Are Crypto Exchanges the Exchange Act's Trojan Horse?

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TABLE OF CONTENTS

INTRODUCTION

In Spring 2023, the U.S. Securities and Exchange Commission ("SEC") threw down the gauntlet against "crypto exchanges"—the platforms that facilitate trading and custody of crypto assets. Bittrex, Coinbase, and Binance—among the largest crypto exchanges in the world—found themselves charged with operating as unregistered securities intermediaries in the United States.[1] Simultaneously, the SEC arrogated jurisdiction over a broad range of crypto asset platforms under the Securities Exchange Act of 1934 ("Exchange Act").[2] The

1. *See* Complaint, SEC v. Binance Holdings Ltd. et al., Civil Action No. 1:23-cv-01599 (D.D.C. June 5, 2023); Complaint, SEC v. Coinbase, Inc. et al., No. 23 Civ. 4738 (S.D.N.Y. June 6, 2023); Complaint, SEC v. Bittrex, Inc., et al., No. 23 Civ 580 (W.D. Wash. Apr. 17, 2023).

2. *See* Supplemental Information and Reopening of Comment Period for Amendments Regarding the Definition of "Exchange", Exchange Act Release No. 97309, 88 Fed. Reg. 29448 (May 5, 2023) [hereinafter "2023 Exchange Release"] (providing "supplemental information and economic analysis regarding trading systems that trade crypto asset securities" under proposed rulemaking).

SEC's sudden and vigorous exercise of enforcement and interpretive authority bared an unmistakable aim to regulate crypto asset platforms—and, by extension, public trading in crypto assets—to the fullest extent permitted by federal securities law.[3]

In doing so, the SEC dashed hopes for a negotiated peace between U.S. securities law and proponents of decentralized finance ("DeFi"). Prior SEC enforcement actions had largely focused on the registration of crypto asset offerings and fraudulent offers and sales rather than secondary market trading.[4] The SEC barely mentioned crypto exchanges in a 2022 rulemaking proposal on exchanges[5] and did not object to Coinbase's initial public offering in 2021, which some interpreted as an act of forbearance.[6] Meanwhile, SEC staff had slowly fed guidance to securities broker dealers, investment advisers, and other securities intermediaries with respect to crypto asset custody.[7] For their part, commodities regulators—anxious to assert jurisdiction over plausibly "decentralized" crypto assets such as Bitcoin and Ether[8]—had balanced enforcement actions, regulatory guidance, and engagement with statutory reform under the Commodity Exchange Act ("CEA").[9]

Nevertheless, SEC Commissioner Hester Peirce presciently characterized the SEC 2022 exchange rulemaking as sufficiently "expansive" in its language to regulate crypto platforms, even if it was only expressly aimed at traditional

3. *See, e.g.*, Hannah Miller, *Crypto Gets Its Moment of Clarity, But Not the One It Wanted*, BLOOMBERG (June 15, 2023), https://www.bloomberg.com/news/features/2023-06-15/crypto-gets-its-moment-of-clarity-but-not-the-one-it-wanted.

4. *See, e.g.*, Simona Mola, *SEC Cryptocurrency Enforcement: June 2023 Update*, CORNERSTONE RESEARCH (June 2023), https://www.cornerstone.com/insights/research/sec-cryptocurrency-enforcement-june-2023-update (noting increase in enforcement actions relating to "failure to register as a broker or exchange," in contrast to "unregistered securities offerings" and "fraud in the offer and sale of securities"). As used throughout this Article, "secondary market trading" refers to transactions among public investors occurring after the initial offer, sale and distribution by the issuer. *See, e.g.*, LARRY HARRIS, TRADING & EXCHANGES: MARKET MICROSTRUCTURE FOR PRACTITIONERS 39 (2003); *cf.* SEC v. Ripple Labs, Inc., No. 20 Civ. 10832 (AT), 682 F.Supp.3d 308, 330 (S.D.N.Y. July 13, 2023) (holding that secondary market sales "did not constitute the offer and sale of investment contracts").

5. *See* Amendments Regarding the Definition of "Exchange", Exchange Act Release No. 94062, 87 Fed. Reg. 15496 (Mar. 18, 2022) [hereinafter "2022 Exchange Release"].

6. *See, e.g.*, Michael P. Regan et al., *Coinbase Is Facing a 'Life or Death' Battle With the SEC*, BLOOMBERG (June 6, 2023), https://www.bloomberg.com/news/articles/2023-06-06/coinbase-coin-sec-crypto-charges-pose-threat-as-altcoins-deemed-securities.

7. *See, e.g.*, Custody of Crypto asset Securities by Special Purpose Broker-Dealers, Exchange Act Release No. 90788, 86 Fed. Reg. 11627 (Feb. 26, 2021) [hereinafter "2021 SPBD Release"] (providing interim interpretive guidance for broker-dealer custody of crypto asset securities); SEC Staff Accounting Bulletin No. 121, 17 C.F.R. § 211 (Apr. 11, 2022) (expressing staff views on "the accounting for obligations to safeguard crypto-assets an entity holds for platform users"); Safeguarding Advisory Client Assets, Investment Advisers Act Release No. 6240, 88 Fed. Reg. 14672, 14679, 14782 (Mar. 9, 2023) (proposing to extend the scope of assets a qualified custodian must maintain on behalf of an investment adviser's clients to include "other positions," such as positions in crypto assets).

8. *See infra* note 181 (discussing definition of "decentralization").

9. *See infra* Part II.B.

markets.[10] The SEC has since clarified its intentions, and SEC Chair Gary Gensler has warned that "[c]rypto firms should do their work within the bounds of the law, or they shouldn't do it at all."[11] More directly, he has challenged firms to "come in, talk to us, and register" under traditional rules and procedures, rather than offer accommodation to platforms that may not intuitively interface with its registration and compliance regime.[12]

Meanwhile, advocates of crypto asset trading are pushing back. The Financial Innovation and Technology for the 21st Century Act (FIT21), which would scale back the SEC's authority over crypto assets and crypto asset intermediaries, passed in the House of Representatives by a vote of 279–136.[13] Its proponents, nevertheless, have yet to persuade skeptical policymakers that it is adequate to protect the crypto trading public.[14] The collapse of FTX continues to spawn questions about the proper scope and role of financial regulation,[15] as well as the public's reasonable expectations as to what level of protection regulatory regimes with a lighter touch than federal securities law can credibly deliver.[16]

Even so, the SEC may very well succeed in tugging crypto asset trading within the gates of the Exchange Act. But it should be wary, for the converse of Commissioner Peirce's proposition may also be true: crypto asset trading has the potential to focus public attention on the Act's increasingly glaring vulnerabilities. For decades, the SEC has tweaked the privileges of registered

10. *See* Dan Runkevicius, *The SEC Introduces A 'Trojan Horse' Crypto Regulation As The Price Of Bitcoin, Ethereum, BNB, Solana, Cardano, XRP Rebounds*, FORBES (Feb. 4, 2022) (quoting Commissioner Peirce), https://www.forbes.com/sites/danrunkevicius/2022/02/04/the-sec-introduces-a-trojan-horse-crypto-regulation-as-the-price-of-bitcoin-ethereum-bnb-solana-cardano-xrp-rebounds; *see also* Hester M. Peirce, Commissioner, SEC, Dissenting Statement on the Proposal to Amend Regulation ATS (Jan. 26, 2022).

11. Gary Gensler, *Getting crypto firms to do their work within the bounds of the law*, THE HILL (Mar. 9, 2023), https://thehill.com/opinion/congress-blog/3891970-getting-crypto-firms-to-do-their-work-within-the-bounds-of-the-law.

12. Gary Gensler, Chairman, SEC, "Kennedy and Crypto," Speech before the Practising Law Institute (Sept. 8, 2022).

13. Financial Innovation and Technology for the 21st Century Act, H.R. 4763, 118th Cong. (1st Sess. 2023).

14. Jacob Bogage, *House votes to make CFTC main crypto regulator, a win for the industry*, WASHINGTON POST (May 22, 2024), https://www.washingtonpost.com/business/2024/05/22/crypto-cftc-sec-house-vote (quoting a White House statement that FIT21 "lacks sufficient protections for consumers and investors who engage in certain digital asset transactions").

15. *See, e.g.*, David Gura, *Wringing its hands over FTX's collapse, Washington hopes to prevent more crypto pain*, NPR (Nov. 22, 2022), https://www.npr.org/2022/11/22/1137809625/ftx-sam-bankman-fried-crypto-cryptocurrency-bankruptcy-bitcoin; Hal Scott & John Gulliver, *A Question for Congress: Why Didn't the SEC Stop FTX?*, WALL ST. J. (Jan. 18, 2023), https://www.wsj.com/articles/a-question-for-congress-why-didnt-the-sec-stop-ftx-crypto-exchange-assets-investors-bankruptcy-fraud-sam-bankman-fried-11674063645 (accusing the SEC and FINRA of being "more interested in protecting their turf than protecting investors").

16. *See, e.g.*, Steven Church & Jonathan Randles, *FTX Creditors Will Get Paid in Full. They Just Want Crypto Back*, BLOOMBERG (May 15, 2024), https://www.bloomberg.com/news/articles/2024-05-15/ftx-bankruptcy-will-pay-customers-over-100-but-they-missed-crypto-rally (noting dissatisfaction of FTX accountholders with bankruptcy relief); *see infra* text accompanying notes 374-377.

stock exchanges to balance competition and concentration in the provision of trading services while at the same time centralizing market practices and mechanisms under the jurisdiction of related self-regulatory organizations (SRO). Forcing new trading platforms into the Exchange Act regulatory scheme could risk unravelling the delicate combination of rules, plans, standards, and protections that bind traditional securities markets together. In this sense, crypto asset trading platforms may turn out to be the Exchange Act's Trojan horse.

In this spirit, I offer two arguments—or perhaps a claim and a warning. First, the Exchange Act is ideally suited to regulating crypto asset trading—whether or not they fit the traditional definition of a "security"—because its market regulatory framework is, at heart, a system of multimodal regulation. The SEC has amassed hard-earned experience in building an information production chain for investors,[17] balancing competition and coordination in trading and pricing securities,[18] facilitating complex financial services while protecting customer entitlements to property,[19] and promoting investor protection within its jurisdictional limitations.[20] If the ultimate promise of decentralized finance is a system of "networked liquidity,"[21] federal securities law is as well, if not better, suited as a template within which crypto asset trading markets may evolve than any other existing or potential regime.

My second argument is more nuanced: the SEC's rush to regulate secondary crypto asset trading under the Exchange Act may well backfire. For decades, the SEC has struggled to adapt the Exchange Act to changes in market infrastructure, the nature of self-regulation, and the dispersion of price discovery.[22] Financial innovators have also developed and admitted to trading new products that straddle the lines between securities and non-securities in ways that may frustrate the tenability of listing and investor protection regimes.[23] In folding crypto assets into this traditional scheme too quickly, the SEC may find itself accelerating these adaptations in ways that compromise its ability to carry out its core responsibilities.

This Article proceeds as follows: Part I provides a brief introduction to crypto asset trading, while Part II reviews the debate over the allocation of regulatory jurisdiction. Parts III and IV develop my main arguments respectively, that the Exchange Act's framework for regulating securities trading is the best fit for crypto asset trading, but that it is a dangerous enterprise for the Exchange Act to

17. *See infra* Part III.A.
18. *See infra* Part III.B.
19. *See infra* Part III.C.
20. *See infra* Part III.D.
21. CAMPBELL R. HARVEY ET AL., DEFI AND THE FUTURE OF FINANCE 68 (2021); *see, e.g.,* David C. Donald, *From Block Lords to Blockchain: How Securities Dealers Make Markets*, 44 J. CORP. L. 29, 58–62 (2018).
22. *See infra* Parts IV.A and C.
23. *See infra* Parts IV.B and D.

assert such authority without further reflection as to its vision for market regulation. Part V concludes with some preliminary thoughts on how the SEC might proceed.

I. A BRIEF INTRODUCTION TO CRYPTO ASSET TRADING[24]

A. Primitives

Crypto assets, for purposes of this Article, are assets that are issued, recorded, and transferred using distributed ledger technology.[25] Depending on the context, users may employ crypto assets as a medium of exchange, a vehicle for crowdfunding, an alternative investment class, a token of allegiance or membership, a lottery ticket, or for other purposes.[26] As with other network technologies, the more users—and uses—distributed ledgers, crypto assets, and crypto asset trading platforms amass, the more potent the possibilities for complex financial transactions; the ability to bridge financial services through smart contracts and other linkages is particularly advantageous for "composing liquidity" in novel ways.[27] The extensibility of distributed ledger technology thus gives crypto asset platforms the potential to disrupt financial services in ways that we cannot foresee.

Distributed ledger technology ("DLT") is a set of algorithms and protocols enabling the issuance and trading of cryptocurrencies and other crypto assets on a decentralized basis.[28] The cryptographic protocols underlying DLT empower any participant to contribute to the assembly and validation of new blocks of transactions using publicly available software and a copy of the public ledger.[29] Network participants validate proposed additions to the ledger through consensus protocols, such as "proof of work" or "proof of stake."[30] A consensus

24. *See generally* GLOBAL FINANCIAL MARKETS ASSOCIATION, IMPACT OF DISTRIBUTED LEDGER TECHNOLOGY IN GLOBAL CAPITAL MARKETS (2023) [hereinafter "GFMA Report"]; Kevin Werbach, *Trust, but Verify: Why the Blockchain Needs the Law*, 33 BERKELEY TECH. L.J. 487 (2018).

25. *See, e.g.*, COUNCIL OF ECONOMIC ADVISERS, 2023 ECONOMIC REPORT OF THE PRESIDENT, at 238 (Mar. 2023) (defining "crypto assets" as "a subset of digital assets that use cryptographic techniques and distributed ledger technology (DLT) but exclude central bank digital currencies"); *The Future of Digital Assets: Measuring the Regulatory Gaps in the Digital Asset Markets: Hearing Before the Subcomms. on Digit. Assets, Fin. Tech., and Inclusion & Commodity Markets, Digit. Assets, and Rural Dev.,* 118th Cong. (May 10, 2023); *infra* Part I.A.

26. *See infra* Part I.B.

27. *See infra* Part I.C, D and E.

28. *See generally* FABIAN SCHÄR & ALEKSANDER BERENTSEN, BITCOIN, BLOCKCHAIN AND CRYPTO ASSETS: A COMPREHENSIVE INTRODUCTION 36–46 (2020). In traditional financial systems, a central authority—such as a bank, broker, or clearing agency—has the exclusive authority to execute, verify the legitimacy of, and maintain a definitive record of transactions in any given instrument. *Id.* at 13–29. By contrast, DLT enables a peer-to-peer network of participants to append new blocks of transactions to a chain of blocks constituting the ledger without any "centralized" authority's oversight. *Id.* at 34–46.

29. *Id*. At a technical level, DLT relies on asymmetric cryptography to verify the legitimacy of transaction messages and a consensus-based protocol to enforce the integrity of the ledger. *Id.*

30. Bitcoin miners are compensated for performing calculations necessary to bond validation of new blocks ("proof of work"); proof of work essentially enforces the principle of "one-CPU-one-vote." *See*

of network participants may similarly agree to modify the chain (a "fork") to adopt new software or protocols as needed.[31]

Crypto assets are entries on a distributed ledger associated with a user's wallet.[32] *Native coins* undergird DLT by compensating node operators for maintaining the ledger.[33] *Stablecoins* aim to serve as a medium of exchange or store of value on a distributed ledger by pegging their price to the value of one or more fiat currencies or digital currencies.[34] *Utility tokens* represent a claim or entitlement to consume future services offered within a ledger's ecosystem, which may be distributed for free or offered for sale to the public to raise the capital necessary to launch a new ledger or decentralized service.[35] *Governance tokens* represent the right to vote or participate in decision-making, often with respect to the administration of an underlying token or a decentralized autonomous organization ("DAO").[36] *Non-fungible tokens ("NFTs")* represent

Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, 3 (2008), bitcoin.org/bitcoin.pdf. Post-"Merge," Ethereum validators must stake Ether to participate in its consensus mechanism; validators are compensated for voting to establish consensus on new blocks, penalized for failure to fulfill their obligations, and subject to the "slashing" of their stake for dishonest behavior ("proof of stake"). *Gasper*, ETHEREUM (Aug. 15, 2023) https://ethereum.org/en/developers/docs/consensus-mechanisms/pos/gasper.

31. *Gasper*, *supra* note 30.

32. Among other attributes, crypto assets may be unique or part of a fungible class, limited or open-ended in number, and entitled to a range of powers, rights, and privileges. *See ERC-20 Token Standard*, ETHEREUM, https://ethereum.org/en/developers/docs/standards/tokens/erc-20 (noting that antoken can represent "reputation points in an online platform, skills of a character in a game, lottery tickets, financial assets like a share in a company, a fiat currency like USD, an ounce of gold, and more").

33. *See supra* note 30 (discussing compensation of miners and validators). Users of distributed ledgers "pay" for the privilege, whether by suffering scheduled dilutions (e.g., scheduled issuances of Bitcoin) or paying transaction taxes (e.g., Ether "gas"). *Network Fees*, ETHEREUM, https://ethereum.org/en/gas. Arguably, the utility of the token as a store of value or a medium of exchange justifies the effort and cost to maintain it. Rommel Johnson, Jennifer Bufton, & Jiří Daniel, *The Valuation of Crypto assets*, at 5, 10–15, EY (2019) [hereinafter "EY Valuation Report"].

34. *See* President's Working Group on Financial Markets *et al*., *Report on Stablecoins*, at 12–15 (Nov. 2021) [hereinafter "PWG Report on Stablecoins"] (discussing risks and regulatory gaps); Craig Calcaterra et al., *Stable Cryptocurrencies*, 61 WASH. U. J.L. & POL'Y 193 (2020)**.** Among other objectives, stablecoins facilitate conversion of real-world assets to digital assets and the pricing of on-ledger transactions in real-world currencies. *See* discussion *infra* Part I.B.

35. *See* EY Valuation Report, *supra* note 33, at 10–13. For example, issuers typically make representations in a whitepaper as to the nature of the ledger and the services and the key individuals or entities responsible for providing them. *See, e.g.*, Jing Chen & Silvio Micali, *Algorand*, ARXIV (May 26, 2017), https://arxiv.org/abs/1607.01341. Once the service or ledger is launched, the market value of the token depends on "the attraction and retention of user demand, which in turn depends on the fundamental viability of the value proposition and the ongoing maintenance of user satisfaction." EY Valuation Report, *supra* note 33, at 10.

36. Yuliya Guseva, *The SEC, Digital Assets, and Game Theory*, 46 J. CORP. L. 629, 677 (2020). For example, holders of governance tokens may have the right to vote on whether to authorize payments, approve projects, modify code, or take other collective action. DAO governance tokens may be combined with, attached to or traded separately from tokens representing a right to share in profits, fees, or other financial interests generated by the DAO's economic activity. More rarefied admin keys may circulate less freely, as they often represent the power to modify token or ledger protocols. *See* Fabian Schär, *Decentralized Finance: On Blockchain- and Smart Contract-Based Financial Markets*, 103 FED. RSRV. BANK ST. LOUIS REV. 153, 170 (2021).

more diverse interests, such as title to individual real-world assets or intellectual property.[37]

DLTs offer several value propositions. Decentralization eliminates the need to trust the capacity, security, or integrity of a single intermediary to record, verify, and maintain the transaction ledger.[38] Because miners and validators are compensated in the native coins of the DLTs in which they participate,[39] network participants are incentivized to promote the use of the native coin as a currency in commerce.[40] DLTs, such as Ethereum, also allow any network participant to develop and execute "smart contracts" or to create and issue new tokens with embedded smart contracts.[41] Such contracts facilitate the transfer of crypto assets into and out of wallets, message other wallets, or take other actions based upon messages from users or other external data (via "oracles").[42]

The extensibility of distributed ledgers admits broader "use cases" beyond crypto asset transactions. For example, ledgers may be used to "tokenize"[43]—i.e., issue and record ownership of—real-world financial assets or interests such as stocks, bonds, art work, real estate, or security interests.[44] They accordingly have the potential to supplant traditional registries, databases, or other means of authentication, and, if scalable, to facilitate retail participation in payment, clearing, and settlement systems.[45] With appropriate protocols for preserving confidentiality, distributed ledgers might also eventually operate public databases, such as for electronic health records, to give individuals better access

37. NFTs are least likely to be classified as "securities" to the extent that their purported nonfungibility ostensibly defeats "commonality." *See, e.g.*, Brian Elzweig & Lawrence J. Trautman, *When Does a Non-Fungible Token (NFT) Become a Security?*, 39 GA. ST. U.L. REV. 295, 329–331 (2023) (discussing the commonality element). *But see* Friel v. Dapper Labs, Inc., 657 F. Supp. 3d 422, 450 (S.D.N.Y. Feb. 22, 2023) (entering "narrow" holding that Dapper Labs' NFTs constituted "investment contracts" in context).

38. The historical motivation has been to prevent inconsistent transactions from being recorded across multiple ledgers ("double spending") without a single ("centralized") authority controlling the ledger. *See* Nakamoto, *supra* note 30, at 1; *see also* CAROL GOFORTH & YULIYA GUSEVA, REGULATION OF CRYPTO ASSETS 10–11 (2d. ed. 2022); Joel Seligman, *The Rise and Fall of Cryptocurrency: The Three Paths Forward*, 19 N.Y.U. J.L. & BUS. 93, 99 (2022).

39. *See supra* note 30.

40. *See* Nakamoto, *supra* note 30, at 4.

41. *See ERC-20 Token Standard*, *supra* note 32; *see also* discussion *infra* note 239 (ERC-1400 standard).

42. *See Introduction to Smart Contracts*, ETHEREUM, https://ethereum.org/en/developers/docs/smart-contracts.

43. HARVEY ET AL., *supra* note 21, at 124–29.

44. *See, e.g.*, George S. Geis, *Traceable Shares and Corporate Law*, 113 NW. U.L. REV. 227, 254–66 (2018) (describing how a DLT system could be employed to clear and settle securities trades); David C. Donald & Mahdi H. Miraz, *Multilateral Transparency for Securities Markets Through DLT*, 25 FORDHAM J. CORP. & FIN. L. 97, 135–39 (2019) (describing how a DLT system could be employed to trade, clear and settle securities); Smart Contracts Alliance, *Smart Contracts: 12 Use Cases for Business & Beyond,* CHAMBER OF DIGITAL COMMERCE (Dec. 2016).

