note 52.

190. *Id.* at 1.

191. *Id.* at 3.

192. *Id.* at 8.

193. *See* Exec. Order on Digital Assets, *supra* note 7.

> A United States CBDC may have the potential to support efficient and low-cost transactions, particularly for cross-border funds transfers and payments, and to foster greater access to the financial system, with fewer of the risks posed by private sector-administered digital assets. A United States CBDC that is interoperable with CBDCs issued by other monetary authorities could facilitate faster and lower-cost cross-border payments and potentially boost economic growth, support the continued centrality of the United States within the international financial system, and help to protect the unique role that the dollar plays in global finance.
>
> . . . .
>
> The Chairman of the Board of Governors of the Federal Reserve System (Chairman of the Federal Reserve) is encouraged to continue to research and report on the extent to which CBDCs could improve the efficiency and reduce the costs of existing and future payments systems, to continue to assess the optimal form of a United States CBDC, and to develop a strategic plan for Federal Reserve and broader United States Government action, as appropriate, that evaluates the necessary steps and requirements for the potential implementation and launch of a United States CBDC. The Chairman of the Federal Reserve is also encouraged to evaluate the extent to which a United States CBDC, based on the potential design options, could enhance or impede the ability of monetary policy to function effectively as a critical macroeconomic stabilization tool.[194]

A CBDC to compete with existing crypto products is unlikely alone to persuade many investors to seek a government organized competitive product. The CBDC would more di-

---

194. *Id; see, e.g.*, Paul Kiernan, *Yellen Renews Call for Stablecoin Regulation After TerraUSD Stumble*, WALL ST. J. (May 10, 2022), https://www.wsj.com/articles/yellen-renews-call-for-stablecoin-regulation-after-terrausd-stumble-11652208165 (testifying after crypto crash described in text accompanying note 1); *cf.* Emily Parker, *China's Digital Yuan Shows Why We Still Need Cryptocurrencies Like Bitcoin*, CNN (Feb. 4, 2022, 2:09 PM), https://www.cnn.com/2022/02/04/perspectives/china-digital-yuan-cryptocurrency-bitcoin/index.html. *See generally* note 44.

rectly impact banks and other depository institutions. To proceed with a CBDC, the Federal Reserve likely will prioritize the interaction and coordination between new means of payments and existing payment systems that operate through private banks. The new CBDC could do relatively little in bringing the unbanked 5% of the U.S. population into a new system. It is unclear how many of the "unbanked" will seek a new payment system.

Notwithstanding, President Biden's motivation in pressing the Federal Reserve to act has cogency. If other leading nations adopt their own versions of a CBDC, the United States may need to adopt the same to maintain its competitive position in global finance. This issue is currently being studied.[195] As the Federal Reserve System explained in its January 2022 report, the United States already maintains a sophisticated payment system that may be able to coordinate with other national CBDCs.[196]

Conclusion

This essay proposes three separate approaches to crypto products, each of which can be implemented consistent with the other approaches.

First, given the unique challenges of Bitcoin, the leading cryptocurrency, and other cryptocurrencies employing a similar model, the United States should consider prohibiting crypto products that engage in excessive energy consumption and do not provide U.S. law enforcement agencies with sufficient access to records for the purpose of investigating crimes. Neither of these prohibitions pose existential threats to crypto products but, rather, would create strong incentives for such products to lower energy use and comply with any new federal legislation requiring access to records.

Second, the United States should establish a single crypto regulatory agency rather than relying on the multiple agencies currently tasked with regulating crypto products. This agency could enforce the energy use and criminal compliance mandates included in any new legislation and would, like the SEC, have a broad mandate to register both crypto products and

195. *See* Exec. Order on Digital Assets, *supra* note 7.

196. *See* The U.S. Dollar in the Age of Digital Transformation, *supra* note 52, at 7–9.

trading platforms, and to enforce new regulations with appropriate anti-fraud, examination, and inspection powers. Critically, a single regulator would reduce the problem of wholly inadequate or ineffective regulation that plagues the multiple regulator model. The new crypto products regulator would, presumably, have a seat or presence on the Financial Stability Oversight Council.

Third, there is still much to learn with respect to a new Central Bank Digital Currency. The need for a CBDC largely depends on the creation of CBDCs abroad and the accompanying need for U.S. compatibility. At this time, it is uncertain how many countries will adopt their own version of a CBDC or whether adoption by the United States is even necessary to ensure compatibility with other systems. While a U.S. CBDC might play a modest role in competing with existing crypto products, the potential U.S. CBDC is largely a payment system, best left to the Federal Reserve to administer in coordination with a new standalone crypto regulatory agency.

Only a comprehensive approach creating a new standalone agency armed with a full panoply of regulatory powers when combined with appropriate prohibitions and a designated role for the Federal Reserve System is most likely to achieve optimal results.