45. *See, e.g.*, David Mills et al., *Distributed ledger technology in payment, clearing, and settlement*, at 17–21, FINANCE AND ECONOMICS DISCUSSION SERIES (FEDS) (discussing potential applications in payments, clearing, and settlement).

to and greater control over their personal data.[46] Web 3.0 enthusiasts envision DLT as the foundation of a fully decentralized Internet.[47]

Even as promoters launch rival ledgers, the Bitcoin blockchain and Ethereum dominate transaction volume.[48] Nevertheless, new entrants seek to displace them, whether through a combination of superior or more scalable protocols or the support of dominant users or intermediaries.[49] Some ledgers may incorporate enhanced privacy features to encourage their use as payment systems.[50] The Federal Reserve System and other central monetary authorities are also exploring the possibility of creating a distributed ledger for central bank cryptocurrencies.[51] Indeed, some fear that the emergence of a government-operated digital asset, and its potential to provide streamlined access to the payment system, could offer a parallel avenue to circumvent traditional financial services.[52]

B. Transactions and Protocols

The "primitives" above permit developers to develop a wide range of complex financial transactions without the intermediation of a centralized entity.[53] Some of these transactions have analogs in traditional financial markets, such as crypto asset trading and lending, algorithmic market making, and derivatives and leveraged funds. Others are unique to the crypto asset ecosystem, such as staking pools or stablecoin algorithms. Advocates contend that DeFi has the potential to reduce "organizational overhead," increase transparency, and

46. *See, e.g.*, Anuraag A. Vazirani et al., *Implementing Blockchains for Efficient Health Care: Systematic Review*, J. MED. INTERNET RSCH., Vol. 21, No. 2 (Dec. 2, 2019); Devon S. Connor-Green, *Blockchain in Healthcare Data*, 21 INTEL. PROP. & TECH. L.J. 93 (2017); Zachary L. Catanzaro & Robert Kain, *Patients as Peers: Blockchain Based EHR and Medical Information Commons Models for HITECH Act Compliance*, 44 NOVA L. REV. 289, 295, 301 (2020).

47. *See, e.g.,* Letter from A.H. Capital Management, L.L.C. to the SEC Re: File No. S7-02-22, at 1–2, 11–12, & n.4 (April 18, 2022).

48. *All Crypto Prices and Ratings by Market Cap*, TOKENINSIGHT, https://tokeninsight.com/en/cryptocurrencies.

49. *See* JUSTIN WALES, THE CRYPTO LEGAL HANDBOOK 104–09 (2024) (describing the development of DLTs with smart contract functionality that aim "for more scalable and user-friendly decentralized application ecosystems").

50. *See, e.g.*, Alex Biryukov & Sergei Tikhomirov, *Security and Privacy of Mobile Wallet Users in Bitcoin, Dash, Monero, and Zcash*, 59 PERVASIVE & MOBILE COMPUTING 101030 (2019) (evaluating the comparative anonymity of mobile wallets for Bitcoin and privacy-focused currencies).

51. *See Money and Payments: The U.S. Dollar in the Age of Digital Transformation*, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM (January 2022), https://www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf (launching a "public discussion between the Federal Reserve and stakeholders about central bank digital currencies (CBDCs)," with a view to "foster[ing] a broad and transparent public dialogue about CBDCs in general, and about the potential benefits and risks of a U.S. CBDC").

52. Seligman, *supra* note 38, at 134–35. This possibility is not popular within the traditional financial services industry. Rachel Siegel, *DeSantis goes after Fed digital currency — which doesn't exist yet*, WASHINGTON POST (April 11, 2023), https://www.washingtonpost.com/business/2023/04/11/desantis-fed-digital-currency.

53. HARVEY ET AL., *supra* note 21, at 29; Marco Dell'Erba, *Crypto-Trading Platforms as Exchanges*, MICH. ST. L. REV. (forthcoming) (manuscript at 4) (discussing "hybridization").

offer other "concrete solutions" to flaws in traditional financial markets.[54] Critics claim they merely reintroduce many of the risks that traditional financial markets have been engineered to avoid.[55]

Trading crypto assets is the bread and butter of crypto asset intermediaries. To facilitate on-ledger transactions, trading platforms conventionally publish trading interest in terms of listed "trading pairs,"[56] often including a stablecoin as a means of facilitating price comparison among assets.[57] For many trading pairs, both legs may not be transferable on the same ledger, or on a ledger at all—e.g., a swap of bitcoin for ether, or a swap of bitcoin for USD. The volume of trading may also require a platform to trade more frequently than the DLT technology processes new blocks. For this reason, trading crypto assets often necessitates additional network layers or the participation of an off-ledger ("centralized") custodian or intermediary.[58]

Lending transactions are also fairly straightforward, both in terms of their value proposition and inherent risks.[59] Some services facilitate lending of stablecoins (e.g., Celsius), akin to a time or demand deposit at an unregulated bank that earns interest. Those deposits may be in turn be loaned to borrowers to effect leveraged transactions.[60] Other services allow clients to deposit coins in staking pools to aggregate and share income from staking transactions (e.g., Kraken, Coinbase) or in liquidity pools that facilitate automated market

54. HARVEY ET AL., *supra* note 21, at 58–68.

55. COUNCIL OF ECONOMIC ADVISERS, *supra* note 25, at 238 (noting that "proponents have been relearning the lessons from previous financial crises the hard way"); PWG Report on Stablecoins, *supra* note 34, at 9.

56. In this sense, crypto asset transactions most closely resemble foreign exchange transactions quoted as a ratio of two reference currencies. *See, e.g.*, J.S. Nelson, *Cryptocommunity Currencies*, 105 CORNELL L. REV. 909, 954 (2020) (drawing this analogy). While many DEXs are branded as "swap" exchanges, it is important to remember that "swaps" are contracts that transform future cash flows. JOHN C. HULL, OPTIONS, FUTURES AND OTHER DERIVATIVES 168–72 (9th ed. 2015).

57. Chair Gensler cited one study finding that approximately three quarters of crypto asset trades involve a stablecoin on one side of the transaction. Gary Gensler, Chairman, SEC, Remarks Before the Aspen Security Forum, Washington D.C. (Aug. 3, 2021) (citing "The Block"). A CEX may also issue its own proprietary stablecoin for this purpose. *See* Dell'Erba, *supra* note 53, at *56–58 (discussing concerns).

58. *See* WALES, *supra* note 49, at 66–70 & n.43 (discussing whether the Lightning Network, a second layer within the Bitcoin ecosystem, is "technically or functionally custodial"); Kristin N. Johnson, *Decentralized Finance: Regulating Cryptocurrency Exchanges*, 62 WM. & MARY L. REV. 1911, 1954 (2021). "Wrapping" allows a token native to one digital ledger to be traded on another by transacting with a custodian who "mints" and "burns" "wrapped tokens" on the other platform. *See, e.g.*, *Why Do We Need WBTC?*, WBTC, https://wbtc.network. The exchange of BTC for WBTC, for example, requires the interpositioning of an off-ledger merchant or custodian. *See, e.g.*, Dell'Erba, *supra* note 53, at *42–43 (comparing "cross-chain" transactions and "atomic swaps" as options for constructing trading pairs involving different ledgers).

59. *See generally* HARVEY ET AL., *supra* note 21, at 54–57; Dell'Erba, *supra* note 53, at *44–45 (discussing "farming," "staking" and "lending").

60. In re Celsius Network LLC, 647 B.R. 631, 640 (Bankr. S.D.N.Y. 2023) (describing terms of use with respect to the ownership of crypto assets in bankrupt's "Earn Accounts").

making.[61] Like all loans or deposits, these services require the beneficial owner of the asset to transfer crypto assets to another wallet, so that it may be transferred to third parties.[62]

Crypto asset derivatives and leveraged funds represent attempts to facilitate crypto asset trading in traditional futures and securities accounts as well as through DLT wallets. Crypto asset derivatives, such as futures or options on crypto assets, may trade on CFTC-registered futures exchanges (such as the Chicago Mercantile Exchange).[63] Securities customers may also buy shares of trusts or funds that hold crypto assets or derivatives on crypto assets (e.g., Grayscale Bitcoin Trust) in traditional securities accounts.[64] The accuracy of real end-of-day settlement or net asset value calculations naturally depends on the accuracy and price continuity of spot market prices.[65]

Stablecoin protocols are, perhaps, by far the most controversial innovation. As noted above, some stablecoins purport to maintain collateral in reserve in order to maintain a one-to-one peg with fiat currencies.[66] The collateral may consist of real-world currencies or assets or on-ledger assets.[67] In each case, the liquidation value of the collateral is represented to equal or exceed the peg.[68] More aggressive stablecoin programs may promise users a share of income

61. Complaint at ¶¶ 37–68, SEC v. Payward Ventures, Inc. et al, No. 3:23-cv-00588 (N.D. Cal Feb. 9, 2023); Complaint at ¶¶ 309–338, SEC v. Coinbase. *See* discussion *infra* Part II.C for example of some decentralized exchanges using liquidity pools to facilitate automated market making.

62. *See infra* Part III.C.

63. These are called "designated contract market[s]" under the CEA. 7 U.S.C. § 7.

64. *See* GRAYSCALE BITCOIN TRUST, https://grayscale.com/products/grayscale-bitcoin-trust (last visited May 24, 2024).

65. As discussed at the text accompanying *infra* notes 362 - 366, the SEC has only recently permitted listing of exchange-traded products representing shares in a trust holding spot crypto asset positions.

66. *See, e.g.*, PWG Report on Stablecoins, *supra* note 34, at 6–7 (describing off-ledger activities and participants in stablecoin arrangements).

67. Stablecoins may achieve this through one of several methods, including maintaining one-for-one reserves in the pegged currency, maintaining other collateral on-ledger or off-ledger with a mark-to-market value exceeding the aggregate value of the stablecoin, or algorithmically minting or burning units of currency as necessary to keep the trading price of the stablecoin in line with the pegged currency. *See* WALES, *supra* note 49, at 93–98 (providing examples of these protocols). To finance custodial operations, for example, the collateral may consist of or be converted into interest bearing assets. *See, e.g., Transparency*, TETHER (last visited May 24, 2024), https://tether.to/en/transparency/?tab=reports (providing quarterly and interim reports of breakdown of Tether reserves by investment class).

68. Stablecoin pegs are exposed to multiple risks, including failure of controls to ensure adequate collateralization, rapid declines in the value of invested collateral ("market risk"), the inability to promptly redeem collateral in the face of a run of the stablecoin ("liquidity risk"), and the failure of custodians. *See, e.g.,* Vicky Ge Huang, *How Are Stablecoins Faring? These Charts Will Tell You*, WALL ST. J. (June 11, 2023), https://www.wsj.com/articles/how-are-stablecoins-faring-these-charts-will-tell-you-37288cd5; *see also* COUNCIL OF Economic ADVISERS, *supra* note 25, at 255–56; *see also Attorney General James Ends Virtual Currency Trading Platform Bitfinex's Illegal Activities in New York*, OFFICE OF THE N.Y. ATTORNEY GENERAL (Feb. 23, 2021), https://ag.ny.gov/press-release/2021/attorney-general-james-ends-virtual-currency-trading-platform-bitfinexs-illegal (terms of settlement with NYAG regarding alleged misrepresentations in connection with Tether).

generated from invested collateral, thus operating like money market mutual funds.[69] Other stablecoins rely on algorithmic mechanisms to maintain the peg.[70]

Decentralized autonomous organizations ("DAOs") are organizations whose mechanisms of corporate governance are both established and enforced using smart contracts.[71] Like real-world business organizations, DAOs may issue tokens representing fractional economic or voting interests in exchange for consideration. A DAO would then make decisions about how to deploy its capital (whether for profit or for charitable purposes) through a decentralized decision-making protocol. Several commentators have argued that a DAO may be analogous to a general partnership for purposes of personal jurisdiction and liability,[72] though some jurisdictions have expressly permitted DAOs to formally incorporate or organize under their laws to avail themselves of limited liability.[73]

Finally, DLTs can streamline *asset servicing*.[74] DLTs can manage receivables, administer regulatory compliance processes, and implement payments of interest, principal, dividends, and distributions.[75] The comparative advantage of DLT is that a single ledger can seamlessly aggregate information from multiple sources (e.g., the issuer, the holder, the entity) through a common protocol.[76] Because such a framework may entail higher verification costs,[77]

69. Complaint at ¶¶ 317–324, SEC v. Binance Holdings (describing "Stablecoin as a Service Agreement"). The more aggressively collateral is invested, the greater the market and liquidity risk.

70. In the real world, central banks manage the money supply and exchange rates by injecting and withdrawing reserve notes through open market operations. A stablecoin algorithm may similarly "mint" and "burn" tokens to stabilize the value of a token against its peg. In the absence of a central bank to absorb declines in the value of algorithmic stablecoins, however, private parties must be incentivized to assume that risk. *See, e.g.,* Jiageng Liu et al., *Anatomy of a Run: The Terra Luna Crash* (MIT Sloan, Research Paper No. 6847-23), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4416677. Some of these experiments in algorithmic stabilization have failed because available exchange rate support mechanisms could not withstand periods of sustained or acute downward pressure. Kara Bruce et al., *The Private Law of Stablecoins*, 54 ARIZ. ST. L.J. 1073, 1119 (2023).

71. Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO, Exchange Act Release No. 81207 (July 25, 2017) [''DAO 21(a) Report''].

72. *See, e.g.*, Dirk A. Zetzsche et al., *The Distributed Liability of Distributed Ledgers: Legal Risk of Blockchain*, 2018 U. ILL. L. REV. 1361, 1399–1401 (2018) (enumerating theories of liability against blockchain participants); Yuliya Guseva, *A Conceptual Framework for Digital-Asset Securities: Tokens and Coins as Debt and Equity*, 80 MD. L. REV. 166, 201–08 (2020).

73. Maury Shenk et al., *The Crown, the Market and the DAO*, 6 STAN. J. BLOCKCHAIN L. & POL'Y 244, 263 (2023) (considering arguments for and against "certainty regarding legal personality, rights and obligations of DAOs" and their investors); Shawn Bayern, *Of Bitcoins, Independently Wealthy Software, and the Zero-Member LLC*, 108 NW. U. L. REV. 1485, 1487 (2014).

74. GFMA REPORT, *supra* note 24, at 83–94.

75. Raphael Auer, *Embedded supervision: how to build regulation into decentralized finance* 8–10 (Bank for Int'l Settlements, Working Paper No. 811), https://www.bis.org/publ/work811.pdf.

76. GFMA REPORT, *supra* note 24, at 83–84 (finding "high impact assessment" of DLT); *see* Donald, *supra* note 21, at 62. In the real world, the Depository Trust & Clearing Corporation provides such functionality for custodial services, and Fedwire, for bank deposits. An advantage of DLT, for example, is that a protocol can determine what actions need to be taken by each actor, obtain instructions from users as necessary, and then carry out such transactions in a transparent and verifiable manner. This may help reduce operational risks resulting from lapses or errors in communication among the various entities that perform these routine transactions today.

77. Auer, *supra* note 75, at 12.

established financial market participants may have a strong incentive to concentrate services and thereby coopt its disruptive potential.[78]

C. Exchanges

The platforms that facilitate crypto asset trading—as well as a range of other DeFi transactions—are commonly known as "crypto exchanges." Platforms are classified as "centralized" or "decentralized" depending on the degree to which they conduct operations through traditional facilities, rather than through DLT.[79] Paradoxically, as Professor Yadav notes, as DeFi becomes more popular, it becomes increasingly necessary to conduct transactions in crypto assets off-ledger to accommodate the volume of transactions and the convenience of users.[80]

Decentralized Exchanges. The term decentralized exchange ("DEX") refers to peer-to-peer trading systems that allow counterparties to interact exclusively on a distributed ledger. The highest-volume DEXs for spot trading in crypto assets worldwide include Uniswap, DODO, and Curve.[81] DEXs do not take custody of counterparty assets, but merely transfer assets based on trading instructions. Thus, only counterparties who control a wallet may submit transactions to a DEX for execution. DEXs generally use open-source smart contracting mechanisms to execute or settle transactions on the ledger, thereby providing traders with a transparent record of transactions.[82]

Because DEXs operate on a single ledger, trading pairs are limited to native or wrapped tokens available on the DEX's ledger. [83] To the extent that DEXs use smart contracts to execute trades, executions are limited by the rate at which blocks are verified on the relevant ledger.[84] Thus, DEXs may use a variety of on- and off-ledger trading mechanisms. Some DEXs use automated market makers ("AMMs") that quote bids and offers on behalf of a market making pool (see

78. *Id.* at 17–18; Donald, *supra* note 21, at 60; *see also* Dan Awrey & Joshua Macey, *Open Access, Interoperability, and the DTCC's Unexpected Path to Monopoly*, 132 YALE L.J. 96, 112–22 (2022) (discussing the effect of natural monopolies and economies of scale, scope or network effects in the context of the concentration of securities clearing services).

79. *See*, Johnson, *supra* note 58, at 1951–59; Dell'Erba, *supra* note 53, at 37 (comparing centralized and decentralized exchanges). The fact that a crypto asset trading facility calls itself an "exchange," of course, is not dispositive of whether the facility is classified as an "exchange" under federal securities law.

80. Yesha Yadav, *The Centralization Paradox in Cryptocurrency Markets*, 100 WASH. U.L. REV. 1725, 1728–29 (2023); *see also Crypto Exchange Report 2024Q1,* TOKENINSIGHT RESEARCH (Apr. 12, 2024), https://tokeninsight.com/en/research/reports/crypto-exchange-report-2024q1 (discussing performance in the top ten centralized crypto exchanges).

81. *Top Crypto Exchanges by Volumes and Ratings*, TOKENINSIGHT (last visited May 24, 2024), https://tokeninsight.com/en/exchanges?type=decentralized.spot.

82. *See* Farshad Ghodoosi, *Contracting in the Age of Smart Contracts*, 96 WASH. L. REV. 51, 52-53 (2021).

83. Dell'Erba, *supra* note 53, at 42–43.

84. Depending on the features offered, DLTs may differ in terms of performance, speed, scalability and other factors. *See, e.g.*, 2021 SPBD Release, *supra* note 7, at 11630 (listing factors to consider when holding assets on a digital ledger).

below) and continuously adjust trading ratios to balance supply and demand.[85] Others may process order flow off-ledger (using a traditional limit order book) and clear and settle trades on chain.[86] DEXs may also rely on CEXs or "DEX aggregators" to aggregate trading interest across the marketplace and to route orders on behalf of CEX users.[87]

To the extent that DEX transactions take place on a single ledger, the ledger maintains an audit trail of order execution, clearance, and settlement as part of the node verification process. Unlike real-world audit trails, however, the ledger on which the DEX operates may not independently retain information about the identity of the parties (or their representatives) or other regulatory data.[88] Moreover, DLT's limitations as a technology complicate order submission and trade execution. For example, because customers submit orders by broadcasting messages over the Internet, they sacrifice some flexibility to modify or cancel orders between submission and execution.[89]

Notably, because DLT messages are held in a public queue until processed, reliance on pure DEX trading may increase the risk of leaking private trading information to the public.[90] This creates special limitations for the use of DLT. For example, by analogy to high-frequency trading in equity markets, traders could intercept broadcast messages and submit orders that opportunistically take advantage of the trading interest expressed therein.[91] In less active markets, by contrast, speed may be of less importance than finding the right counterparty and getting the right price.[92] The adaptability of smart contracting could thus augment pathways for bridging buying and selling interest.[93]

85. Dell'Erba, *supra* note 53, at 28–29; *see also* HARVEY ET AL., *supra* note 21, at 95–105 (describing Uniswap).

86. Dell'Erba, *supra* note 53, at 28–29; *see also* HARVEY ET AL., *supra* note 21, at 110–119 (describing dYdX).

87. See, e.g., *11 top DEX aggregators in 2024: an essential guide for crypto traders*, OKX (last visited May 24, 2024), https://www.okx.com/learn/top-dex-aggregators. Such DEX aggregators may perform functions similar to a retail broker-dealer or institutional execution–management system that routes orders to multiple marketplaces. 2023 Exchange Release, *supra* note 2, at 29457, 29461.

88. Advanced ledgers comply with "know your customer"/anti-money laundering requirements to capture additional information about the identity of trade participants. *See, e.g.*, *infra* note 239 (discussing ERC-1400 standard).

89. Johnson, *supra* note 58, at 1955–59.

90. *Id.* To address this problem, Donald & Miraz posit a permissioned "layer 2 lightning network, which is capable of providing latency as low as existing, non-DLT technology" to facilitate both order-matching and clearing transactions. David C. Donald & Mahdi H. Miraz, *Multilateral Transparency for Securities Markets Through DLT*, 25 FORDHAM J. CORP. & FIN. L. 97, 140 (2020).

91. Donald & Miraz, *supra* note 90; Dell'Erba, *supra* note 53, at 29. The probability that a given message will be encoded in the next validated block could moreover affect the timing of such transactions. SCHÄR & BERENTSEN, *supra* note 28, at 215. Traders could also use price information to outmaneuver fully transparent and automated market making algorithms. Johnson, *supra* note 58, at 1963.

92. *See, e.g.*, FINRA Rule 5310.09(b); *see also* HARRIS, *supra* note 4, at 514–15 (discussing generally the "trade-offs between speed and price" in establishing and enforcing best execution standards).

93. For example, trading platforms for bonds and swap transactions in the real world increasingly employ a variety of "communication protocols"—such as request-for-quote systems, stream axes, crossing

Centralized crypto exchanges. Centralized crypto exchanges ("CEXs") are trading systems operated by an entity that intermediates crypto asset transactions between real-world users and one or more digital ledgers.[94] Coinbase and Binance are among the highest-volume CEXs that have sought to facilitate spot trading in crypto assets in the United States.[95] These entities collect and hold in custody customer funds or other real-world assets to purchase crypto assets, and thereby serve as the gateway for most retail users to access the crypto asset ecosystem.[96] CEXs may offer to maintain separate wallets for each customer, but more commonly execute customer transactions through a single proprietary or customer omnibus wallet.[97]

Like DEXs, CEXs commonly list trading pairs for crypto assets and quote the ratios at which crypto assets may be swapped. Orders and other transactions are nevertheless processed in real-time off-ledger.[98] Binance and Coinbase, for example, publish a limit order book and last sale data for each trading pair. As in stock markets, these sources of pricing information assist users in developing their trading interest.[99] CEXs generally provide graphic user interfaces ("GUIs") or application protocol interfaces ("API") that simulate traditional stock or futures trading.[100] This allows them to gamify trading like Robinhood and other mobile stock trading applications.[101]

CEXs nevertheless significantly differ from traditional stock exchanges or market makers. Because CEXs generally execute transactions internally, the CEX's internal record of transactions may be the only source of information

systems, and conditional order systems—to facilitate negotiations leading to a trade. 2022 Exchange Release, *supra* note 5 at 15500–02 (describing such services).

94. Johnson, *supra* note 58, at 1953–55.

95. *Top Crypto Exchanges*, *supra* note 81

96. HARVEY ET AL., *supra* note 21, at 144–46. Crypto asset users who wish to maintain direct access to the DLT may maintain their own wallet. COUNCIL OF Economic ADVISERS, *supra* note 25, at 247–48.

97. *See* Adam J. Levitin, *Not Your Keys, Not Your Coins: Unpriced Credit Risk in Cryptocurrency*, 101 TEX. L. REV. 877, 893–96 (2023). Coinbase, for example, offers two such services: Coinbase Wallet, for customers who wish to control their own wallet; and Coinbase Prime, a prime brokerage service that, among other features, allows the routing of trading interest to multiple markets. Complaint at ¶¶ 72, 81, SEC v. Coinbase.

98. Yadav, *supra* note 80, at 1738. This is similar to the way that certain market makers "internalize" retail orders in equity markets without exposing them to alternative trading venues. Order Competition Rule, Exchange Act Release No. 96495, 88 Fed. Reg. 128, (Jan. 3, 2023) (proposing to impose additional order handling obligations on "restricted competition trading center[s]").

99. Complaint at ¶¶ 95, 97–99, SEC v. Coinbase; Complaint at ¶¶ 212–217, SEC v. Binance; *see, e.g.*, *ETH-BTC*, BINANCE, https://www.binance.us/spot-trade/eth__btc (displaying real-time market data for Ether/Bitcoin trading pair).

100. *See, e.g.*, Complaint at ¶ 56, SEC v. Coinbase.

101. *See, e.g.*, James Fallows Tierney, *Investment Games*, 72 DUKE L.J. 353, 363–85 (2022) (describing "gamification" of investment and trading). The SEC has issued a concept release and proposed rules relating to aspects of this issue. *See* Request for Information and Comments on Broker-Dealer and Investment Adviser Digital Engagement Practices, Related Tools and Methods, Exchange Act Release No. 92766, 86 Fed. Reg. 49067, 49068–70 (Sept. 1, 2021) (describing such "digital engagement practices"); Conflicts of Interest Associated with the Use of Predictive Data Analytics by Broker-Dealers and Investment Advisers, Exchange Act Release No. 97990, 88 Fed. Reg. 53960, 53964 (Aug. 9, 2023).

regarding the ownership of crypto assets and the handling of transactions, including any fees, spreads, or other charges associated therewith.[102] Moreover, CEXs set the terms under which they hold real-world and virtual funds and assets in custody for customers.[103] For example, in the absence of a formal segregation requirement, customer assets may be treated as unsecured claims against the CEX's estate in bankruptcy, rather than assets of the customer.[104]

CEXs likewise face a number of regulatory conflicts and concerns traditionally associated with broker-dealers. First, customers may be unable to monitor the quality of execution provided by a CEX in the absence of reliable market data, or enforce minimum execution quality without a legal or regulatory requirement to provide best execution.[105] Second, some CEXs may execute transactions for their own account while also acting as a broker, thereby potentially acting against their customer's interests.[106] More generally, CEX wallets are a tempting target for embezzlement or theft because they are a single point of failure for purposes of identifying ownership.[107]

II. REGULATING CRYPTO ASSET TRADING

Policymakers and commentators have reached various degrees of consensus over the optimal scope of crypto asset regulation. Many concede that, as a matter of public interest, crypto asset trading ought inevitably to be subject to laws combating money laundering, contraband, terrorist financing, and tax evasion.[108]

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102. *See, e.g.*, Complaint at ¶ 54, SEC v. Bittrex.

103. *See, e.g.*, In re Celsius Network LLC, 637 (noting that "issue of ownership of the assets in the Earn Accounts is a contract law issue").

104. *See, e.g.*, SEC Staff Accounting Bulletin No. 121; In re Celsius Network LLC, 637, 641–42, 643, 646 (highlighting objections of the U.S. Trustee and others to debtors' proposed sale of stablecoins in its Earn Accounts on the grounds that "the Debtors commingled assets of their customers in such a way that it is unclear how the Debtors can accurately identify the owners of the stablecoins"). Unpersuaded by this logic, Congress by joint resolution disapproved of Staff Accounting Bulletin No. 121. H.J. Res. 109, 118th Cong. (2024).

105. Allen Ferrell, *A Proposal for Solving the "Payment for Order Flow" Problem*, 74 S. CAL. L. REV. 1027, 1046–52 (2001) (discussing obstacles to investor monitoring of execution costs). In traditional securities markets, the broker's duty of best execution is enforced through legal and regulatory mandates as well as various disclosure and reporting requirements for market centers and executing brokers. *See infra* note 274 (discussing best execution). A CEX may of course commit to route customer orders to the best possible market based on real-time information extracted from the APIs of peer exchanges. *See, e.g.*, *Coinbase Prime,* COINBASE (last visited May 24, 2024), https://www.coinbase.com/prime/trading.

106. For example, a CEX acting as a dealer can collect "mark-ups" on customer trades, anticipate and jump ahead of customer trading interest to take advantage of price movements, and otherwise deviate from their customers' best interests when handling orders. *Compare* Complaint at ¶ 89, SEC v. Coinbase (alleging that Coinbase generally executes customer orders against one another as agent) *with* Complaint at ¶¶ 225–229, SEC v. Binance (alleging that the Binance OTC services provides liquidity to customer orders).

107. *See* Johnson, *supra* note 58, at 1971–73 (observing that "[w]ithout internal governance processes, compliance policies, and risk management guidelines, cryptocurrency exchanges are more attractive to hackers and more likely to suffer cybersecurity attacks").

108. These spheres entail a combination of developing technologies to deanonymize existing DLTs, embedding opportunities for regulatory intervention or oversight in more compliant DLTs, and requiring centralized exchanges to comply with AML rules and other federal and state regulations requiring

For this reason, leading digital platform operators in the United States and abroad have acceded to regulation as money transmission services.[109] Some contend that crypto asset trading could also pose risks to the financial stability of the broader marketplace.[110]

In the United States, legislative debate focuses on investor protection, and thus the allocation of jurisdiction between the SEC and the CFTC, the principal federal regulators of non-bank financial intermediaries.[111] These debates may begin with analysis of existing statutes and judicial or administrative precedent, but often yield to a broader discussion of the goals that different regulatory regimes serve, the toolkits at their disposal, and perceptions of regulatory culture and attitude.[112] Nevertheless, the novelty and scale of crypto asset trading has emboldened crypto asset market participants and the audiences to which they appeal to militate for deferred or more tailored regulation, thus allowing innovation and disruption time to flourish.[113]

This section recounts the state of play on the regulation of crypto assets, beginning with the SEC and CFTC's assertions of authority in the crypto asset space and transitioning to alternative regulatory regimes for the crypto asset ecosystem.

registration and supervision of money transmitters. *See, e.g.*, Werbach, *supra* note 24, at 528–31; Kevin V. Tu & Michael Meredith, *Rethinking Virtual Currency Regulation in the Bitcoin Age*, 90 WASH. L. REV. 271, 326–31 (2015).

109. For example, Circle Internet Financial, LLC, represents that it has obtained licensing as a state-level money transmitter in various states and as a BitLicense from the New York Department of Financial Services; it is also registered as a "Money Services Business" with the Financial Crimes Enforcement Network. *See, e.g.,* Letter from Dante Disparte, Chief Strategy Officer and Head of Global Policy, Circle Internet Financial, LLC to the Securities and Exchange Commission (April 18, 2022).

110. *See, e.g.,* COUNCIL OF Economic ADVISERS, *supra* note 25, at 263–64 (warning policymakers to address risks on order "to avoid a 'Minsky moment' caused by crypto assets"); *see also* Saule T. Omarova, *New Tech v. New Deal: Fintech as a Systemic Phenomenon*, 36 YALE J. ON REG. 735, 793 (2019) ("Unless the public side proactively counters new technologies' potentially destabilizing systemic effects, it may soon find itself in an impossible position of having to back up an uncontrollable and unsustainably self-referential financial system").

111. The Federal Trade Commission and state agencies also play a role in protecting consumers from deceptive or abusive marketing practices. *See What to Know about Cryptocurrency and Scams*, FEDERAL TRADE COMMISSION (May 2022), https://consumer.ftc.gov/articles/what-know-about-cryptocurrency-and-scams.

112. *See, e.g.,* Jerry W. Markham, *Merging the SEC and CFTC—A Clash of Cultures*, 78 U. CIN. L. REV. 537, 591–93 (2009) (discussing Congressional turf wars, cultural differences between the SEC and CFTC staff, and industry capture by the CFTC as obstacles to consolidation). Guseva and Hutton's empirical study of investor reaction to enforcement actions by the SEC and the CFTC reveals an overall negative reaction of crypto markets to US enforcement actions, and specifically SEC actions against brokers and exchanges not grounded in fraud. Yuliya Guseva & Irena Hutton, *Regulatory Fragmentation: Investor Reaction to SEC and CFTC Enforcement in Crypto Markets*, 64 B.C. L. REV. 1555, 1604–10 (2023).

113. *Cf.*, Kenneth C. Kettering, *Securitization and Its Discontents: The Dynamics of Financial Product Development*, 29 CARDOZO L. REV. 1553, 1632–71 (2008) (discussing the legal and regulatory conditions under which product markets may become "too big to fail").

A. *Federal Securities Law*

A crypto asset (or transaction involving a crypto asset) may fall within the SEC's jurisdiction to the extent that it constitutes an "investment contract" under the Supreme Court's *Howey* test.[114] Offers and sales of such securities are subject to registration under the Securities Act, and platforms facilitating the trading of such securities are subject to registration as an exchange under the Exchange Act.[115] The SEC has nevertheless acknowledged that there are theoretical limits to the application of the statutory definition of a "security" to crypto assets,[116] and a number of SEC officials have intimated that Bitcoin (and perhaps Ether) may no longer be "securities" at all.[117] Under Chair Gensler, the SEC has nevertheless preferred to define the outer boundaries of its authority to regulate crypto assets through enforcement proceedings,[118] while promulgating rules and interpretive guidance for intermediaries that fall within its remit.[119]

1. Enforcement Actions

SEC enforcement actions have trained on the classification of tokens as "investment contracts" under *Howey* for purposes of halting offerings under the Securities Act or halting trading by intermediaries under the Exchange Act. Tokens representing fractional voting and economic interests are very likely to

114. DAO 21(a) Report, *supra* note 71, at 11 (citing SEC v. Edwards, 540 U.S. 389, 393 (2004); SEC v. W.J. Howey Co., 328 U.S. 293, 301 (1946)). The Supreme Court has observed that the "touchstone" of the Howey test is "the presence of an investment in a common venture premised on a reasonable expectation of profits to be derived from the entrepreneurial or managerial efforts of others." United Hous. Found., Inc. v. Forman, 421 U.S. 837, 852 (1975) (citing SEC v. W.J. Howey Co., 328 U.S. 293, 301 (1946)). The SEC first discussed the import of federal securities laws on crypto assets in its report on The DAO, a decentralized autonomous organization that had issued tokens possessing voting rights and financial interests therein ("DAO Tokens"). DAO 21(a) Report, *supra* note 71, at 13-15. The DAO was a decentralized autonomous organization with "the objective of operating as a for-profit entity that would create and hold a corpus of assets through the sale of DAO Tokens to investors, which assets would then be used to fund 'projects.'" *Id*. at 1. The purchasers of DAO Tokens were arguably defrauded by a flaw in The DAO's code, which allowed a participant to withdraw a significant sum. *Id.*

115. DAO 21(a) Report, *supra* note 71, at 7–14.

116. *See, e.g.,* SEC, Letter to Pocketful of Quarters, Inc. (July 25, 2019) (no-action relief), https://www.sec.gov/corpfin/pocketful-quarters-inc-072519–2a1.

117. *See, e.g.,* William Hinman, Director of the Division of Corporation Finance, SEC, *Digital Asset Transactions: When Howey Met Gary (Plastic) (June 14, 2018)*, https://www.sec.gov/news/speech/speech-hinman-061418. Chair Gensler has likewise intimated that Bitcoin is not a security, though he has been less forthcoming about the status of Ether. Gillian Tan, Allyson Versprille & Olga Kharif, *Ethereum Foundation Gets SEC Scrutiny in Latest Crypto Crackdown*, BLOOMBERG, March 20, 2024 (noting Chair Gensler's concerns that following the Ethereum Merge, "a feature of Ethereum software could lead to Ether falling under its jurisdiction").

118. Guseva, *supra* note 36, 644–51 (providing an empirical analysis of the SEC's enforcement program).

119. *See Oversight of the Securities and Exchange Commission: Hearing before the House Committee on Financial Services*, 118th Cong. (Tuesday, April 18, 2023) (testimony of Gary Gensler, Chair, Securities and Exchange Commission) (observing that "most crypto tokens are securities," and therefore that "[c]rypto investors should benefit from compliance with the same laws that Rayburn and Roosevelt laid out to protect against fraud, manipulation, front-running, wash sales, and other misconduct").

be securities,[120] as are tokens that expressly promise to generate returns in the form of interest payments, dividends, or capital appreciation.[121] The SEC has also argued that certain utility tokens might remain "securities" indefinitely so long as their purchasers' fortunes are intertwined with the efforts and success of the enterprise.[122]

The SEC's enforcement actions have successfully challenged capital-raising or investment schemes marketed to U.S customers using native coins or other tokens.[123] The act of issuing and offering of new tokens for fiat currency or other consideration may constitute an "investment contract" regardless of whether the crypto asset itself is a "security."[124] Raising capital in connection with the initial offer or sale of native coins or utility tokens (an "initial coin offering") may thus trigger Securities Act registration.[125] Like whiskey receipts, orange groves, and payphones, the public distribution of tokens as an investment—whether or not "securities" per se—can bring them within the purview of the federal securities laws.[126]

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120. DAO 21(a) Report, *supra* note 71, at 10–12.

121. See, e.g., DAO 21(a) Report, *supra* note 71, at 9. The Lummis-Gillibrand bill, for example, would have preserved SEC jurisdiction over such assets. *See* Lummis-Gillibrand Responsible Financial Innovation Act, S. 4356, 117th Cong., § 301 (excluding from the definition of "ancillary asset" any asset that provides the holder "with any of the following rights in a business entity: (i) A debt or equity interest in that entity; (ii) Liquidation rights with respect to that entity; (iii) An entitlement to an interest or dividend payment from that entity; (iv) A profit or revenue share in that entity solely from the entrepreneurial or managerial efforts of others; or (v) Any other financial interest in that entity").

122. *See, e.g.*, SEC v. Telegram Group, 448 F. Supp. 3d 352, 367 (S.D.N.Y. 2020) (finding "that the economic reality is that the Gram Purchase Agreements and the anticipated distribution of Grams by the Initial Purchasers to the public via the TON Blockchain are part of a single scheme"). In this respect, utility tokens resemble the variety of mixed-intent schemes—consumption versus investment—that the SEC has traditional sought to characterize as "securities." *See, e.g.*, Fedance v. Harris, 1 F.4th 1278, 1278–89 (11th Cir. 2021) ("To determine whether a transaction satisfies the 'expectation of profits' element [of the *Howey* test], the Supreme Court has instructed us to examine if an investor 'is attracted solely by the prospects of a return on his investment,' as opposed to when 'a purchaser is motivated by a desire to use or consume the item purchased,'" *citing United Hous. Found., Inc. v. Forman*, 421 U.S. 837, 852–53 (1975)); *Telegram*, 448 F. Supp. 3d at 371 (discussing whether the reasonable investor purchased tokens with "consumptive" versus "investment" intent).

123. CORNERSTONE RESEARCH, *supra* note 4, tbl.3 (providing statistics on actions against unregistered offerings); *see also* Guseva, *supra* note 72, at 209–212 (discussing the importance of federal securities law in Stage One).

124. *See* SEC STRATEGIC HUB FOR INNOVATION AND FINANCIAL TECHNOLOGY, *Framework for "Investment Contract" Analysis of Digital Assets,* https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets#_edn1 (last visited May 24, 2024) (setting forth FinHub staff view that "[t]he focus of the *Howey* analysis is not only on the form and terms of the instrument itself . . . but also on the circumstances surrounding the digital asset and the manner in which it is offered, sold, or resold (which includes secondary market sales)").

125. For example, in the Bittrex Complaint, the SEC alleged that the Algorand Foundation raised approximately $60 million in exchange for 25 ALGO tokens with a view to launching the Algorand blockchain (of which the ALGO token was the native coin). The SEC argued that the offer of ALGO tokens was an "investment contract" to the extent that the Algorand ledger was a "common enterprise" and was dependent upon the "efforts" of the Algorand Foundation and its employees to grow the Algorand protocol (and thus the value of the ALGO token). Bittrex Complaint, *supra* note 1, at ¶¶ 180–194.

126. *See, e.g.*, SEC v. Ripple Labs, 682 F. Supp. 3d 308, 321 (S.D.N.Y. July 13, 2023) (citing inter alia Howey, 328 U.S. 293 (orange groves); Glen-Arden, 493 F.2d 1027 (whiskey casks); and Edwards, 540 U.S. 389 (payphones)).

Schemes involving the deposit of tokens for investment returns have also successfully triggered the application of federal securities laws. For example, staking programs resemble investment contracts insofar as they solicit token holders to transfer title to the promoter with the expectation of receiving a share of the return generated by the relevant ledgers' block validation system. The SEC has alleged that Coinbase's staking program constitutes the offer or sale a security,[127] and has successfully forced staking-as-a-service programs to shut down operations in the United States.[128] These actions necessarily call into question the "legal certainty" of comparable DeFi transactions under securities law.[129]

Courts and commentators have nevertheless pushed back on the idea that crypto assets remain "securities" indefinitely. For example, in *Ripple Labs*, a federal district court recognized that a transaction for the sale of token may be a security when it is offered in connection with a capital-raising scheme;[130] the court nevertheless suggested that a token is not necessarily a "security on its face" when purchased in an anonymous secondary market, absent some promise or offer by the promoter of ongoing efforts to support its value.[131] Commentators have also argued that a token ceases to be a security when the blockchain network (or enterprise on a blockchain) associated with the token is "decentralized," to the extent holders no longer plausibly rely on the efforts of the original developer of the network or enterprise.[132]

If the sale of token is a sale of a "security," per se or in context, any platform involved in the trading of the security may be subject to registration and regulation under the Exchange Act.[133] For example, in its recent complaints against Bittrex, Binance, and Coinbase, the SEC has asserted that a crypto asset platform may be subject to registration under federal securities law as an

127. Complaint at ¶309, SEC v. Coinbase.

128. *See, e.g.,* Kraken to Discontinue Unregistered Offer and Sale of Crypto Asset Staking-As-A-Service Program and Pay $30 Million to Settle SEC Charges, Exchange Act Release No. 25637 (Feb. 13, 2023).

129. See *infra* Part III.D.

130. SEC v. Ripple Labs, Inc., 682 F. Supp. 3d 308, 320-323 (S.D.N.Y. July 13, 2023).

131. *Id.* at 321 (focusing on whether purchasers were aware of Ripple Lab's receipt of funds received from the anonymous sale of XRP tokens). *But see* SEC v. Terraform Labs Pte. Ltd., 684 F. Supp. 3d 170 (S.D.N.Y. July 31, 2023) (rejecting this analysis and noting that defendants' representations regarding use of proceeds "would presumably have reached individuals who purchased their crypto-assets on secondary markets—and, indeed, motivated those purchases").

132. *See, e.g.,* Guseva, *supra* note 72, at 179–187 (proposing a "two-stage" framework in which initial investors in a capital raising transaction and subsequent purchasers in a secondary market receive different degrees of protection under federal securities law); Jack Solowey & Jennifer J. Schulp, *Decentralization Defined: House Crypto Discussion Draft Offers a Glimmer of Hope for U.S. Crypto Policy*, CATO INST.: CATO AT LIBERTY BLOG (June 9, 2023), https://www.cato.org/blog/decentralization-defined-house-crypto-discussion-draft-offers-glimmer-hope-us-crypto-policy; *see infra* note 175.

133. Gary Gensler, Chair, SEC, Prepared Remarks on Crypto Markets, Penn Law Capital Markets Association Annual Conference (April 4, 2022). The SEC, of course, need only prove that one token traded through the platform is a "security" to subject the platform to federal securities regulation. 15 U.S.C. § 78e.

"exchange," a "broker," a "dealer" or a "clearing agency" if it provides trading services in connection with a "crypto asset security."[134] For this reason, many crypto asset platforms weigh the risk that an instrument or transaction will be classified as a security before admitting it to trading.[135]

2. Rulemaking and Guidance

The SEC has been more cautious in adopting rules, providing guidance, or crafting accommodations under federal securities laws. While the EU and other jurisdictions have taken proactive steps to build a bespoke regulatory framework for crypto asset markets,[136] the SEC has largely preferred to let firms navigate existing rules for securities issues and intermediaries. For example, the SEC has provided scant guidance for how to conduct a public offering of digital assets under the Securities Act.[137] Some issuers have nevertheless conducted "initial coin offerings" in the United States under Regulation A+,[138] while others have availed themselves of Securities Act exemptions.[139]

The SEC has been more assertive in offering guidance with respect to trading and clearing practices.[140] For example, the SEC staff has offered no-action relief to institutional trading platforms that do not hold digital assets in custody for their customers.[141] It has simultaneously issued interim guidance to carrying brokers regarding the adequacy of their custodial arrangements.[142] FINRA has also obliged, as at least one firm has successfully become a FINRA member and

134. The SEC defines "crypto asset security" or "crypto asset security" for this purpose, as "crypto assets that are being offered and sold as investment contracts." Complaint at ¶114, SEC v. Coinbase ("Crypto Asset Security").

135. *Id.* at ¶106. The Crypto Rating Council, an initiative of several crypto asset firms, was organized "to create a framework to seek to consistently and objectively assess whether any given crypto asset has characteristics that make it more or less likely to be classified as a security under the U.S. federal securities laws." CRYPTO RATING COUNCIL, https://www.cryptoratingcouncil.com.

136. 2023 O.J.L 150, 9.6.2023, p. 40–205 (regulation on markets in crypto-assets) [hereinafter "MiCA"]; *see also* Dell'Erba, *supra* note 53, at 33 (discussing MiCA).

137. At least one has tried. *See* The Praetorian Group, Registration Statement (Form S-1) (Mar. 6, 2018).

138. *See, e.g.,* Yuliya Guseva, *When the Means Undermine the End: The Leviathan of Securities Law and Enforcement in Digital-Asset Markets*, 5 STAN. J. BLOCKCHAIN L. & POL'Y 1, 30 (2022) (noting that these offerings have been "rare and time consuming").

139. *Id.* at 43–45. For example, initial coin offerings may be conducted using existing exceptions for general solicitation of verified accredited investors. *See, e.g.,* Rule 506(c) of Regulation D, 17 C.F.R. § 230.506(c).

140. *See supra* note 7.

141. Alexander Osipovich, *Crypto Exchange Backed by Citadel Securities, Fidelity, Schwab Starts Operations*, WALL ST. J. (June 20, 2023), https://www.wsj.com/articles/crypto-exchange-backed-by-citadel-securities-fidelity-schwab-starts-operations-597f6d46. *See also* Financial Industry Regulatory Authority, S.E.C. Staff No Action Letter, 2020 WL 5745536 (Sept. 25, 2020).

142. 2021 SPBD Release, *supra* note 7, at 11631–32. Under temporary staff guidance, "special purpose" broker-dealers would not be deemed to lack "possession or control" of fully paid and excess margin crypto assets that are securities, provided inter alia that they limit their business to crypto assets that are securities, have access to and the ability to transfer the crypto assets, and establish and maintain written policies and procedures regarding the integrity of the digital ledger, its custodial arrangements, and its ability to respond to certain material events. *Id.*

registered with the SEC as a "special purpose broker-dealer" to hold crypo assets for customer accounts.[143]

By contrast, the SEC has inveighed against the vertical integration of trading, custody, and clearing in CEXs. Confirming industry suspicions,[144] the SEC clarified in its 2023 Exchange Release that DeFi systems would be subject to "exchange" registration if they used any of a variety of protocols to match trading interest in any crypto asset that might be classified as a security.[145] At the same time, its enforcement actions have criticized the failure of crypto exchanges to ensure the "separation of core functions," insofar as CEXs simultaneously execute trades and hold and clear customer positions.[146]

* * *

An enforcement-forward approach might well represent the SEC's best strategy for stamping out fraud while it figures out how to apply federal securities law to the offer and sale of crypto assets and the classification and regulation of crypto asset intermediaries.[147] Critics—including two Commissioners[148]—nevertheless accuse the Commission of leaning too heavily on "regulation by enforcement": imposing novel interpretations of federal securities law through enforcement proceedings rather than through the traditional notice-and-comment process for rulemaking.[149] The SEC's cryptic comments have led at least one

143. Yueqi Yang & Allyson Versprille, *Crypto Startup Says It Found Path to Register with SEC Under a Broker Rule*, BLOOMBERG LAW (May 23, 2023), https://news.bloomberglaw.com/crypto/crypto-startup-says-it-found-a-pathway-to-register-with-sec.

144. *See, e.g.,* Carol R. Goforth, *Critiquing the SEC's Ongoing Efforts to Regulate Crypto Exchanges*, 14 WM. & MARY BUS. L. REV. 305, 322–28 (2023); HARVEY ET AL., *supra* note 21, at 13–18.

145. 2023 Exchange Release, *supra* note 2, at 29453. In March 2022, the SEC proposed to expand the scope of interaction triggering regulation as an "exchange" to include bringing together buyers and sellers using any "trading interest"—not just traditional orders and quotations—and to expand the universe of technologies triggering regulation as an "exchange" to include "communications protocols" that enable "buyers and sellers [to] interact and agree to the terms of a trade." Amendments Regarding the Definition of "Exchange" and Alternative Trading Systems (ATSs) That Trade U.S. Treasury and Agency Securities, National Market System (NMS) Stocks, and Other Securities, 87 Fed. Reg. 15496, 15646 (to be codified at 17 C.F.R. § 240.3b-16(a)(2)); *see* also Goforth, *supra* note 144, at 311–322.

146. Complaint at ¶ 57, SEC v. Binance; Complaint at ¶38, SEC v. Coinbase.

147. *See, e.g.,* Jay Clayton & Timothy Massad, *How to Start Regulating the Crypto Markets—Immediately*, WALL ST. J. (Dec. 4, 2022), https://www.wsj.com/articles/how-regulate-cryptocurrency-markets-11670110885 (op-ed by former SEC and CFTC chairs); Guseva, *supra* note 36, at 662–74 (discussing the strategic advantages of using enforcement to deter firms from engaging in undesirable behavior and to induce voluntary outreach and information sharing).

148. *See, e.g.,* Mark Uyeda, Commissioner, SEC, Remarks at the "SEC Speaks" Conference 2022 (Sept. 9, 2022); Hester Peirce, Commissioner, SEC, Remarks before the Digital Assets at Duke Conference (Jan. 20, 2023) (dubbing the SEC's approach "regulation by anxiety").

149. Scholars caution that this approach not only exposes regulators to the risk of relatively poorly informed decision-making, but may also engender a perception of illegitimacy and unfairness. *See, e.g.,* Chris Brummer, Yesha Yadav & David Zaring, *Regulation by Enforcement*, 96 S. CAL. L. REV. 1297; Donald C. Langevoort, *The SEC as a Lawmaker: Choices About Investor Protection in the Face of Uncertainty*, 84 WASH. U.L. REV. 1591, 1619–22 (2006). This is particularly worrisome if the SEC's most novel arguments are notched through settlement proceedings rather than litigated cases. *See, e.g.,* SEC, Former Coinbase Manager and His Brother Agree to Settle Insider Trading Charges Relating to Crypto Asset Securities (May 30, 2023), https://www.sec.gov/news/press-release/2023–98 (prohibiting the accused from challenging the classification of those tokens, to the dismay of his employer and other

commentator to opine that "[t]here might be no such thing as a legal American crypto exchange" absent further guidance.[150]

SEC Commissioner Peirce, for example, has proposed a broad exemption for tokens issued in connection with network development, including exemptions for crypto exchanges and other intermediaries facilitating trading in such tokens.[151] Under her proposal, federal securities laws would not apply to tokens that are issued in connection with the development of networks that expect to reach "network maturity" within three years.[152] Instead, tokens would be accompanied by public disclosures tailored to the technology and would remain subject only to SEC antifraud enforcement as well as federal and state money transmission, anti-money laundering and consumer protection laws.[153]

B. The Commodity Exchange Act

Likewise, the Commodity Futures Trading Commission ("CFTC") and the National Futures Association ("NFA"), as the principal regulators of retail derivatives markets and intermediaries,[154] have shown an appetite for overseeing crypto asset markets under the Commodity Exchange Act ("CEA").[155] The CFTC is primarily responsible for regulating derivative contracts, such as swaps or exchange-traded futures and options involving various underlying "commodities," as well as the markets and intermediaries where such contracts are listed or admitted to trading.[156] The CEA nevertheless gives the CFTC just enough indirect authority over "spot" commodity transactions to serve as a plausible alternative to the federal securities laws.

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industry players); Dave Michaels, *Ex-Coinbase Manager Settles SEC's Crypto Insider-Trading Claims*, WALL ST. J. (May 30, 2023), https://www.wsj.com/articles/ex-coinbase-manager-settling-secs-crypto-insider-trading-claims-57809236.

150. Megan McArdle, *There might be no such thing as a legal American crypto exchange*, WASHINGTON POST (June 12, 2023), https://www.washingtonpost.com/opinions/2023/06/12/coinbase-cryptocurrency-sec-legal; *see also* The Editors, *How Could Coinbase and Binance Ever Be Legal?*, BLOOMBERG (June 7, 2023), https://news.bloomberglaw.com/crypto/could-coinbase-and-binance-ever-be-legal-exchanges-editorial.

151. Hester M. Peirce, Commissioner, SEC, Running on Empty: A Proposal to Fill the Gap Between Regulation and Decentralization (Feb. 6, 2020) (putting forward proposal for rulemaking under the Securities Act) [hereinafter "Peirce Rule Proposal"].

152. *Id.* (proposed Rule 195(a)(1)).

153. *Id.*

154. NFA functions as the self-regulatory association for futures commission merchants, introducing brokers, and other intermediaries in CFTC-regulated markets. *About NFA,* NATIONAL FUTURES ASSOCIATION, https://www.nfa.futures.org/about/index.html.

155. *See, e.g.*, Daniel L. Stein, Matthew F. Kluchenek & Anna R. Easter, *CFTC advocates for expansion of cryptocurrency market jurisdiction*, REUTERS (June 21, 2022), https://www.reuters.com/legal/legalindustry/cftc-advocates-expansion-cryptocurrency-market-jurisdiction-2022–06–21.

156. 7 U.S.C. § 2(a)(1)(A); *see, e.g.*, Mengqi Sun, *CFTC Cracks Down on DeFi Firms Over Crypto Derivatives Trading*, WALL ST. J. (Sept. 8, 2023), https://www.wsj.com/articles/cftc-cracks-down-on-defi-firms-over-crypto-derivatives-trading-4a4ebfaf (barring certain DeFi protocols and smart contracts as off-exchange futures contracts).

The scope of the CFTC's authority over crypto assets under the CEA is comparatively clear, although somewhat technical and limited.[157] It is unarguable that all crypto assets are "commodities" under the CEA, such that the CFTC has broad authority over all "contracts for future delivery" on commodities.[158] The CFTC's authority over the trading of commodities themselves (as opposed to futures, swaps and other contracts on commodities) is generally limited to deterring fraud and manipulation.[159] Nevertheless, courts have recognized that the CFTC retains anti-fraud authority over spot transactions in a crypto asset even when the crypto asset does not underlie a derivative listed or admitted to trading on a CFTC-regulated market.[160]

This ancillary enforcement authority provides a basis for the CFTC to assert jurisdiction over crypto assets—such as Bitcoin and Ether—that may not otherwise fall within the SEC's purview. The CFTC and NFA have specifically sought to regulate the conduct of traditional CEA intermediaries with respect to crypto asset transactions.[161] Futures exchanges seeking to list contracts on Bitcoin or other crypto assets would of course fall squarely within the CFTC's jurisdiction.[162] Moreover, the NFA recently issued a compliance rule to its members prohibiting fraud, manipulation, and conversion in connection with transactions in Bitcoin and Ether, as well as violation of "just and equitable principles of trade" in the conduct of "digital asset commodity activities."[163]

Some commentators welcome the CFTC's engagement, in light of the CEA's more accommodating approach to balancing regulation and innovation.[164] Among other reasons, the CEA relies on "core principles" for intermediary regulation, which articulate compliance outcomes instead of imposing specific

157. See Dawn D. Stump, Statement of Commissioner on the CFTC's Regulatory Authority Applicable to Digital Assets (Aug. 23, 2021), https://www.cftc.gov/PressRoom/SpeechesTestimony/stumpstatement082321.

158. 7 U.S.C. § 1a(9) (definition of "commodity").

159. 7 U.S.C. § 9(1) (making it "unlawful for any person . . . to use or employ . . . in connection with any swap, or a contract of sale of any commodity in interstate commerce, or for future delivery on or subject to the rules of any registered entity, any manipulative or deceptive device or contrivance," in contravention of CFTC rules). *See also* 17 C.F.R. § 180.1; Stump, *supra* note 157.

160. *See, e.g.,* CFTC v. Monex Credit Co., 931 F.3d 966, 975–77 (9th Cir. 2019) (reversing district court's finding that CFTC's enforcement authority over spot markets to "fraud-based market manipulation"); CFTC v. McDonnell, 287 F. Supp. 3d 213, 229 (E.D.N.Y. 2018) (finding that the CFTC's "expansion into spot trade commodity fraud is justified by statutory and regulatory guidelines").

161. Such entities include futures commission merchants, commodity pool operators, and commodity trading advisors, among other professionals. *See* 6 THOMAS LEE HAZEN, LAW SEC. REG. § 22:37, Westlaw (May 2024 update) (overview of regulation of commodities trading professionals).

162. Abe Chernin et al., *Trends in CFTC Virtual Currency Enforcement Actions 2015-2021*, CORNERSTONE RESEARCH (2022), https://www.cornerstone.com/wp-content/uploads/2022/06/Trends-in-CFTC-Virtual-Currency-Enforcement-Actions-2015-2021.pdf.

163. *See, e.g.*, NFA Compliance Rule 2–51 (2023). NFA's securities counterpart, FINRA, has also employed this strategy to regulate the conduct of its members and their associated persons with respect to financial products otherwise outside the scope of FINRA's reach. *See generally*, Rule 2010 cases.

164. *See, e.g.*, Abe Chernin et al., *The CFTC's Approach to Virtual Currencies*, CORNERSTONE RESEARCH (2022), https://www.cornerstone.com/wp-content/uploads/2021/12/The-CFTCs-Approach-to-Virtual-Currencies-1.pdf.

compliance procedures.[165] This allows CFTC-registered entities to exercise "reasonable discretion" in establishing and maintaining compliance controls and to "self-certify" that their rules comply with the CEA and relevant core principles.[166] Perhaps as a strategy to raise the CFTC's profile in this regulatory space, some commentators have suggested that the CFTC and the SEC carve up jurisdiction over crypto asset trading,[167] or that sponsors of newly created tokens or trading intermediaries be permitted to opt into the regulatory regime of their choice.[168]

C. Hybrid Proposals

More aggressive legislative proposals would build on recent efforts to modernize securities and commodities regulation to fashion a new regime for crypto asset trading. In 2008, the U.S. Treasury Department proposed to combine the functions of the SEC and the CFTC in a single regulatory authority for business conduct, which would establish "core principles" for regulating securities and commodities intermediaries.[169] While this blueprint lost traction after the 2008 financial crisis, the Dodd-Frank Wall Street Reform and Protection Act preserved the idea of "core principles" and extended it to the regulation of certain execution facilities for "swaps" and other derivatives.[170]

In parallel, two bills floated prior to the collapse of FTX in 2022 would have conferred jurisdiction over most trading in crypto assets other than traditional "securities" to the CFTC.[171] Both the Lummis-Gillibrand Responsible Financial

165. In 2000, Congress replaced the CEA's rule-bound approach toward market designation with a system of "core principles." 7 U.S.C. § 7(d); *see* 13A JERRY W. MARKHAM & RIGERS GJYSHI, COMMODITIES REG. § 27:12.10, Westlaw (April 2024 update) (discussing the development of the "core principles" approach at the CFTC and in the Commodity Futures Modernization Act of 2000). Congress has since extended this approach to clearing agencies and execution facilities for both swaps. 7 U.S.C. § 2(h)(8) (2018) (mandate to trade cleared swaps through a SEF); 15 U.S.C. § 78c-3(h)(1) (2018) (mandate to trade cleared security-based swaps through a security-based SEF).

166. *See, e.g.*, 7 U.S.C. § 7(d)(1)(B) (providing that "a board of trade [applying for designation as a contract market] shall have reasonable discretion in establishing the manner in which the board of trade complies with the core principles"); 17 C.F.R. § 40.6 (permitting registered entities to self-certify that their rules comply with the CEA without prior CFTC approval).

167. Some commentators suggest that this should be accomplished by industry accord, much like the SEC and CFTC chairs agreed to allocate jurisdiction over exchange-traded derivatives, or much like Congress allocated jurisdiction over swaps and security-based swaps under Dodd-Frank. *See, e.g.*, *The Future of Crypto assets: Measuring the Regulatory Gaps in the Crypto asset Markets*, Hearing Before the House Financial Services Committee, May 10, 2023 (statement of Matthew B. Kulkin, Wilmer Cutler Pickering Hale and Dorr LLP).

168. Johnson, *supra* note 58, at 1985–91 (proposing to "empower the developers of [cryptocurrency exchanges and clearing platforms] to self-designate which federal regulatory authority they believe should supervise their market activities").

169. 15 U.S.C. § 78mm (2018); US DEP'T OF THE TREASURY, BLUEPRINT FOR A MODERNIZED FINANCIAL REGULATORY STRUCTURE 110–11 (2008).

170. 7 U.S.C. § 2(h)(8) (2018) (mandate to trade cleared swaps through a SEF); 15 U.S.C. § 78c-3(h)(1) (2018) (mandate to trade cleared security-based swaps through a security-based SEF).

171. *See* Lummis-Gillibrand Responsible Financial Innovation Act, S. 4356, 117th Cong. (2022); Digital Commodities Consumer Protection Act of 2022 (DCCPA), S. 4760, 117th Cong. (2022).

Innovation Act and the Digital Commodities Consumer Protection Act (DCCPA) would have required registration of crypto asset intermediaries based on self-certification of compliance with statutory "core principles."[172] While these efforts stalled in 2022,[173] these concepts were revived and refined in FIT21, the first draft of which was released in June 2023 by the House Committees on Financial Services and Agriculture.[174]

FIT21 is notable in that it allocates jurisdiction over digital assets based on the progress of their issuers toward decentralization. Under the bill, the SEC would continue to oversee capital raising transactions by "digital asset issuers," while the CFTC would exercise exclusive oversight over transactions in "digital commodities."[175] More specifically, the bill creates an exemption for certain offers of digital assets from the Securities Act. The exemption would require the filing of an information statement with the SEC and the publication of initial and ongoing disclosures during the issuer's decentralization phase.[176] As discussed below, FIT21 would also require the SEC to adopt rules for the registration and regulation of digital asset trading systems and clearing agencies.[177]

Once a blockchain associated with a digital asset is certified as "decentralized," the digital asset would be classified as a "digital commodity" subject to the CFTC's oversight and excluded from the definition of a "security."[178] Digital commodity exchanges, brokers, dealers and custodians, like other CFTC registrants, would be required to comply with core principles set by the statute.[179] FIT21 would require registered entities to submit a certification that digital commodities satisfy applicable trading and listing requirements with the CFTC.[180]

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172. *Compare* Lummis-Gillibrand Responsible Financial Innovation Act § 404 (requiring compliance with core principles for "digital asset exchanges" registered with the CFTC) *with* DCCPA § 4 (requiring compliance with "core principles" for a broader range of "digital commodity platforms," including trading facilities, brokers, dealers and custodians).

173. The effort to enact legislation may ironically have failed in some part because of FTX founder Sam Bankman-Fried's vocal endorsement. *See, e.g.,* Kelsey Piper, *Sam Bankman-Fried tries to explain himself*, VOX (Nov 16, 2022), https://www.vox.com/future-perfect/23462333/sam-bankman-fried-ftx-cryptocurrency-effective-altruism-crypto-bahamas-philanthropy (conveying Bankman-Fried's views on the fecklessness of financial regulation).

174. *See* FIT21; *see also* Press Release, U.S. House Financial Services Committee, McHenry, Thompson, Hill, Johnson Release Digital Asset Market Structure Proposal (June 2, 2023).

175. FIT21 §§ 301 & 401. The Draft generally defines a "digital commodity" as a "digital asset" that relates to a blockchain system that is a "functional network" and "certified to be a decentralized network," as well as a digital asset previously acquired on a digital commodity exchange or in "end user distributions," such as mining transactions. *Id.* at § 102. Payment stablecoins would also be excluded from SEC jurisdiction, subject to limited anti-fraud and anti-manipulation authority. *Id.* at §§ 301 & 302.

176. *Id*. at §§ 201 & 203. During this phase, "restricted digital assets" may trade on ATSs and digital commodity exchanges. *Id.* at § 202.

177. *Id*. at §§ 303-07, 311.

178. *Id*. at § 204.

179. *Id*. at §§ 404-06.

180. *Id*. at § 403.

FIT21 defines "decentralization" by reference to the degree to which the issuer is still involved in marketing and development.[181] The approach makes sense within the context of U.S. financial services law, to the extent that it parallels the handoff between the Securities Act's heightened regulation of offering transactions, on the one hand, and the jurisdictional split in oversight of secondary market transactions between the SEC and the CFTC, on the other hand. Changing regulatory classifications (and regulators) based on the timing of a decentralization certification, however, may unnecessarily sow confusion for investors.[182]

FIT21 reaffirms, without hesitation, the premise that a digital commodity trading platform should be able to exercise "reasonable discretion in establishing the manner in which [it] complies with [its] core principles" through self-certification.[183] Advocates evidently believe that the innovative potential of such platforms requires deference to their founders, notwithstanding the garden-variety incompetence and dishonesty exhibited by some crypto exchange operators with little financial industry experience.[184] More problematically, these proposals foresee no oversight of intermarket mechanisms, in the evident belief that interoperability will develop organically—this may have the effect of locking in first movers, rather than building in regulatory flexibility to reinforce networked liquidity.[185]

181. FIT21, for example, would generally define the term "decentralized network," with respect to a "digital asset," by reference to whether (A) any person has "unilateral authority" to control or materially alter its functionality or operation or to interfere with an the ability of a person unaffiliated with the issuer to use the asset or network, (B) any person has 20% or more of the units or voting power of the asset, (C) the issuer or any related person has within three months implemented any intellectual property that materially alters its functionality or operation, (D) the issuer or any affiliated person has issued or publicly marketed the assets; and (E) any issuances of units of the digital asset were not "end user distributions." *Id.* at § 101. For example, the bill excludes transactions lacking privity with the issuer, such as secondary market transactions (exchange trades) and mining transactions (which compensate node participants, not the issuer) from the offering process. *Id.* at § 102 (defining "digital commodity" to include digital assets acquired in such transactions).

182. It is notable that regulatory regimes for crypto assets outside of the United States do not silo regulation of securities, derivatives and commodities within separate regulators and therefore may have no need to draw such distinctions. *See, e.g.*, MiCA, *supra* note 136, preamble ¶22 (excluding decentralized crypto asset services from regulation only where "they are provided . . . without any intermediary"); Guseva, *supra* note 36, at 642 (distinguishing the approach in the United Kingdom).

183. FIT21 § 404.

184. *See* Declaration of John J. Ray III, In re FTX Trading, Case No. 22–11068 (JTD) (Bankr. D. Del. Nov. 17, 2022) ("Never in my career have I seen such a complete failure of corporate controls and such a complete absence of trustworthy financial information as occurred here. From compromised systems integrity and faulty regulatory oversight abroad, to the concentration of control in the hands of a very small group of inexperienced, unsophisticated and potentially compromised individuals, this situation is unprecedented.").

185. FIT21 does not include the mandate in Section 306 of the June 2023 draft for the SEC to "modernize" Regulation NMS, Regulation SCI and the Market Access Rule. *See* Press Release, House Financial Services Committee, Committees Introduce Financial Innovation and Technology for the 21st Century Act (July 20, 2023), https://financialservices.house.gov/news/documentsingle.aspx?DocumentID=408921.

D. Self-Regulation

Several academic commentators have suggested that the SEC and CFTC use their existing authority to register one or more self-regulatory organizations ("SROs") for intermediaries that trade, clear, or otherwise conduct a public business in crypto assets. Under existing securities and derivatives laws, SROs have both the authority and obligation to establish rules, policies and procedures governing their members.[186] SRO rules are enforced in some cases through the disciplinary authority of the SRO itself (under the oversight of the SRO's regulator),[187] or remain with the appropriate regulatory agency, depending on their statutory authority to oversee specific products or entities.[188]

There is a longstanding debate over the relative efficiency of self-regulatory models.[189] In the context of crypto asset markets, Massad and Jackson argue that SROs can promulgate uniform standards for their members notwithstanding gaps or ambiguities in the regulatory authority of the individual Commissions.[190] With appropriate governance structures and membership criteria, they can assemble competent individuals with the necessary expertise to adapt securities and commodities laws to crypto asset trading and clearing. The SRO statutory framework also affords an off-the-shelf framework for SEC and CFTC oversight of each aspect of SRO governance to assure accountability to the public interest. And most importantly, SROs are funded by the industry, rather than Congress.

As I have argued elsewhere, what "self-regulation" means is often in the eye of the beholder—in other words, SRO models differ in their assumptions about the level of abstraction at which SRO obligations are imposed and how standardization and competition co-exist within an SRO.[191] Professors Massad and Jackson, for example, envision a "unitary" SRO to establish trading, business conduct and financial responsibility standards for "member" crypto asset market

186. 7 U.S.C. § 7(d)(2); 15 U.S.C. §§ 78f(b), 78o-3(b).

187. 15 U.S.C. § 78s(g) (requiring national securities exchanges, national securities associations, and clearing agencies to "enforce compliance" with their rules by their members).

188. 15 U.S.C. § 78o-4(c) (providing for enforcement of MSRB rules by the "appropriate regulatory agency").

189. *See, e.g.,* Stephen Craig Pirrong, *The Self-Regulation of Commodity Exchanges: The Case of Market Manipulation*, 38 J.L. & ECON. 141, 150–57 (1995) (summarizing the costs and benefits); Joel Seligman, *Cautious Evolution or Perennial Irresolution: Stock Market Self-Regulation During the First Seventy Years of the Securities and Exchange Commission*, 59 BUS. LAW. 1347, 1347–48 (2004) (reciting arguments for and against).

190. Timothy G. Massad & Howell E. Jackson, *How to Improve Regulation of Crypto Today—Without Congressional Action—and Make the Industry Pay for It* at 16–21 (Hutchins Ctr. Working Paper #79 October 2022) (proposing that a single SRO take responsibility for standardizing business practices in crypto asset trading, including the protection and custody of customer assets, governance and fitness standards, conflicts of interest, capital and margin requirements, transparency and execution standards, anti-fraud and know-your-customer requirements, disclosure rules, risk management, and operational capacity, security and integrity requirements).

191. *See* Concept Release Concerning Self-Regulation, Exchange Act Release No. 50700, 69 Fed. Reg. 71256, 71275–82 (Dec. 8, 2004) (to be codified at 17 C.F.R. 240); *see also* Onnig H. Dombalagian, *Self and Self-Regulation: Resolving the SRO Identity Crisis*, 1 BROOK. J. CORP. FIN. & COM. L. 317, 323 (2007) (proposing a taxonomy of self-regulatory organizations).

participants.[192] In contrast, Professor Yadav proposes to impose enhanced governance and compliance obligations on "hypercentralized" CEXs, but without giving them disciplinary authority over their users.[193] Professor Guseva proposes a system of tiered self-regulation. Her approach combines the insights from both of these proposals to replicate a structure similar to the contractual allocation of responsibility between FINRA and the stock exchanges in the United States.[194]

I discuss this mapping problem further in Part IV, in the specific context of the Exchange Act. But as a general matter, these proposals raise the same concern as the self-certification methodology discussed in Subpart C, above. Self-regulation may work (when it does) in large part to the fact that most SROs began as industry endeavors—bound by mutual and reciprocal interests that predated the codification of their powers.[195] This model allows regulators to free-ride on industry self-interest, and ideally reach for the "shotgun . . . behind the door" only when necessary.[196] The value added by this model may thus be limited if superimposed on industry participants with no sense of a shared "community of fate."[197]

III. THE EXCHANGE ACT AS A TEMPLATE FOR MULTIMODAL REGULATION

The case for allocating jurisdiction to an existing or new regulatory regime should reflect a vision for the potentiality of crypto asset trading. Some policymakers emphasize short-term coordinated actions to protect investors,[198] while others favor a regulatory regime that prioritizes innovation over micromanagement.[199] For these constituencies, a bare-bones regulatory

192. *See* Massad & Jackson, *supra* note 190, at 14 (envisioning that crypto asset market participants would compete in the "execution and settlement of transactions" in an "open, efficient and timely manner" subject to uniform SRO standards).

193. *See* Yadav, *supra* note 80, at 1744–56; *see also* Yesha Yadav, *Toward Crypto-Exchange Oversight* (Vanderbilt Law, Research Paper No. 22-26, Dec. 26 2023) (further developing the proposal in *The Centralization Paradox in Cryptocurrency Markets*, *supra* note 80).

194. Yuliya Guseva, *Decentralized Markets and Decentralized Regulation*, 92 GEO. WASH. L. REV. (forthcoming 2024).

195. *See, e.g.,* Jonathan Macey & Caroline Novogrod, *Enforcing Self-Regulatory Organization's Penalties and the Nature of Self-Regulation*, 40 HOFSTRA L. REV. 963, 976 (2012) (arguing that the Exchange Act's self-regulatory framework was "predicated on member-run organizations with (1) a self-interest in ensuring fair and orderly markets, and (2) sufficient monopoly over listing firms to make the threat of expulsion costly enough to garner the compliance of their members").

196. Massad & Jackson, *supra* note 190, at 4 (quoting Commissioner William O. Douglass) (citing JOEL SELIGMAN, THE TRANSFORMATION OF WALL STREET: A HISTORY OF THE SECURITIES AND EXCHANGE COMMISSION AND MODERN CORPORATE FINANCE 185 (1982)).

197. Saule T. Omarova, *Wall Street as Community of Fate: Toward Financial Industry Self-Regulation*, 159 U. PA. L. REV. 411, 417–21 (2011).

198. *See* Jay Clayton & Timothy Massad, *How to Start Regulating the Crypto Markets—Immediately*, WALL ST. J. (Dec. 4, 2022), https://www.wsj.com/articles/how-regulate-cryptocurrency-markets-11670110885.

199. *See, e.g.,* Chris Brummer & Yesha Yadav, *Fintech and the Innovation Trilemma*, 107 GEO. L.J. 235, 278–82 (2019).

framework might suffice.[200] And yet in the long-term, it is difficult to fathom how any regulator other than the SEC has the institutional infrastructure and experience to facilitate the long-term expansion of DeFi into institutional and retail financial services.

I surmise that much of the resistance to federal securities law focuses as much on the regulatory culture of the SEC as it does on the substantive mandates of federal securities law. That is fair, as I will discuss below. But at the same time, many members of the crypto asset community also want crypto asset products to be available for trading within the securities ecosystem, as evidenced by the industry's euphoria over the approval of Bitcoin and Ether exchange-traded products ETF.[201] I attribute this in no small part to the SEC's quiet successes in pushing faster and more accurate price information under its national market system initiatives and in facilitating complex spot market transactions under its financial responsibility rules for broker-dealers. This multimodal regulation—spanning marketing, gatekeeping, price discovery, order handling, and custody—is unique to federal securities law.

In this Part, I consider several core questions that justify analogizing crypto asset trading to securities trading, regardless of whether individual crypto assets fit the *Howey* mold: How should crypto assets be marketed and sold? How do holders measure a fair return? How can a holder put its assets to use while ensuring their safety? How effectively can the SEC protect U.S. investors in a global spot market?

A. Assessing the Value Proposition

Consider, at the outset, the value proposition that motivates the purchase of crypto assets. If the motive is entertainment or boosterism, there is very little reason to bother with any disclosure regime (other than general consumer fraud).[202] In these cases, public sentiment may well be a more meaningful gauge

200. The regulation of retail foreign exchange transactions is a good analogy. *See, e.g.,* Nelson, *supra* note 56, at 909 (drawing this analogy). Such a regime would give federal regulator the authority to build a basic set of disclosure, business conduct and financial responsibility rules for its registrants. *See, e.g.,* 7 U.S.C. § 2(c)(2)(B)(II), 2(s)(2)(E) (permitting financial service providers regulated by any of a number of "Federal regulatory agencies," including SEC-registered broker-dealers and CFTC-registered futures commission merchants, to offer retail foreign currency contracts subject to a minimal disclosure, recordkeeping, capital and margin, reporting, business conduct, and documentation regime). Moreover, new entrants could elect how they choose to be regulated. *See, e.g.,* Johnson, *supra* note 60, at 1985–91.

201. Order Granting Accelerated Approval of Proposed Rule Changes to List and Trade Shares of Ether-Based Exchange Traded Products, Exchange Act Release No. 100224 (May 23, 2024) (approving amendments to the rules of NYSE Arca, NASDAQ and Cboe BZX to permit listing and trading of shares of ether-based exchange traded products); Order Granting Accelerated Approval of Proposed Rule Changes To List and Trade Bitcoin-Based Commodity-Based Trust Shares and Trust Units, Exchange Act Release No. 99306, 89 Fed. Reg. 3008 (Jan. 17, 2024) (bitcoin); *see, e.g.*, Vicky Ge Huang & Paul Kiernan, *SEC Approves Bitcoin ETFs for Everyday Investors*, WALL ST. J. (Jan. 10, 2024.), https://www.wsj.com/finance/regulation/sec-approves-bitcoin-etfs-for-everyday-investors-dc3125ef.

202. *See supra* note 111 (discussing FTC).

of value than private information.[203] But utility tokens function within the context of a larger suite of services from which their value derives, and native coins drive the DLTs on which those services may be built.[204] Thus, most policymakers accept that "whitepapers" and other tailored disclosures play an important investor protection role, at least during the initial offering process and the post-launch window.[205]

The principal legal argument against SEC oversight of secondary trading—including sales among investors and mining transactions—is that the decentralization of ledgers or enterprises both forecloses the ability and obviates the need to make ongoing disclosures relating to their digital assets. I concede that it may be impracticable to impose an Exchange Act periodic disclosure regime on the promoter of a fully decentralized ledger or entity.[206] That does not mean, however, that intermediaries who facilitate trading in crypto assets should have no responsibility to make crypto asset-related disclosures or other information available for retail customers.

Who is responsible? The *Howey* test reflects the basic idea that the promoters or managers of an enterprise possess privileged access to information about the enterprise's ability to generate profits for investors.[207] Securities disclosures are designed to reduce the asymmetry of information between such insiders and the investors who entrust them with their funds and rely on their efforts.[208] Such disclosures facilitate the allocation of capital to productive enterprises, deter the marketing of fraudulent enterprises, and thereby promote investor confidence, efficiency, and capital formation.[209]

By contrast, the premise behind the CEA and other derivatives regulation is that there is no locus of control for most non-financial commodities—be they agricultural products, precious metals, stores of energy, interest rates, or

203. *See, e.g.*, Tomaso Aste, *Cryptocurrency Market Structure: Connection Emotions and Economics*, 1 DIGITAL FINANCE 5, 19 (2019) (hypothesizing that "[s]entiment and prices are interconnected and they show both dependency and causality mainly between different currencies").

204. *See supra* Part I.B.

205. *See infra* text accompanying notes 227 to 231.

206. As the President's Working Group observes, "operations within DeFi are highly concentrated in and, governed or administered by, a small group of developers and/or investors." PWG Report on Stablecoins, *supra* note 34, at 9. Even a ledger such as Bitcoin, for example, still relies on a not-for-profit foundation or reputational leaders to guide consensus on potential forks and software upgrades. *See, e.g.*, Cade Metz, *The Bitcoin Schism Shows the Genius of Open Source*, WIRED (Aug. 19, 2015), https://www.wired.com/2015/08/bitcoin-schism-shows-genius-open-source/.

207. SEC v. Edwards, 540 U.S. 389, 393 (2004) (reformulating the *Howey* test).

208. *See, e.g.,* M. Todd Henderson & Max Raskin, *A Regulatory Classification of Digital Assets: Toward an Operational Howey Test for Cryptocurrencies, ICOs, and Other Digital Assets*, 2019 COLUM. BUS. L. REV. 443, 489–90 (2019) (proposing that "[w]hen investors turn over their money to strangers with only a promise in return, securities laws will generally apply").

209. *Cf.* 15 U.S.C. § 78c(f) (including consideration of "efficiency, competition, and capital formation" alongside the "protection of investors" in taking Commission action under the Exchange Act).

macroeconomic indices.[210] We cannot compel Hades to disclose the global supply of silver, gold, and oil, or for Hephaestus to predict global industrial demand for such materials.[211] In recharacterizing crypto assets as "digital commodities,"[212] FIT21 and comparable bills analogize crypto assets to traditional commodities in the sense that, once fully decentralized, there is no asymmetry of information or control with respect to the related ledger or enterprise.[213]

Howey, the Exchange Act's framework for information production and dissemination has evolved well beyond issuer-centric disclosure. Securities law properly focuses on the communication of material information to the ultimate purchaser or seller, whether it is the selling group participant under the Securities Act, the retail broker generating trading activity, or the retail dealer flogging inventory. In secondary markets, the point of sale between the ultimate seller and the retail or institutional purchaser is where the content, structure, and integrity of information is most relevant.[214]

For example, in crypto asset markets, many retail purchasers rely on CEXs or other crypto asset intermediaries to hold, trade, and price assets. For such customers, a "centralized" entity can be held responsible for providing relevant information to its customers or users.[215] Evidence also suggests that market sentiment drives retail crypto asset trading—specifically, correlations among crypto asset prices or an individual's social circle.[216] As such, the manner in which crypto asset intermediaries present information about contemporaneous

210. *See, e.g.*, Henderson & Raskin, *supra* note 208, at 490 (proposing that when "investors are not held to the whim of the promises of other individuals, the securities laws will generally not apply").

211. Commodities law of course does prohibit intentionally or recklessly making false or misleading statements in connection with trading activity in futures, swaps or commodities. *See supra* note 158.

212. FIT21 § 204.

213. *See, e.g.*, Guseva, *supra* note 72, at 184 (noting that the "[*Howey*] test presumes that there is a firm, the locus of governing authority in which investors place their trust and invest money to generate future cash flows and return on investment").

214. Donald C. Langevoort, *Selling Hope, Selling Risk: Some Lessons for Law from Behavioral Economics About Stockbrokers and Sophisticated Customers*, 84 CAL. L. REV. 627, 671–72 (1996) ("If the proper legal regime is premised upon eliminating manipulation and deception in the selling process, as are the securities laws generally, blaming the investor for her own cognitive failings created by the broker's manipulative selling tactics hardly seems fair."). Indeed, disclosures regarding the seller's own conflicts of interest and relationship with customers are arguably as important as information about the product being sold. 15 U.S.C. § 78o(l) (authorizing the SEC to "facilitate the provision of simple and clear disclosures to investors regarding the terms of their relationships with brokers, dealers, and investment advisers, including any material conflicts of interest" and to regulate "sales practices, conflicts of interest, and compensation schemes . . . contrary to the public interest and the protection of investors").

215. In the context of direct transfers of tokens from an issuer or counterparty to an individual wallet, there may be no intermediary on whom to impose a disclosure obligation. But those transactions are likely to be the exception, rather than the rule, and in any event are less likely to raise concerns about solicitation and distribution efforts. One could nevertheless posit a regime in which users who hold their own wallet may be deemed sufficiently sophisticated not to require additional disclosure.

216. *See* Tomaso, *supra* note 203.

trading interest in the same or related crypto assets to their customers may be critical to proper assessment of their market value.[217]

Notably, the Exchange Act's informational supply chain can be designed to operate even where there is no reporting issuer.[218] For example, the SEC is barred from regulating disclosures by municipal issuers;[219] nevertheless, it is able to regulate the production and dissemination of information about municipal issuers through municipal securities underwriters or dealers.[220] The same holds for dealers selling over-the-counter securities not subject to Exchange Act reporting.[221] Diligence and disclosure obligations extend to sponsors of pass-through entities such as asset-backed securities, exchange-traded funds, and other special-purpose vehicles.[222] Perhaps most revealingly, every firm or securities exchange seeking to list Bitcoin or Ether trusts is more than happy to publish market and risk disclosures about those cryptocurrencies.[223] The continued relevance of an issuer or promoter is thus not dispositive.

When is information regulated? A more substantive critique of applying Exchange Act disclosures to crypto assets is that in a fully decentralized network, everything worth disclosing is already public. Rigorous disclosures are more relevant when introducing the product to market: at the capital-raising stage, issuers or developers must provide some baseline pitch, whether through whitepapers or a public website.[224] A formal disclosure regime may be less relevant once analysts, commentators, and other market participants independent of the promoter begin gathering and disseminating information. Unfiltered transparency, however, is not always a substitute for tailored information when the goal is to facilitate the investor's decision-making process.[225] The added value of securities law is to make sure that those disclosures are materially

217. *See, e.g.*, Digital Engagement Practices Release, *supra* note 101, at 49068–70; Predictive Data Analytics Release, *supra* note 101, at 53962–65; *see also* Tierney, *supra* note 101, at 385–93 (surveying theoretical and empirical models of retail trader decisionmaking); Aste, *supra* note 203, at 19.

218. Much of this regulatory regime rests on the SEC's regulation of exchanges, brokers and dealers under the Exchange Act. The SEC could tailor these rules to require that CEXs interacting directly with retail and institutional customers compile, review and share relevant public information about crypto assets and crypto asset transactions with their users. *See, e.g.*, Peirce Rule Proposal, *supra* note 151, at R. 195(d) (preserving Sections 12(a)(2) and 17 of the Securities Act with respect to sales of tokens).

219. 15 U.S.C. § 78o-4(d).

220. 17 C.F.R. §§ 240.15c2–12.

221. 17 C.F.R. §§ 240.15c2–11.

222. *See infra* notes 236 and 237.

223. *See, e.g.,* Grayscale Bitcoin Trust, Annual Report (Form 10-K) (filed Feb. 28, 2023) [hereinafter "Grayscale 10-K"]. While most of the disclosures are related to the operation of the Trust and its shares, there is substantial disclosure regarding the Bitcoin spot market as well.

224. *See, e.g.,* Complaint at ¶ 121, SEC v. Coinbase (describing disclosure system via the Company's website). I omit, in this section, discussion of "security" tokens and stablecoins whose value derives from the off-ledger activity of an enterprise, as most legislative proposals appear to concede that such tokens remain "securities." I also omit discussion of "stablecoins" more generally to the extent that they may eventually become subject to prudential supervision.

225. *See, e.g.,* Troy A. Paredes, *Blinded by the Light: Information Overload and Its Consequences for Securities Regulation*, 81 WASH. U. L.Q. 417, 469-472 (2003).

accurate, complete, and not misleading, while remaining as simple and clear as possible.[226]

Initial coin offerings—to fund the launch of a distributed ledger—naturally present the strongest case for disclosures.[227] FIT21 thus contemplates a regime of disclosures housed within the Securities Act.[228] An ICO may thus entail the disclosure of information about the operators of the ledger, the use of proceeds to launch the ledger, and the plan of distribution.[229] "Promoters" of a token, like "underwriters," perhaps ought to disclose the amount and source of compensation they receive, as well as the basis for any claims they make about current or continuing demand for a token. [230] The legislative and rulemaking proposals discussed above thus concede that such disclosures should continue throughout the decentralization process.[231]

When and if fully decentralized, ongoing regulatory oversight of an information production system may only make sense if necessary to ensure that otherwise inaccessible or unverifiable information is gathered, standardized, and disclosed for the benefit of purchasers and sellers.[232] As discussed above, no mandatory information need needs accompany an immutable set of smart contracts or decentralized protocols: for an asset like Bitcoin, it may suffice to warn the buyer to beware and to let private actors supplement information as necessary.[233] For other products, however, FIT21 and comparable bills contemplate that trading platforms will conduct some minimal analysis of crypto assets as a condition of listing or certifying them for trading.[234]

In this vein, I contend at least two kinds of information merit some level of ongoing regulatory oversight to ensure production of investor-oriented

226. *Cf.* 17 C.F.R. § 230.421 (setting forth the "plain English" requirement for prospectuses under the Securities Act).

227. Guseva, *supra* note 72, at 209–212.

228. *See, e.g.,* FIT21 § 201 (proposing to insert a new Section 4B of the Securities Act imposing minimum information statement for exempt digital asset transactions); Peirce Rule Proposal, *supra* note 151.

229. The proposals, for example, would require disclosures regarding source code, transaction history, token economics, plan of development, persons related or affiliated with the issuer, and material risks. *See, e.g.,* Peirce Rule Proposal, *supra* note 151, Proposed Rule 195(b)(1)–(5); FIT21 § 203.

230. *See, e.g.,* Peirce Rule Proposal, *supra* note 151, Proposed Rule 195(b)(6) (contemplating disclosures relating to the identity, holdings and selling activity of members of the token's initial development team.

231. *Id.*, Proposed Rule. R. 195(a)(1) (entities intending to achieve "network maturity" in three years); FIT21 § 201 (proposed Proposed Section 4B(a)(4) of the Securities Act).

232. See, e.g., Henderson & Raskin, *supra* note 208, at 490 (proposing that when "investors are not held to the whim of the promises of other individuals, the securities laws will generally not apply").

233. The CEA requires futures exchanges to publish and standardize the terms and mechanics of futures contracts and requires futures brokers to provide standardized risk disclosures to their customers that alert them of these risks. 17 C.F.R. § 1.55(b). The SEC similarly permits "registration" of options and derivatives traded on registered securities exchanges through the use of a "disclosure document" that describes how contracts operate and their respective risks. *See* 17 C.F.R. §§ 239.20 (Form S-20 for standardized options), 240.9b-1 (options disclosure document provided in lieu of Securities Act prospectus).

234. See *supra* note 180.

information. First, tailored risk disclosures may be appropriate to the extent that investor expectations derive from the operation or continued integrity of contracts, oracles, governance and custodial systems, and other protocols that the average investor cannot evaluate.[235] Some "gatekeepers" in the information production chain must bear responsibility for "expertizing" these ongoing disclosures.[236] And some "sellers" or "chaperones" in the sales process may be held responsible for ensuring that information is presented fairly to customers who lack the sophistication to understand them.[237]

Second, over time, the terms of a DLT, token, or DAO may cause it to operate in unanticipated ways as market practices or ownership patterns evolve. For example, implicit in the legislative proposals is the possibility of "recentralization," if ownership is reconcentrated after decentralization.[238] As a result, ongoing regulatory oversight of information about voting procedures, beneficial ownership, or other decision-making protocols remains appropriate to protect the holder's ongoing expectations with respect to the operation of a ledger or crypto asset. Beneficial ownership and related shareholder information, whether compiled and disseminated automatically through or independently of a DLT, should also be designed and supervised based on a common standard.[239]

In sum, there is no benefit to reinventing the Exchange Act's informational regime. The SEC's current disclosure requirements are concededly "over-inclusive and under-inclusive" with regard to crypto assets and the entities to which they relate: as Professor Brummer argues, the slavish imposition of securities disclosures "fails in some instances to account for critical aspects of

235. *See* HARVEY ET AL., *supra* note 21, at 130–149. For example, sponsors of asset backed securities routinely disclose risk factors and computational models regarding the performance of those assets under various conditions. 17 C.F.R. § 229.1103(b) ("Item 1103").

236. *See, e.g.,* JOHN C. COFFEE, JR., GATEKEEPERS 1–5, 204–205 (defining role and obligations of gatekeepers). Such obligations could include updating or simplifying whitepapers to provide users with necessary information and context to understand how smart contracts or decentralized entities work, and to update them as systems evolve. *See, e.g.,* Alex Lipton & Stuart Levi, An Introduction to Smart Contracts and Their Potential and Inherent Limitations, Harvard Law School Forum on Corporate Governance (May 26, 2018); *see also* Dell'Erba, *supra* note 53, at 40 (discussing the lack of gatekeepers). It is not a stretch to add computer scientists to the list of auditors, engineers, geologists and other "experts" involved in the disclosure production chain. *Cf.* 15 U.S.C. § 77k(b)(3) (discussing diligence duties and consequent liability of "experts" for contents of registration statement).

237. *Cf.* 17 C.F.R. § 240.15a-6(a)(3)(iii) (describing the requirement that a U.S. registered broker-dealer "chaperone" certain transactions effected by a foreign broker-dealer for compliance with U.S. securities law). Consistent with industry guidance for the sale of products complex products, CEXs and other centralized intermediaries could thus be required comply with relevant suitability and marketing requirements when effecting crypto asset transactions. *See, e.g.,* FINRA Regulatory Notice 22–08, FINRA Reminds Members of Their Sales Practice Obligations for Complex Products and Options and Solicits Comment on Effective Practices and Rule Enhancements, at *7 (March 08, 2022); FINRA Regulatory Notice 12–03, Heightened Supervision of Complex Products, at *7–8 (Jan. 17, 2012

238. FIT21 §§ 204(a) & (g) (contemplating that, upon detailed analysis, the SEC may rebut a certification of decentralization—or the CFTC may withdraw certification at a later date).

239. For example, Polymath is participating in the development of both the ERC-1400 standard for security tokens on Ethereum as well as the Polymesh blockchain tailored to security tokens. POLYMATH, https://polymath.network.

the digital assets ecosystem, and in others imposes obligations with little to no relevance, creating both a lack of clarity and inefficiency in compliance."[240] These concerns relate to the mode, granularity, and allocation of responsibility with respect to dissemination. In that sense, the SEC has some obligation to be proactive in bridging the gap between the Exchange Act and DLT protocols.[241]

B. Promoting Networked Liquidity

The Exchange Act also provides a system of market oversight that extends well beyond deterring fraud and manipulation. Recent evidence about the extent of wash trading and other manipulative practices in crypto asset trading markets underscores the need to police for fraudulent and manipulative practices.[242] But for most purchasers, CEA-style market integrity enforcement may be enough. These purchasers may view crypto assets as an instrument of pure speculation, like gold, rather than an investment whose capital appreciation or cash flows can be modeled for planning purposes.[243]

As institutions and other sophisticated investors wade into crypto asset markets, however, they will need more rigorous data to make investment decisions. Crypto assets may not be amenable to the traditional fundamental-value analysis associated with price discovery for publicly traded securities. Nevertheless, institutional investors and their advisors seek to develop an array of alternative asset valuation techniques,[244] if only to satisfy their fiduciary obligations to their beneficiaries. These valuation methodologies will invariably

240. *The Future of Digital Asset Regulation, Hearing before the Subcomm. on Commodity Exchanges, Energy, and Credit of the U.S. House of Representatives*, 117th Cong. 2 (June 23, 2022) (testimony of Chris Brummer, Georgetown Law School, critiquing the application of Regulation S-K).

241. For example, the SEC already uses a risk disclosure document in lieu of a formal registration statement and periodic disclosure requirements for derivatives, such as options and security futures trading. *See supra* note 233. Standardized options are, of course, exempt from registration under the Securities Act of 1933. 17 C.F.R. § 230.238(a)(1) (1933) (exempting options issued by a registered clearing agency and traded on a registered securities exchange from the Securities Act of 1933). The Commission exempted standardized options from registration, among other reasons, because they are issued by a registered clearing agency, rather than the issuer of the underlying stock. Exemption for Standardized Options, Securities Act Release No. 8171, 68 Fed. Reg. 188, 189 (Jan. 2, 2003).

242. *See, e.g.,* Olga Kharif, *Wash Trading Is Rampant on Decentralized Crypto Exchanges*, BLOOMBERG (Sept. 12, 2023), https://www.bloomberg.com/news/articles/2023-09-12/wash-trading-is-rampant-on-decentralized-crypto-exchanges (citing findings that "[t]oken price manipulation is rampant on Ethereum-based decentralized exchanges). Among the possible sources of fraud and manipulation in the spot bitcoin market, the SEC identified the following: wash trading; persons with a dominant position in bitcoin manipulating bitcoin pricing; hacking of the bitcoin network and trading platforms; malicious control of the bitcoin network; trading based on material, non-public information or based on the dissemination of false and misleading information; manipulative activity involving purported stablecoins; and fraud and manipulation at bitcoin trading platforms. Exchange Act Release No. 95180, 87 Fed. Reg. 40299, 40305 (July 6, 2022) (order disapproving proposed NYSE Arca listing rule and listing prior disapprovals).

243. SEC v. Ripple Labs, Inc., at 329 (quoting Sinva, Inc. v. Merrill, Lynch, Pierce, Fenner & Smith, Inc., 253 F. Supp. 359, 367 (S.D.N.Y. 1966)); SEC v. C.M. Joiner Leasing Corp., 320 U.S. 344, 348 (1943); United Hous. Found. v. Forman, 421 U.S. 837, 852.

244. *See, e.g.,* EY Financial Valuation Report, *supra* note 35, at 6-8 (including market comparables, income analysis, cost analysis, and quantity theory of money).

rely on trading prices, quotations, order flow and indications of trading interest generated by crypto asset trading markets.[245]

Such market information is a classic public good—and susceptible to underproduction if producers cannot fully internalize its value.[246] In the world of retail commodity derivatives, concentration of order flow in a single contract market is the norm. Off-board trading is prohibited,[247] and contract markets exclusively facilitate daily netting and settlement of their listed contracts at standardized prices.[248] As a result, there is less need for commodities regulators to micromanage the flow of information. The exchange has an incentive to generate and share market information if it internalizes its value through its monopoly on trading activity.[249] However, none of the legislative proposals for regulating crypto asset intermediaries appears to contemplate mandatory concentration of trading.

By contrast, federal securities law begins with the premise that no single market center is—or ought to be—the exclusive locus of trading for any given instrument.[250] To this end, Congress gave the SEC the authority to create a "national market system" to coordinate information and trading.[251] The SEC has, over time, fought to dismantle barriers to competition among market centers, while mitigating the ability of market centers with larger market share to exploit their informational advantages.[252] The SEC has promoted informational linkages across fragmented markets by (i) requiring marketwide consolidation of market

245. Among other uses, reliable information is necessary to efficiently measure returns on stablecoins, calculate interim settlement amounts of derivatives, manage collateral pools, and engage with other DeFi mechanisms. *See, e.g.,* CORNERSTONE RESEARCH, *FinTech Expertise* 2 (May 2022), https://www.cornerstone.com/wp-content/uploads/2022/05/Cornerstone-Research__FinTech-Expertise.pdf (discussing cryptocurrency market structure consulting expertise).

246. *See, e.g.,* WILLIAM M. LANDIS & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 14 (2003); J. Harold Mulherin, Jeffry M. Netter & James A. Overdahl, *Prices Are Property: The Organization of Financial Exchanges from a Transaction Cost Perspective*, 34 J.L. & ECON. 591, 631 (1991) ("Creation of . . . property rights better ensures that prices are sufficient statistics by providing incentives to make investments in information.").

247. Off-board transactions in retail contracts are generally prohibited by the CEA, 7 U.S.C. § 6(a)(2), and cannot generally be netted except through each futures exchange's clearinghouse. See 13A MARKHAM & GJYSHI, *supra* note 165, §§ 27:9 & 27:10.

248. *See* 17 C.F.R. §§ 38.450 (core principle requiring publication of "daily information on settlement prices, volume, open interest, and opening and closing ranges for actively traded contracts on the contract market"), 16.01 (detailing reporting and publication requirements of designated contract markets and swap execution facilities).

249. Mulherin et al., *supra* note 246, at 626 ("The prices on financial exchanges arise only because of the effective operation of the exchanges. . . . By allowing the exchanges to establish rights to such property, [the courts] enabled the exchanges to reap the gains from technological innovation and thereby promoted the growth of exchanges.").

250. Dell'Erba, *supra* note 53, at 6.

251. 15 U.S.C. § 78k-1(b).

252. *See, e.g.,* HARRIS, *supra* note 4, at 524–42; *see generally* Robert L.D. Colby & Eric R. Sirri, *Consolidation and Competition in the U.S. Equity Markets*, 5 CAP. MKTS. L.J. 169 (2010); Roberta S. Karmel, *Turning Seats into Shares: Causes and Implications of Demutualization of Stock and Futures Exchanges*, 53 HASTINGS L.J. 367, 384 (2002).

information and (ii) creating commercial incentives to share information about trading interests.[253] Let us consider each in turn.[254]

Consolidating information. Consolidating information about trading across major market centers ensures that traders are able to price their trades and their holdings accurately. In today's competitive trading environment, CEXs have an incentive to advertise their liquidity in data aggregators, much like stock exchanges once calibrated the flow of last-sale and quotation information to the public.[255] As institutional participation in crypto asset markets increases, however, the accuracy, completeness and uniformity of market information will become increasingly important.[256] This may create an incentive for dominant markets to restrict or extract rents for access to their facilities.

There are at least three straightforward actions that the SEC could take to support information sharing in crypto asset markets. First, the SEC could work with leading platforms to establish standards to coordinate information collection and consolidation with respect to individual crypto assets or trading pairs. This would help institutional investors and other fiduciaries establish compliance with their legal and professional obligations against a recognized benchmark. Second, the SEC could audit CEX operations to ensure that off-ledger transactions comply with those standards and the representations CEXs make to users.[257]

Perhaps more aggressively, the SEC could over time assert more comprehensive authority to ensure "fair and honest" crypto asset markets by constraining anticompetitive behavior. For example, not all market centers have an incentive to share their trading information as a strategy to attract customers or trading interest, particularly if they can extract rents from the value of their market data.[258] Over time, larger market centers might frustrate, withhold, or

253. See, e.g., Donald, *supra* note 21, at 63 (arguing that regulation is necessary to prevent broker-dealers from migrating trading "into networks that are under full private control"). Exchanges traditionally monetized the activity through their facilities in the form of regulatory fees and assessments (paid by members), transaction fees (paid by traders), listing fees (paid by issuers), and market information fees (paid by subscribers). Regulation of Market Information Fees and Revenues, Exchange Act Release No. 42208, 64 Fed. Reg. 70613, 70625 (Dec. 17, 1999) ["Market Data Concept Release"].

254. The 1975 national market system amendments reaffirmed that premise by giving the SEC the indirect ability to control the collection, processing and dissemination of information from multiple exchanges, trading systems and broker-dealers. 15 U.S.C. § 78k-1(a)(3).

255. *See, e.g.,* Micah Abiodun, *Top 15 Cryptocurrency Data Aggregators that Everyone Should Use,* CRYPTOPOLITAN (March 18, 2023), https://www.cryptopolitan.com/top-15-cryptocurrency-data-aggregators; *see also* Market Data Concept Release, *supra* note **Error! Bookmark not defined.**, at 70619–21.

256. Scholars and consulting firms are beginning to engage in the kind of market microstructure analysis performed in traditional financial markets. *See, e.g.,* Carol Alexander et al., *Price Discovery and Microstructure in Ether Spot and Derivative Markets*, 71 INT'L REV. FIN. ANALYSIS 101506 (2020); *FinTech, Blockchain, and Cryptocurrency Capabilities*, CORNERSTONE RESEARCH, https://www.cornerstone.com/practices/industries/fintech-blockchain-cryptocurrency (advertising competency in "Cryptocurrency Market Microstructure").

257. To the extent that DEXs conduct off-ledger crosses or matches, the "centralized" vendor performing those functions should also be subject to audit.

258. Notably, unlike many commonly traded stocks, there are no traditional stock exchanges for most government, corporate and municipal debt instruments. Accordingly, FINRA maintains last sale data for

limit access by rival firms to their trading information in order to concentrate order flow through their facilities.[259] The SEC has long experience balancing competition and coordination among dominant market centers.[260]

Trading across markets. For prices to be informationally efficient, informed traders must be willing to contribute privately developed information about fundamental value to public trading systems.[261] Traditional commodities and securities exchanges do so by fostering agency trading. Trading floor rules once prohibited an exchange member acting as agent for a customer order from using the customer's trading information to its own advantage,[262] and placed limits on principal trading by market makers in order to prioritize interaction of public customer orders.[263] These commitments aimed to increase the probability that customer orders would be executed before their private information became public.[264]

Many of these specific injunctions are concededly archaic. Today, exchange priority rules have been replaced—whether on securities and futures exchanges, in alternative trading systems or in swap execution facilities—by matching and negotiation algorithms.[265] The information that users reveal within such "market centers" nevertheless warrants assurances that it will only be used or shared in furtherance of the user's interest.[266] The SEC has sought to preserve the integrity of agency trading by adapting many of the principles of exchange trading to the

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corporate and US government bonds, while the Municipal Securities Rulemaking Board maintains last sale data for municipal securities.

259. Market Data Concept Release, *supra* note **Error! Bookmark not defined.**, at 70619–21.

260. Steven M.H. Wallman, *Competition, Innovation, and Regulation in the Securities Markets*, 53 BUS. LAW. 341 (1998) (discussing generally the internal debate at the SEC over the role of regulation in promoting competition); Alexander P. Okuliar, *Financial Exchange Consolidation and Antitrust: Is There A Need for More Intervention?*, ANTITRUST, Spring 2014, at 66-67 (discussing SEC policy from the perspective of antitrust regulation). For example, the SEC could mediate fair and equitable fee structures and revenue allocations among market centers. Market Data Concept Release, *supra* note **Error! Bookmark not defined.**, at 70627–28 (discussing the difficulty of calculating and allocating revenues from the sale of consolidated data across markets).

261. The market for a crypto asset should presumably aspire to be "informationally efficient," even if there is no generally accepted metric for determining the crypto asset's fundamental value. *See* Ronald J. Gilson & Reinier Kraakman, *The Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias*, 28 J. CORP. L. 715, 716 & n.4 (2003) (defining informational efficiency as "the absence of a profitable trading strategy based on publicly available information").

262. *See* HARRIS, *supra* note 4, at 161 (discussing the dual trading problem).

263. *See, e.g.,* 15 U.S.C. § 78k(a) & (b).

264. HARRIS, *supra* note 4, at 250–51.

265. Since the 1960s, computer-managed order execution books automated the handling of agency orders, in much the same way as exchanges, using code instead of trading rules. *See* Instinet Corp., SEC Staff No-Action Letter, Fed. Sec. L. Rep. ¶ 78,997 (Sept. 8, 1986) (no-action relief from registration as an exchange or clearing agency). Beginning in the late 1990s, the SEC imposed exchange-like regulation on these systems, in an effort to provide public access to their information and trading opportunities. *See* Regulation of Exchanges and Alternative Trading Systems, Exchange Act Rel. No. 40760, 63 Fed. Reg. 70844 (Dec. 22, 1998) ["Regulation ATS Release"]. As discussed above, the SEC now seeks to expand the definition of such "alternative trading systems" further to include "communications protocols" that facilitate agency trading. *See supra* note 145.

266. HARRIS, *supra* note 4, at 246.

handling of orders through such systems.[267] In analogizing CEXs and DEXs to such market centers, the SEC focuses primarily on the potential for this kind of conflict of interest.[268]

For example, one of DeFi's heralded advantages is the potential for "composable liquidity" across platforms.[269] Nevertheless, a handful of high-volume CEXs dominate the marketplace and fragment liquidity among themselves.[270] One industry participant has commented on the risks posed to institutional investors by fragmentation of liquidity across CEXs and DEXs.[271] Conversely, to the extent that retail investors cannot readily switch among intermediaries, they must rely on their intermediary's diligence to find or match the best available price in the marketplace.[272] This creates a risk that retail investors may interact only with the CEX's internal inventory, rather than trading interest in other venues.[273]

The SEC's national market system initiatives protect investors from being siloed in a single market in three principal ways. First, brokers and dealers are subject to a general obligation to route to or improve upon the best available prices in the marketplace when "handling" orders. These are generally framed as "best execution" obligations for agency trades and "order handling" obligations

267. Under SEC Rules, such systems have the option to become registered as exchanges or to operate as registered broker-dealers pursuant to an exemption from "exchange" registration for alternative trading systems (Regulation ATS). 17 C.F.R. § 242.301. For example, the SEC requires alternative trading systems to maintain the confidentiality of customer information and to explain the procedures governing order entry, execution and reporting through their systems. 17 C.F.R. §§ 242.301(10) & 249.637; Regulation ATS Release, *supra* note 265, at 70949–51. The SEC has brought numerous enforcement actions to uphold segregation of information within ATSs as well. In re Liquidnet, Securities Act Release No. 9596, 109 S.E.C. Docket 10 (June 6, 2014); In re eBX LLC, Exchange Act Release No. 67969, 104 S.E.C. Docket 2844 (Oct. 3, 2012). Misrepresentations by the operators of an alternative trading system could also be actionable under federal or state securities law. *See, e.g.*, Complaint at 12–21, People v. Barclays Capital, Inc., Docket No. 1 N.Y.S.3d 910 (NY Sup. Ct. June 25, 2014).

268. For example, the SEC's complaint against Binance alleged that it simultaneously operated a limit order book (Match) that purported to match customer trading on a pure agency basis, while also offering a dealer service (Binance OTC) that provided immediate liquidity against Binance's proprietary account. Complaint at ¶¶ 225–229, SEC v. Binance. Notably, Alameda Research was often the only counterparty available to provide liquidity to trading customers from May 2020 to February 2022. *Id.*

269. HARVEY ET AL., *supra* note 21, at 52.

270. See supra note 80.

271. BNY MELLON, *Cryptocurrencies: The New Market Structure* (May 2019), https://posttrade360.com/news/technology/cryptocurrencies-the-new-market-structure/ (noting the possibility that institutions might migrate trading activity off CEXs and into over-the-counter markets unless intermarket routing technologies catch up).

272. Regulation Best Execution, Exchange Act Release No. 96496, 88 Fed. Reg. 5440, 5525 (Jan. 27, 2023) (comparing the "switching costs" of institutional and retail customers); Disclosure of Order Execution Information, Exchange Act Release No. 96493, 88 Fed. Reg. 3786, 3877 (Jan. 20, 2023) (discussing "switching costs" for individual investors).

273. It is not difficult to believe that the SEC's recent proposal to benchmark the execution of orders "internalized" by "restricted competition trading centers" is not informed, in part, by an anticipation that similar rules could apply to CEXs. Order Competition Rule, Exchange Act Rel. No. 96495, 88 Fed. Reg. 128 (Jan. 3, 2023).

for market-makers and other dealers.[274] Second, exchanges, alternative trading systems, and dealers that publish trading interest have an obligation to make specific orders and quotations available to the public.[275] And third, exchanges and certain high-volume alternative trading systems have an obligation to make their trading facilities generally available to the public.[276]

* * *

I have serious reservations about applying this set of rules reflexively to crypto asset trading. The SEC itself appears to concede that it does not have enough information as yet to be able to think through the costs and benefits of regulating crypto asset trading platforms.[277] True innovation in intermarket access requires a concerted effort to orchestrate clearance and settlement operations across trading platforms, as a predicate to promoting intermarket access.[278] But the national market system mandate offers a good set of principles for thinking through how to uphold DeFi's promise of open architecture and interoperability in the face of potentially diverging private incentives.

274. Brokers acting as agent are subject to a duty of "best execution," which requires them to undertake reasonable diligence to find the best price or terms for customer securities transactions. FINRA Rule 5310; *see also* Regulation Best Execution, Exchange Act Release No. 96496, 88 Fed. Reg. 5440, 5448–49 (Jan. 27, 2023). Dealers, meanwhile, have an obligation to refrain from exploiting the informational value of orders they "hold" for execution. FINRA Rule 5320. These obligations generally apply regardless of whether orders are routed to or executed on "stock exchanges," through "alternative trading systems," by a wholesale dealer, or by the broker-dealer handling the order. *Cf.* MiCA, *supra* note 136, at 76–80 (imposing standards for order handling and execution on crypto asset service providers).

275. 17 C.F.R. § 242.301(b)(3).

276. There are critical differences among these regimes, however. Exchanges (including alternative trading systems with sufficiently dominant volume), for example, have a duty to admit all broker-dealers who meet their membership criteria and to admit only broker-dealers as members. 15 U.S.C. § 78f(b)(2); *see also* 17 C.F.R. § 242.3a1–1(b). These obligations are grounded in the idea of providing fair access to the exchange's trading facilities and trading information. By contrast, the SEC has generally not prohibited alternative trading systems and wholesale dealers from discriminating among customers or having non-broker-dealer institutional subscribers, as long as they do not unfairly discriminate. 17 C.F.R. § 242.301(b)(5); *see also* Kevin Haeberle, *Discrimination Platforms*, 42 J. CORP. L. 809, 811 (2017) (asserting that "the trading attributable to these two types of *discrimination platform* adds up to compose almost 40% of all trading volume").

277. 2023 Exchange Release, *supra* note 2, at 29470–71 (noting the SEC's "greater degree of uncertainty" in analyzing the costs and benefits of regulating crypto asset platforms as "exchanges" due to limited information about crypto asset security trading activity).

278. The desirability of a central clearing counterparty or competing clearing agencies for crypto asset transactions is a topic beyond the scope of this paper. Nevertheless, several custodial banks are positioning themselves to provide this functionality. *See, e.g.,* Justin Baer, *America's Oldest Bank, BNY Mellon, Will Hold That Crypto Now*, WALL ST. J. (Oct. 11, 2022), https://www.wsj.com/articles/americas-oldest-bank-bny-mellon-will-hold-that-crypto-now-11665460354 (noting approval of BNY Mellon's application to hold bitcoin and ether); Henrique Almeida & Joao Lima, *Anchorage's Assets Under Custody Jump In Crypto Flight to Safety*, BLOOMBERG (July 5, 2023), https://www.bloomberg.com/news/articles/2023-07-05/anchorage-s-assets-under-custody-jump-in-crypto-flight-to-safety (discussing Anchorage Digital's market position as the first federally chartered crypto bank); *see also* Osipovich, *supra* note 141 (discussing EDX Markets' proposed trading structure).

C. Protecting Customer Assets

All book entry systems rely on the integrity of the bookkeeper to ensure that the powers, rights and privileges of rightsholders are respected. Where users transact through their own wallets, it is arguable that they undertake responsibility for the capacity, security and integrity of the ledger they have chosen. When acting through an intermediary, however, some legal regime has to define the intermediary's custodial obligations to the user. Various common-law doctrines might suffice for specifically identifiable assets or segregated wallets if properly documented.[279] Nevertheless, more complex recordkeeping and auditing requirements may be necessary to properly account for and allocate fungible assets held in bulk on behalf of clients.

In charging CEXs as both unregistered "broker-dealers" and "clearing agencies," the SEC has signaled that entities who hold digital assets for trading have heightened custodial obligations.[280] Its concerns are well-founded. As FTX unraveled, it became clear that it did not have the minimal safeguards necessary to ensure possession or control of customer assets and to protect against misappropriation.[281] More disturbingly, the lack of controls was attributable to the fact that CEXs have developed outside of the framework of regulated intermediaries and without the benefit of compliance professionals versed in the establishment and maintenance of controls.[282]

To this end, most of the legislative proposals discussed above contemplate a basic custodial regime for holding crypto assets that is segregated from trading activity.[283] These custodial regimes envision a contractual relationship between client and custodian comparable to the CEA—the client transfers title to the custodian in exchange for a contractual right to the return of its collateral. The Exchange Act, by contrast, has additional safeguards for the "acceptance of custody *and use* of customers' securities"[284] through its Customer Protection Rule and the backstop of the Securities Investor Protection Act. This additional infrastructure is specifically designed to accommodate a variety of spot market transactions. Let us consider the differences.

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279. *But see* Bruce et. al., *supra* note 70, at 1123–25 (suggesting that segregation into separate accounts" without an agreement is typically insufficient to exclude property from the debtor's estate"); Levitin, *supra* note 97, at 905 (suggesting that "the legal relationship between a cryptocurrency exchange and a customer regarding the custodial holdings could potentially be characterized in several ways depending on the particular facts and legal analysis").

280. *See, e.g.,* Complaint at ¶¶ 510–513, SEC v. Binance. The CFTC has similarly prioritized failures to register in its enforcement actions. *See, e.g.,* Chernin et al., *supra* note 164, at 5.

281. And this is not necessarily the case of one bad apple: Allegations against Binance claim that its founders were able to transfer large sums of customer funds and assets to individual founders or their affiliates without triggering internal or external controls. Complaint at ¶¶ 165–174, SEC v. Binance.

282. See *supra* note 184.

283. *See, e.g.*, FIT21 §§ 402, 404–405 (proposing to amend 7 U.S.C. § 6d(a)(2) and to add 7 U.S.C. §§ 5i(h) and 5j).

284. *Id*. § 78o(c)(3)(A).

Traditional Custody Arrangements. Traditional custodial arrangements govern the relationship between futures brokers and their clients, as well as non-broker-dealer securities professionals. For example, CFTC segregation rules for futures brokers are focused on safeguarding customer collateral.[285] CFTC-registered "futures commission merchants" must generally segregate cash, securities, and other collateral deposited by each customer in connection with trades and hold it with a custodian.[286] In addition to reserving assets for customers in bankruptcy, a segregation requirement adds a layer of "checks and controls" in place to prevent the erroneous transfer or deletion of customer assets.[287]

There are limitations to using custodians in this manner. To the extent that customers wish to engage in funding and lending transactions—such as pledging, lending, repoing, or staking—they must transfer title away from the custodian. Transferring title substitutes a contractual entitlement for a property entitlement.[288] This may pose less risk when an asset is transferred to a counterparty in a "regular way" sale or through a regulated clearinghouse. It is more problematic when assets are transferred to third parties without adequate protection against counterparty credit risk. Accordingly, a workable regime for crypto assets must also regulate their *use* in complex spot transactions.

The Exchange Act's Customer Protection Regime. Securities law, by necessity, has developed to permit securities brokers—quintessential spot market intermediaries—to perform a range of off-exchange transactions involving customer positions in securities accounts. For example, the Customer Protection Rule aims to ensure that, in the event of a broker-dealer failure, adequate securities and funds are available for distribution to the broker-dealer's customers before its other creditors receive anything.[289] Customers thus have the

285. Because retail contracts are settled on a daily basis, collateral moves in and out of customer accounts based on daily settlement prices.

286. 7 U.S.C. § 6d; *see* 23 JERRY W. MARKHAM & THOMAS LEE HAZEN, BROKER-DEALER OPERATIONS SEC. & COMM. LAW § 5:8 (2022), Westlaw.

287. *Cf.* 2021 SPBD Release, *supra* note 7, at 11628–29. The SEC has pursued a similar approach in connection with investment advisers. For example, in the wake of the Bernie Madoff scandal, the SEC required investment advisers to maintain securities over which they have discretionary trading authority with a qualified custodian. *See* 17 C.F.R. § 275.206(4)–2. The SEC has since proposed that this obligation extend to crypto assets managed on behalf of a customer. *See* Safeguarding Advisory Client Assets, Advisers Act Release No. 6384, 88 Fed. Reg. 14672, at 14782 (Feb. 15, 2023). Alternative trading systems, under the SEC's interim guidance, must fulfill their "possession or control" obligations through qualified custodians as well. *See supra* note 142. By contrast, "special purpose broker-dealers" must comply with a series of detailed policies and procedures in order to satisfy their regulatory obligation to maintain "physical possession or control" of customer fully paid and excess margin digital asset securities. 2021 SPBD Release, *supra* note 7, at 11628–31.

288. As discussed above, in In re Celsius, 647 B.R. at 651, 658–59, the bankruptcy court concluded that customers who transferred tokens into "Earn Accounts" at Celsius did not have title to those tokens, and therefore only had contractual claims for the return of those tokens under the terms of the Celsius service contract. *See supra* note 60.

289. *See generally* Michael P. Jamroz, *The Customer Protection Rule*, 57 BUS. LAW. 1069 (2002) (discussing the role of the Customer Protection Rule in "safeguarding and restricting the use of customer

flexibility to lend, pledge, or hypothecate shares through securities intermediaries while preserving to the extent possible their entitlement to the "net equity" in their account.

The Customer Protection Rule specifically facilitates the pledging, hypothecation and lending of securities by incorporating customer securities transactions into a reserve formula. For example, broker-dealers may commingle customer securities when pledging them as collateral with banks or other creditors.[290] They may also loan fully paid securities on behalf of customers.[291] To the extent that assets transferred away are no longer under a broker's possession or control, the Rule requires each broker-dealer to incorporate the market value of securities loaned, margined, or in transit in calculating the net reserve amount.[292] The segregated funds, securities held in custody, and collection of customer debits secured by margin securities thus tracks the net funds and market value of net securities positions claimed by a broker-dealer's customers.[293]

Securities law offers a further backstop for customer accounts: a special liquidation regime. To protect customers from being short-changed in Chapter 11 proceedings, neither futures commission merchants nor securities broker-dealers are permitted to reorganize in bankruptcy.[294] Whereas futures brokers must proceed immediately to Chapter 7, however, securities brokers are subject to a special liquidation proceeding under the Securities Investor Protection Act.[295] The goal of a SIPC liquidation proceeding is to distribute "customer property" and otherwise satisfy "net equity" claims of "customers" as promptly

investment assets by the broker-dealer in its business activities"). Under the Rule, broker-dealers must reduce their customers' "fully paid" and "excess margin" securities to "possession or control." *See* 17 C.F.R. §§ 240.15c3–3(d), (a)(3), and (5) (defining "fully paid securities" and "excess margin securities"). In addition, they must deposit an amount of cash or qualified securities in a special reserve account for the exclusive benefit of customers. *See* 17 C.F.R. § 240.15c3–3(e) (special reserve fund); 17 C.F.R. § 240.15c3–3a (reserve formula). Together with other financial responsibility rules, such as the Net Capital Rule, 17 C.F.R. § 240.15c3–1a1, these controls support the ability of the broker-dealer to manage the risk to customer funds and securities positions in the event of financial distress.

290. *See, e.g.*, 17 C.F.R. §§ 240.8c–1 (permitting commingling of hypothecated customer securities only with prior written consent of each customer), 240.15c2-1 (making it a fraudulent, deceptive, or manipulative act or practice to commingle hypothecated securities without each customer's written consent).

291. *See, e.g.*, Jamroz, *supra* note 289, at 1089–92 (describing how securities lending is accommodated within the Customer Protection Rule); *see also* 17 C.F.R. § 240.15c3-3(b)(3) (requiring written loan agreement for securities lending that incorporates, among other terms, minimum collateral requirements and SIPA disclosures).

292. *See* 17 C.F.R. § 240.15c3–3a (setting forth the "[f]ormula for determination of customer and PAB account reserve requirements of brokers and dealers" under the Customer Production Rule).

293. *See, e.g.,* Steven L. Molinari & Nelson S. Kibler, *Broker/Dealers' Financial Responsibility Under the Uniform Net Capital Rule—A Case for Liquidity*, 72 GEO. L.J. 1, 16–17 (1983) (discussing the "alternative net capital formula").

294. 11 U.S.C. § 109(d) (excluding stockbrokers and commodity brokers from eligibility to reorganize under Chapter 11).

295. 15 U.S.C. § 78fff.

as possible before liquidating the broker-dealer's general estate.[296] When provided by statute, the SIPC trustee may draw on the SIPC fund to expedite the return of customer securities, without first ascertaining whether the debtor has sufficient funds of the available to satisfy such claims.[297]

Policymakers should of course reflect upon the appropriateness of prorating the return of assets among customers or tapping the SIPC fund when there are shortfalls between customer expectations and available crypto assets. SIPA, for example, does not generally cover "investment contracts" that have not been publicly offered under the Securities Act,[298] and there are sound reasons not to extend the SIPC guarantee to assets that do not trade in a "fair and orderly market."[299] But the safeguards of the Exchange Act's financial responsibility regime could be adapted to provide a more meaningful layer of protection for public investors.

D. Asserting Meaningful Oversight

Perhaps the most difficult issue regulators and policymakers face is whether fully decentralized issuers, networks, or intermediaries are regulable at all. Once launched on a ledger, a platform such as a DEX is designed to be autonomous. Similarly to Szabo's vending machine,[300] there is no centralized entity or group of entities effecting the execution of transactions; rather, users collectively oversee and audit the platform's performance on a transparent ledger.[301] Once the DEX protocols have been published and launched, DeFi advocates question the feasibility or practical benefit of "regulating" such systems in the same manner as traditional market intermediaries under the Exchange Act.[302]

The SEC believes that it can effectively impose registration and oversight requirements over DEXs as long as it can identify, at some level of abstraction, a critical mass of entities involved in operating, governing or maintaining the

296. *Id.* § 78fff(a). Notably, SIPA instructs trustees to "deliver securities to or on behalf of customers to the maximum extent practicable in satisfaction of customer claims for securities of the same class and series of an issuer," *Id.* § 78fff-1(b)(12), and to acquire such securities for delivery to the extent that they can be purchased in a "fair and orderly market." *Id*. § 78fff-2(d).

297. *Id.* § 78fff-2(b)(1).

298. *Id*. § 78*lll*(14).

299. For stablecoins and other instruments that purport to peg returns to real-world assets, moreover, it may make sense to consider what level of protection customers ought to receive or expect, particularly if another regulatory regime might be more suitable. Reves v. Ernst & Young, 494 U.S. 56, 67 (1990) (holding that "existence of another regulatory scheme significantly reduces the risk of the instrument, thereby rendering application of the Securities Acts unnecessary"). For example, the President's Working Group on Financial Markets has suggested that Congress enact legislation to "limit stablecoin issuance, and related activities or redemption and maintenance of reserve assets, to entities that are insured depository institutions." PWG Report on Stablecoins, *supra* note 34, at 16.

300. NICK SZABO, SMART CONTRACTS: BUILDING BLOCKS FOR DIGITAL MARKETS (1996).

301. *See, e.g.,* Shawn Bayern, *The Implications of Modern Business Entity Law for the Regulation of Autonomous Systems*, 19 STAN. TECH. L. REV. 93 (2015).

302. Letter from A.H. Capital Management, L.L.C. *supra* note 47, at 12.

ledger.[303] The turtles, in the SEC's view, cannot go all the way down.[304] The implication is that such a "group of persons" can be compelled to submit to SEC jurisdiction, or at least be susceptible to fines, penalties, or other remedial action (e.g., on a theory of joint and several liability).[305] By contrast, most of the legislative proposals seem to favor the language of "certification," insofar as the value of a fully decentralized systems inures to the benefit of its users, rather an owner or operator.[306]

These questions are, to a degree, red herrings. Securities markets, like most spot markets, are global markets. The most regulators can do is to foster a system of trading that maximally protects domestic investors notwithstanding the inevitability of extraterritorial or off-chain activities. The real power of the SEC and CFTC is not to punish exchanges, but to bar U.S. persons from trading through an exchange if the exchange is not in compliance with its rules—and to rescind transactions where feasible and appropriate.[307] This logic—regulating non-U.S. intermediaries through the power to affect their relations with users subject to U.S. jurisdiction—applies to other securities transactions as well.[308]

* * *

In making an argument for extending the Exchange Act to crypto asset trading platforms, I in no way mean to suggest that the CFTC or other financial regulators lack the knowledge or competence to oversee crypto asset trading and related services in an adequate manner. Nor do I mean to suggest that the world lacks talented people with sufficient technical expertise to develop and enforce a bespoke regulatory regime for crypto assets. I just mean that the Exchange Act fits: many of the areas in which the Exchange Act differs from other regulatory regimes relate to spot market transactions. Not coincidentally, these are the

303. For example, not all DEXs are fully centralized (nor in the case of DEXs that match orders off-ledger, fully decentralizable). In addition, some DEXs are essentially maintained by DAOs that can vote to amend their smart contracting protocols through governance tokens. Moreover, the consensus mechanisms of the ledger on which a DEX resides can effect a fork to modify the operation of a theoretically immutable platform. 2023 Exchange Release, *supra* note 2, at 29453–58 (discussing the "group of persons" requirement), 29471–73 (discussing "off-chain" activity).

304. On a practical level, some level of centralization—whether through off-chain or permissioned execution systems—will likely be necessary for the near future for "decentralized" exchanges of any significant volume. *See supra* notes 86 and 90.

305. Some commentators advocate applying principles of joint and several liability in order to exert control over such entities, while others view decentralization as a justification for excluding such entities from SEC jurisdiction entirely. *See supra* note 72.

306. *See, e.g.,* FIT21 § 204 (proposing that "[a]ny person may certify to the Securities and Exchange Commission that the blockchain system to which a digital asset relates is a decentralized network").

307. 15 U.S.C. §§ 78e (prohibiting transactions by broker-dealers on or through the facilities of unregistered exchanges), 78cc (voidability of contracts made in violation of the Exchange Act). In effect, the SEC can prohibit registered CEXs or other intermediaries from knowingly routing orders to a fully decentralized DeFi platform, or even individual wallet holders, unless the DeFi platform is in compliance with its rules.

308. *See, e.g.,* Regulation X, 12 C.F.R. § 224.1 (prohibiting U.S. persons from obtaining securities credit from outside the United States except on terms comparable to those U.S. broker-dealers and lenders are permitted to extend).

aspects of decentralized finance that cause the most concern—marketing, gatekeeping, price discovery, order handling, and custody. Therefore, it makes sense to regulate crypto assets and related platforms to grow within the broad structures already created by federal securities law.

How the SEC should approach that task is another matter. I believe, at heart, Congressional interest in excluding crypto asset trading platforms from the Commission's oversight reflects distrust of its regulatory culture rather than competence.[309] The SEC's tepid efforts to extend interpretive or no-action relief have not been enough, as "regulation by enforcement" foments uncertainty and distrust: the crypto asset community and many members of Congress do not trust the SEC to give DeFi a fair shake.

IV. THE VULNERABILITIES OF THE EXCHANGE ACT

Just because the Exchange Act is a good fit for crypto asset trading, however, does not necessarily mean that crypto asset trading is a great fit for the Exchange Act. The SEC rightfully calls out the conflicts of interest, conflation of functions and weaknesses in internal controls that plague crypto exchanges. And yet, the SEC has wrung its hands for decades over how to manage those conflicts and operational risks for established intermediaries in traditional securities markets, including exchanges, wholesale and retail dealers, and alternative trading systems.[310] Its efforts to adapt rules and build intermarket mechanisms involved incremental steps—and frequent missteps—that shaped market structures in occasionally unpredictable ways.[311]

Perhaps more importantly, this project is still a "work in progress."[312] The Exchange Act arguably still confers too much authority on exchanges to control the infrastructure of securities markets, notwithstanding their diminishing share of trading activity.[313] The SEC's rulemaking docket thus includes clarifying the status and role of for-profit exchanges,[314] the scope of "exchange-like" alternative trading systems,[315] and the integration of commodity-linked securities

309. *See supra* note 112.

310. Complaint at ¶ 39, SEC v. Coinbase; Complaint at ¶¶ 57–61, SEC v. Binance.

311. *See, e.g.,* Charles K. Whitehead, *The Goldilocks Approach: Financial Risk and Staged Regulation*, 97 CORNELL L. REV. 1267, 1292–93 (2012); Jonathan R. Macey & David Haddock, *Shirking at the SEC: The Failure of the National Market System*, 1985 U. ILL. L. REV. 315, 318–319, 361–62 (1985).

312. Seligman, *supra* note 189, at 1348 (suggesting that "review of stock market self-regulation has largely been a process of crisis reaction" with "too little effort by Congress or the SEC to address the costs and benefits of the trade association nature of stock market self-regulation").

313. *See, e.g.,* Onnig H. Dombalagian, *Demythologizing the Stock Exchange: Reconciling Self-Regulation and the National Market System*, 39 U. RICH. L. REV. 1069, 1146 (2005).

314. Fair Administration and Governance of Self-Regulatory Organizations, Exchange Act Release No. 50699, 69 Fed. Reg. 71126 (Dec. 8, 2004) ["SRO Governance Proposing Release"].

315. 2022 Exchange Release, *supra* note 10, at 15500–04 (proposing to expand the definition of an "exchange" to encompass new communication protocols).

into federal securities trading.[316] Courts are meanwhile questioning the role and powers of self-regulatory entities as part of broader efforts to interrogate the administrative state.[317]

Prizing crypto asset trading into securities law could frustrate the SEC's agenda in several ways. First, the novelty of crypto asset trading may sow confusion in the Exchange Act's settled allocation of authority among exchanges and clearing agencies.[318] To the extent that the SEC must advance its "national market system" agenda largely through exchange-led plans, the SEC cannot risk undermining its leverage by holding crypto asset markets to more lenient standards than registered "exchanges." [319] This is particularly true for listing, where Congress has layered corporate governance requirements onto exchange listing standards that could be gutted by the introduction of more lenient tiers of trading. [320] The SEC must also take care to ensure that traditional securities market surveillance is adequately funded, [321] and that industry backstops for intermediaries are not depleted by cascading platform failures. [322] I discuss each in turn.

A. Mapping Exchange Act Concepts

The premise of the Exchange Act as was simple: since exchanges acted as a vertically integrated operator of trading, clearing and information services, the SEC would just oversee how exchanges regulated everything. The Act on the one hand codified the longstanding powers that exchanges exercised over issuers and members, such as establishing listing standards and regulating trading practices, market surveillance, clearance and settlement, and financial responsibility.[323] Concomitantly, the Act imposed statutory obligations on registered exchanges in the public interest: ensuring fair access to their facilities and fair representation in their governance, while giving the SEC the oversight to regulate conflicts of interest and to eliminate anticompetitive practices.[324]

Over time, Congress and the SEC opted to unbundle the authority of exchanges.[325] This process was not always intentional: for example, Professors

316. *See, e.g.,* Henry T.C. Hu & John D. Morley, *A Regulatory Framework for Exchange-Traded Funds*, 91 S. CAL. L. REV. 839, 874 (2018).

317. *See infra* note 338.

318. *See infra* Part IV.A.

319. *See infra* Part IV.B.

320. *See infra* Part IV.C.

321. *See infra* Part IV.D.

322. *See infra* Part IV.E.

323. Complaint at ¶ 43, SEC v. Coinbase.

324. *See, e.g.,* Roberta S. Karmel, *Should Securities Industry Self-Regulatory Organizations Be Considered Government Agencies?*, 14 STAN. J.L. BUS. & FIN. 151, 159–60 (2008).

325. In futures markets, of course, futures exchanges remain vertically integrated with clearinghouses; meanwhile, in swap markets, clearing agencies can theoretically compete in the provision of clearing services.

Awrey and Macey argue that in requiring registration of centralized clearing agencies, Congress may not have intended to centralize clearance and settlement in the National Securities Clearing Corporation and the Depository Trust Company (now DTCC).[326] Similarly, the single SRO model was as much a consequence of the decision of NYSE, Nasdaq and other stock exchanges to demutualize, as it was a goal of SEC policy.[327]

Moreover, because liquidity provision has evolved across products, the Exchange Act must support multiple market structure models: For example, all options trading takes place on registered options exchanges, most liquidity trading in equity markets takes place off exchange—and very little trading in bond markets involves exchanges at all.[328]

The SEC deserves a great deal of credit or blame, depending on one's perspective, for its effort to manage the transmutation of securities markets within the strictures of its statutory authority.[329] But the Exchange Act's flexibility rests on the SEC's stewardship in managing the evolution of core concepts such as "exchange" and "clearing agency"—definitions that were designed retrospectively to codify the specific activities of bygone market participants rather than prescribe an enduring vision for market evolution structure.[330] Indeed, it is arguable that the SEC has effectively gutted the structural assumptions of the Exchange Act and asserted its interpretive and exemptive authority to adapt the statute to modern trading practices.[331]

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326. Awrey & Macey, *supra* note 78, at 132–38.

327. *See, e.g.,* Roberta S. Karmel, *Should Securities Industry Self-Regulatory Organizations Be Considered Government Agencies?*, 14 STAN. J.L. BUS. & FIN. 151, 167–68 (2008).

328. HARRIS, *supra* note 4, at 11–30 (describing how, as a practical matter, orders in stocks, bonds, options and other products are executed in US markets).

329. Joel Seligman, *Cautious Evolution or Perennial Irresolution: Stock Market Self-Regulation During the First Seventy Years of the Securities and Exchange Commission*, 59 BUS. LAW. 1347, 1348 (2004) (remarking that "stock market self-regulation has been addressed during each historical period of the SEC; new approaches often considered; compromises wrought; and after a period of time, similar or related issues recur"); As an example, the Exchange Act requires that members of a national securities exchange or association be limited to broker-dealers. These provisions appear to entrench the anticompetitive assumptions of self-regulation—the ability to charge fixed commissions to public customers or extract concessions from underwriting syndicates—as much as any public interest. The SEC has rightfully sidestepped these statutory assumptions by allowing modern alternative trading systems to trade "on behalf of" their non-broker-dealer subscribers and clear transactions in their name. *See, e.g.,* TREASURY MARKETS PRACTICE GROUP, *White Paper on Clearing and Settlement in the Secondary Market for U.S. Treasury Securities* at 8 (July 2018), https://www.newyorkfed.org/medialibrary/Microsites/tmpg/files/CS-DraftPaper-071218.pdf. Even on registered exchanges, institutions and high-frequency traders can enjoy the near-equivalent of membership privileges through captive brokers, direct market access, and proprietary market data feeds. *See, e.g.,* Risk Management Controls for Brokers or Dealers with Market Access, Exchange Act Release No. 63241, 75 Fed. Reg. 69792, 69793–94 (Nov. 15, 2010).

330. 15 U.S.C. §§ 78c(a)(1), (23); *see, e.g.,* Awrey & Macey, note 78, at 133 (noting that in regulating clearing agencies, "Congress consciously and explicitly opted to impose coordination requirements on this burgeoning industry," rather than create a national monopoly).

331. See, e.g., Regulation of Exchanges and Alternative Trading Systems, Exchange Act Release No. 40760, 63 Fed. Reg. 70844, 70847–73 (Dec. 22, 1998) (arguing that the Commission's "new interpretation of exchange . . . encompasses [alternative trading systems] and the Commission's new general exemptive

Nonetheless, the SEC's discretion to rewrite the Exchange Act is limited. Its jurisdiction over securities market intermediaries ultimately rests on its ability to mold statutory definitions such as "exchange," "clearing agency," "broker", and "dealer."[332]

In alleging that crypto exchanges fail to respect the Exchange Act's "separation of core functions," the SEC effectively glosses over its own travails in allocating operational responsibility among Exchange Act intermediaries in stock and bond markets.[333] As Commissioner Peirce has admonished,[334] the SEC must reflect on whether and how traditional categories should apply to new markets before extending them. For example, should the SEC regulate CEXs as "exchanges," to the extent that they create liquidity? Or as ATSs, to the extent that they merely facilitate order interaction? Or as wholesale market makers, recognizing their domination of market share without ceding them SRO-like powers? Or are they carrying brokers who hold accounts for customers?[335] Resolving these debates requires industry consensus on how standardization, centralization and competition should evolve in crypto asset trading markets—whether at the level of the entity, the asset or the blockchain.

But why is this a problem for the Exchange Act's framework as applied to traditional markets? Largely because academic and industry commentators perennially question the central role that exchanges, clearing agencies and other SROs play in the governance of traditional stock and bond markets.[336] For example, some market participants resist participation in central clearing,[337] while others object to unitary SROs acting as a "fifth branch" of government.[338]

authority enables it to craft a new regulatory framework"); US DEPARTMENT OF THE TREASURY, BLUEPRINT FOR A MODERNIZED FINANCIAL REGULATORY STRUCTURE 111 (2008) (proposing that the SEC "use its exemptive authority to adopt core principles applicable to securities clearing agencies and exchanges" to conform them to the CEA).

332. 15 U.S.C. § 78c(a)(1), (4), (5) & (23).

333. Dell'Erba, *supra* note 53, at 8.

334. Hester M. Peirce, Comm'r, Dissenting Statement on the Proposal to Amend Regulation ATS, Jan. 26, 2022.

335. Levitin, *supra* note 97, at 892 (suggesting that "it is easiest to understand the problem of exchange failures if one conceptualizes cryptocurrency exchanges as operating like unregulated securities or commodity brokerages that hold customer funds").

336. Concept Release Concerning Self-Regulation, Exchange Act Release No. 50700, 69 Fed. Reg. 71256, 71275–82 (Dec. 8, 2004).

337. Standards for Covered Clearing Agencies for U.S. Treasury Securities and Application of the Broker-Dealer Customer Protection Rule with Respect to U.S. Treasury Securities, Exchange Act Release No. 99149, 89 Fed. Reg. 2714, 2719–20 (Dec. 13, 2023) (summarizing comments on the SEC's proposal to require clearing of certain eligible secondary market transactions in U.S. Treasury securities).

338. William A. Birdthistle & M. Todd Henderson, *Becoming a Fifth Branch*, 99 CORNELL L. REV. 1 (2013); *see e.g.,* Alpine Sec. Corp. v. FINRA, No. 23-cv-01506, 2023 WL 4703307 at *4 (D.C. Cir. July 5, 2023) (Walker, J., concurring) (enjoining expulsion of FINRA member firm pending adjudication of the constitutionality of FINRA disciplinary proceedings); Benjamin P. Edwards, *Supreme Risk*, 74 FLA. L. REV. 543 (2022) (assessing the constitutionality of existing self-regulatory models under recent U.S. Supreme Court jurisprudence).

If the SEC is intimating that crypto exchanges have a pathway to becoming SROs, why must the rest of the securities industry be subject to SRO rule?[339]

B. Balancing SRO Privileges and Responsibilities

A specific quirk of the SEC's market structure is that the Exchange Act reserves a variety of statutory privileges and responsibilities for the "exchanges" after which it was named. Among them, "registered securities exchanges" are solely responsible for (i) the listing of securities and creating attendant expectations of publicly available liquidity, (ii) operating a public gateway to access public quotations, (iii) operating market data infrastructure, and (iv) carrying out market surveillance and disciplinary mechanisms.[340] Indeed, even as the SEC's exemptive relief for "alternative trading systems" leans on the statutory framework for regulating "exchanges,"[341] it denies alternative trading systems the right to exercise those privileges as a condition of exemptive relief from some of the more onerous self-regulatory and compliance requirements imposed on traditional exchanges.[342]

In bringing actions against the likes of Coinbase and Binance for failure to register as an "exchange," the SEC may not intend for CEXs and DEXs to go through the formal exchange registration process. Instead, the SEC probably intends to encourage CEXs and DEXs to register as non-custodial broker-dealers operating exempted trading platforms, or to spin off custodial obligations to "special purpose broker-dealers" or other qualified custodians.[343] This would allow CEXs to facilitate trading among broker-dealers and non-broker-dealers, subject to controls for protecting customer assets and trading information, in much the same way that alternative trading systems do.[344]

But there are at least two problems with this approach. First, as trading activity is concentrated in a handful of dominant crypto exchanges and crypto asset products aimed at retail investors, the SEC cannot ignore whether additional elements of "exchange" registration ought to apply to dominant platforms. This argument reflects Professor Yadav's case for reinforcing, rather

339. Some commentators note more generally that the Court might curtail the authority of the SEC to regulate crypto asset trading under the "major questions" doctrine, although this argument has not as yet fared well. SEC v. Terraform Labs Pte. Ltd., 684 F. Supp. 3d 170, 190 (S.D.N.Y. July 31, 2023) (describing crypto asset regulation as "routine work that Congress expected the SEC and other administrative agencies to perform"); *see also* Natasha Brunstein & Richard L. Revesz, *Mangling the Major Questions Doctrine*, 74 ADMIN. L. REV. 217, 235 (2022) (synthesizing "four narrow categories in which the Court invoked the major questions doctrine").

340. *See* Onnig H. Dombalagian, *Securities and Derivatives Exchanges in the United States*, FIN. MARKET INFRASTRUCTURES: L. & REG. 144–53 (2021).

341. *See supra* note 331.

342. 17 C.F.R. § 242.300(a)(2); *see also* Regulation of Exchanges and Alternative Trading Systems, Exchange Act Release No. 40760, 63 Fed. Reg. 70844, 70902-03 (Dec. 22, 1998) (discussing relative costs of registering as an exchange or registering as a broker-dealer subject to Regulation ATS).

343. *See* text accompanying *supra* notes 142 and 143.

344. *See supra* note 267.

than dismantling, the role of CEXs as all-purpose crypto asset market intermediaries with SRO-like obligations.[345] Listing standards and fair access to market information, discussed in the next two subsections, are perhaps the most salient examples that support this argument.

Second, and more concerning, the SEC exposes itself to the risk that someone will actually want to register an "exchange" and thereby publicly force the SEC to articulate what principles govern a zero-member, for-profit trading system.[346] As U.S. exchange groups began to demutualize in the 1990s, the SEC began promulgating definitive rules of general application to for-profit exchanges while questioning the viability of SRO models more generally.[347] Its rulemaking proposal for "fair administration" of exchanges may well have heralded a transition to a "core principles" approach.[348] However, these rules have languished at the SEC, perhaps in no small part due to the Commission's unwillingness to fully cede its authority over exchanges' internal compliance procedures.

I do not mean to suggest that such reform would not be a good thing.[349] And indeed, the federal courts may well whittle away at the supervisory privileges and obligations of statutory exchanges and other self-regulatory organizations well before the SEC can take considered action to scale them down.[350] Nonetheless, if the SEC is determined to use the registration and regulatory regime for exchanges to govern crypto asset trading, it should articulate upfront what it expects the role of legacy exchanges and new entrants to be. Allowing CEXs and DEXs to publicly join negotiations with the SEC over the scope and content of twenty-first century exchange rules would set a precedent that risks undermining the role of primary exchanges in managing traditional equity markets.[351]

C. Balancing Listing Incentives and Obligations

The SEC must also calibrate the incentives to list shares of stock on an exchange against the significant costs and responsibilities associated with listing. An exchange listing was traditionally understood to carry a reasonable expectation that the exchange will arrange for liquidity, which in turn requires

345. See text accompanying *supra* note 193.

346. Dell'Erba, *supra* note 53, at 16.

347. *See generally* Roberta S. Karmel, *Turning Seats into Shares: Causes and Implications of Demutualization of Stock and Futures Exchanges*, 53 HASTINGS L.J. 367 (2002).

348. Proposed Exchange Act Rule 6a-5(j), (n), 71216–17.

349. SRO Governance Proposing Release, *supra* note 314, at 71134 (proposing Exchange Act Rule 6a-5).

350. *See supra* note 338.

351. *See, e.g.,* Dell'Erba, *supra* note 53, at 63 (questioning ability of crypto exchanges to fulfill self-regulatory obligations).

capital commitments by market intermediaries.[352] In turn, listed firms comply with a heightened array of reporting requirements and corporate governance obligations,[353] some of which are now mandated by the Exchange Act.[354] In futures and other derivatives markets, by contrast, admission to trading may generally require only certification that instruments are sufficiently liquid to be "not readily susceptible to manipulation."[355]

As pressure mounts to list or admit crypto assets to trading on securities exchanges,[356] the SEC must reflect on the continued relevance of "listing" and "delisting" as normative concepts.[357] For example, the SEC must consider the extent to which a crypto asset "exchange" has an obligation to maintain and support listing pairs when it is no longer efficient to do so. The SEC has highlighted the deleterious effect of arbitrarily removing trading pairs from crypto asset trading platforms.[358] And yet, imposing a commitment on the part of "exchanges" to maintain trading opportunities in listed instruments would require the SEC to weigh the propriety of granting privileges for putative liquidity providers in trading systems.[359]

Governance rules pose similar problems. The SEC could impose only a minimum certification requirement on crypto asset trading platforms—e.g., to establish, maintain and publish procedures for admitting or removing from trading certain crypto asset or crypto asset trading pairs—similar to FIT21.[360] Such a tier would be comparable to existing tiers for instruments other than corporate shares. But to do so could create opportunities for issuers to devise crypto asset financing schemes to bypass corporate governance requirements—much like many issuers in the 1960s decided to forgo exchange listing and rely

352. Onnig H. Dombalagian, *Exchanges, Listless?: The Disintermediation of the Listing Function*, 50 WAKE FOREST L. REV. 579, 583 (2015) (discussing this expectation).

353. *See* NEW YORK STOCK EXCHANGE, LISTED COMPANY MANUAL § 303A.00 et seq (corporate governance standards), https://nyse.wolterskluwer.cloud/listed-company-manual/09013e2c8503fca9 (last visited May 24, 2024); NASDAQ STOCK MARKET, RULEBOOK, Rule 5600 series (corporate governance requirements), https://listingcenter.nasdaq.com/rulebook/nasdaq/rules/Nasdaq%205600%20Series (last visited May 24, 2024).

354. *See, e.g.,* 15 U.S.C. § 78m (reporting requirements), § 78n (proxy regulation), § 78j-1 (audit requirements), & § 78j-3 (compensation committee).

355. 7 U.S.C. § 7(d)(3); 17 C.F.R. pt. 38, app C.

356. J.W. Verret, *Feedback on the McHenry/Thompson Bill*, MEDIUM (July 5, 2023), https://medium.com/@CryptoFreedomLab/feedback-on-the-mchenry-thompson-bill-1f9019caa155 (arguing that crypto assets and crypto asset-linked products be eligible for listing and trading on traditional registered securities exchanges); *see infra* text accompanying *infra* notes 362-366.

357. Jonathan Macey et al., *Down and Out in the Stock Market: The Law and Economics of the Delisting Process*, 51 J.L. & ECON. 683 (2008).

358. Complaint at ¶¶ 60-62, SEC v. Bittrex.

359. Brian Chappatta, *A Big Bond Market Headache, Courtesy of the SEC*, BLOOMBERG (Sept. 16, 2021), https://www.bloomberg.com/opinion/articles/2021-09-16/a-big-bond-market-headache-courtesy-of-the-sec; *see also* Kathryn Judge, *Intermediary Influence*, 82 U. CHI. L. REV. 573, 594–614 (2015).

360. Failure to abide by those terms could then constitute grounds for SEC enforcement, but the SEC would not necessarily have the power to modify those rules or countermand their application through the traditional SRO rulemaking and disciplinary process.

on dealer markets.[361] The SEC would thus be obligated to work with exchanges to define the scope of permissible crypto asset activities for would-be listed companies.

The pressure on listed exchanges to compete in the crypto asset market compounds the problem. For example, the SEC reluctantly permitted several registered securities exchanges to list single-asset exchange-traded products.[362] The SEC had long resisted,[363] reasoning that proponents of listing such exchange-traded funds could not demonstrate "a comprehensive surveillance-sharing agreement with a regulated market of significant size related to the underlying or reference bitcoin assets."[364] But if the SEC were to regulate admission to trading by dominant crypto exchanges, it could hardly object to traditional exchanges doing the same.[365] The SEC would thus have to consider more broadly how much freedom traditional securities exchanges should have to list and trade crypto assets and crypto asset-linked products alongside traditional securities.[366]

D. Allocating Control over Market Information

As a matter of principle, the SEC cannot plausibly regulate the crypto asset ecosystem without imposing best execution or order handling obligations on crypto asset trading.[367] The look and feel of trading apps makes it appear as if crypto assets trade in the same manner as traditional stocks. Appearances notwithstanding, retail investors have no real guarantee (beyond terms of

361. *See, e.g.*, Michael J. Simon & Robert L.D. Colby, *The National Market System for Overover-the-Counter Stocks*, 55 GEO. WASH. L. REV. 17, 22 (1986) (discussing incentives of OTC issuers to avoid Exchange Act listing).

362. *See supra* note 201 (rule approvals for Bitcoin and Ether exchange-traded products).

363. Exchange Act Release No. 95180, 87 Fed. Reg. 40299 & n.11 (July 6, 2022) (order disapproving proposed NYSE Arca listing rule and listing prior disapprovals); *see* Grayscale Investments, LLC v. SEC, Case No. 22-1142 (D.C. Cir. filed Aug. 29, 2023) (ordering that Grayscale's petition for review be granted and the Commission's order be vacated).

364. 87 Fed. Reg. at 40300; *see also* 15 U.S.C. § 78f(b)(5) (requiring exchange to demonstrate that its listing rule is "designed to prevent fraudulent and manipulative acts and practices"); 87 Fed. Reg. at 40305 (discussing sources of fraud and manipulation in the spot bitcoin market).

365. For example, the Grayscale Bitcoin Trust prices trust shares in USD based on an "Index," published on a continuous basis using prices at certain spot bitcoin trading platforms, including (as of December 31, 2021) Coinbase Pro, Bitstamp, Kraken, and LMAX Digital. *Id.* at 40302.

366. A final but related problem the SEC would have to confront squarely is the status of instruments issued and listed by the same platform operator. Even as the three major exchange groups in the United States today are operated by listed companies, the SEC has not acted on proposed rulemaking that would enhance the protections for affiliated listings. SRO Governance Proposing Release, *supra* note 314, at 71228 (proposing Regulation AL, to be codified at 17 C.F.R. § 242.800). As crypto asset platforms by design often issue their own tokens—whether as part of a distributed ledger, a stablecoin for trading pairs, or as a capital-raising instrument—some sort of accommodation for the admission of affiliate securities to trading will similarly be necessary, which in turn may limit further flexibility in regulating self-listings. *See, e.g.*, Dell'Erba, *supra* note 53, at 56–58) (discussing issuance of stablecoins by crypto asset trading platforms).

367. *See, e.g.*, Regulation Best Execution, Exchange Act Release No. 96496, 88 Fed. Reg. 5440, 5448–49 (Jan. 27, 2023) (clarifying that the proposed codification of "best execution" rule would extend to crypto-asset securities).

service) that trading prices of crypto assets reflect the equilibrium of buying and selling interest, or that orders have an opportunity to interact at best available prices. Even the SEC chose not to extend a best execution obligation to crypto assets, institutional investors would demand some guarantee of execution quality as a purely commercial matter. In either case, the SEC would likely require market participants to collect, consolidate, and disseminate marketwide information about trading interest.

But if the SEC decides to mandate some sort of consolidated price discovery process, who will control it? Primary stock exchanges were the engine that historically generated informed price information in stock markets; Congress accordingly afforded them exclusive control over national market system mechanisms to reflect their sunk cost in infrastructure as well as the ongoing cost of market surveillance.[368] It seemed like a good idea at the time. Registered exchanges (and they alone) still control the operation of such systems, provide exclusive interfaces to display prices in intermarket systems, enforce public access to those prices, surveil markets, and decide how to allocate revenues from the sale of market data.[369]

Exchanges, of course, no longer dominate equity market volume, even as they control the processing, dissemination, fee structure and allocation of revenues from equity market data.[370] In other markets, moreover, intermarket pricing mechanisms are managed by self-regulatory organizations that do not themselves operate trading markets.[371] The SEC has publicly proposed to revise existing national market system mechanisms to promote greater competition and greater representation,[372] but the statute's exclusive delegation of such authority to self-regulatory organizations has hamstrung reform.[373]

Adding crypto exchange pricing mechanisms to the SEC's to-do list could sidetrack this incremental reform strategy. If the SEC allows dominant crypto

368. *See, e.g.*, 17 C.F.R. § 242.608 (2014) (limiting the right to file national market system plans to SROs).

369. While the range of matters covered by NMS Plans has since expanded to include governance of all aspects of securities trading, broker-dealers, issuers, and investors are not directly represented in their governance mechanisms. Merritt Fox & Gabriel Rauterberg, *Stock Market Futurism*, 42 J. CORP. L. 793, 802 (2017).

370. Market Data Infrastructure, Exchange Act Release No. 88216, 85 Fed. Reg. 16726, 16820 (March 24, 2020) (discussing relative market share); Notice of Proposed Order Regarding Consolidated Equity Market Data, Exchange Act Release No 87906, 85 Fed Reg. 2164, 2173–74 (Jan 14, 2020) (discussing the "inherent conflict of interest" in this arrangement).

371. *See supra* note **Error! Bookmark not defined.**. Some commentators have advocated public limit order books or other centralized trading systems for the most actively traded debt securities. *See, e.g.*, Larry Harris, *Transaction Costs, Trade Throughs, and Riskless Principal Trading in Corporate Bond Markets* (Oct. 22, 2015), https://papers.ssrn.com/sol3/papers.cfm?abstract__*id*=2661801.

372. Exchange Act Release No. 87906, 85 Fed. Reg. 2164, 2186–87 (Jan. 14, 2020) (proposing representation for non-SRO members and a cap on the number of operating committee members each exchange group and unaffiliated SRO may name).

373. Nasdaq Stock Mkt. LLC v. SEC, 38 F.4th 1126, 1139 (D.C. Cir. 2022) (finding "the Commission's decision to include representatives of non-SROs on the CT Plan operating committee is unreasonable and therefore invalid under *Chevron* step two").

exchanges to control the information they generate, the SEC risks provoking resistance to reforms in the stock market and further market data initiatives in the bond market. On the other hand, if the SEC were to wrest price information from crypto exchanges, it undoubtedly would have to develop commensurate mechanisms for compensating them to sustain market surveillance and agency trading in those systems—or allow them to register as exchanges in order to participate in administering market information.

E. Managing Investor Expectations

A final concern is whether the public will appreciate the nuances of investor protection regimes that govern securities products and crypto assets. Consider the following hypothetical:

> An unscrupulous CEX operator ("Operator") mints a USD-pegged stablecoin ("Stablecoin") ostensibly collateralized by Bitcoin reserves and sells Stablecoin to its customers for deposit into their Operator omnibus customer wallet. Assume that the Stablecoin is inadequately collateralized and that a dip in Bitcoin causes a run on Stablecoin, tanking the market price of Stablecoin and bankrupting Operator.

Were Stablecoin deemed a security (in hindsight), would holders of Stablecoin at another CEX be entitled to a SIPC guarantee for their market losses? Of course not. Would holders of Stablecoin at Operator be entitled to a SIPC guarantee (if Operator were otherwise a SIPC member)? Only to the current market value of Stablecoin, not the peg. If Operator were only affiliated with a SIPC member? Probably not. And yet, Stablecoin holders would invariably militate to be made whole.

Such concerns are not merely hypothetical. Following FTX's collapse, for example, the firm evidently succeeded in locating sufficient funds and liquidating appreciated assets to pay customer claims in full.[374] Those customer claims, however, are based on the dollar value of crypto assets held for customer accounts as of the date of the bankruptcy filing.[375] This has frustrated FTX customers who might otherwise have profited from an appreciation in their crypto asset positions as a result of the intervening boom in Bitcoin and other crypto assets.[376] Some customers are challenging the plan on the grounds that

374. Steven Church, *FTX Has Billions More Than Needed to Pay Bankruptcy Victims*, BLOOMBERG (May 7, 2024), https://www.bloomberg.com/news/articles/2024-05-07/ftx-has-billions-more-than-needed-to-repay-bankruptcy-victims (noting that "FTX will have as much as $16.3 billion in cash to distribute," even as it "owes more than 2 million customers and other non-governmental creditors about $11 billion").

375. Joint Chapter 11 Plan of Reorganization of FTX Trading Ltd. and Its Debtor Affiliates, In re FTX Trading, Ltd., Case No. 22-11068 (JTD) at ¶ 2.1.37 (U.S. Bankr. D. Del. Dec. 16, 2023) (proposing to compensate the holder of a customer entitlement claim "for the value as of the Petition Date of Cash or Digital Assets held by such Person or Entity in an account on any FTX Exchange"). As unsecured creditors under the proposed Chapter 11 plan, FTX customers arguably have no entitlement to the return of their crypto assets or the dollar value of their positions at the time of disbursement. *See supra* note 103.

376. *See, e.g.*, Church & Randles, *supra* note 16.

crypto assets traceable to their wallets are being used to satisfy the claims of non-customer creditors.[377]

The Securities Investor Protection Act was of course crafted to manage such expectations. As noted above, SEC staff has taken the position that special purpose securities brokers must warn customers that SIPC may not cover unregistered "digital asset securities," and must segregate digital asset securities from other securities holdings.[378] As a result, the Commission does not believe that customer crypto assets are subject to the SIPC stay and therefore customer claims do not enjoy priority a SIPC resolution proceeding. Moreover, even if they were, the SEC and SIPC would presumably take the position that crypto assets cannot be sourced in a "fair and orderly market," and as a result customers would not be entitled to the preferential return of their "customer property."[379]

And yet, SIPC proceedings involving customer securities and non-securities positions have proven especially awkward. Trustees must allocate funds segregated under the Customer Protection Rule to securities customers (and not other customers) and expedite the transfer of securities accounts (without similar provision for other accounts).[380] Moreover, public customers may not appreciate the subtle differences between a "currency, or [a] commodity or related contract or futures contract" (which SIPC does not cover) and exchange-traded funds and notes that hold or are linked to the value of commodities (which evidently are).[381] A firm's failure to maintain adequate records—or outright fraud[382]—may complicate efforts to adequately protect non-securities position holders.

Equally problematic, SIPC trustees have stretched SIPC protection in a number of instances in the interests of efficiency and equity.[383] SIPC trustees and the courts may feel compelled to honor otherwise ineligible claims when the claimant purports to have a de facto customer relationship with a broker–dealer,

377. Complaint for Declaratory Judgment, In re FTX Trading, Ltd., Case No. 22-11068 (JTD) at 1 (U.S. Bankr. D. Del. Jan. 31, 2024) (seeking "declaration that assets customers deposited, held, received, or acquired on the FTX.com platform are customer property and not property of the Debtors' estates"); *see also* FTX CUSTOMER AD HOC COMMITTEE, *Issues with Current Plan,* https://ftxvote.com/en (last visited May 24, 2024).

378. At least as a condition of no action relief for special purpose broker-dealers from Section 15 of the Exchange Act. See 2021 SPBD Release, *supra* note 7, at 11631.

379. *See supra* notes 298 and 299 and accompanying text.

380. Most of the largest futures brokers in the United States, for example, are also registered as securities brokers with the SEC. Operation, in the Ordinary Course, of a Commodity Broker in Bankruptcy, 75 Fed. Reg. 44890, 44891 n.10 (July 30, 2010) (citing the Futures Industry Association's observation that "43 of the 50 largest FCMs are also registered broker–dealers").

381. 15 U.S.C. § 78*lll*(14) (defining "security").

382. *See, e.g.*, In re Old Naples Sec., 223 F.3d 1296, 1303–04 (11th Cir. 2000). In this regard, the SIPC trustee has the discretion to pay out customer claims if "ascertainable from the books and records of the debtor or . . . otherwise established to the satisfaction of the trustee." 15 U.S.C. § 78fff-2(b)(2).

383. Onnig H. Dombalagian, *Substance and Semblance in Investor Protection*, 40 J. CORP. L. 599, 628–30 (2015).

even though the claimant formally did not hold a securities account.[384] Professor Krug has suggested that such ambiguity might invite the "prospect of an enterprise's piecemeal use of SIPC membership as window dressing" to provide unwarranted comfort about the safety of its custodial arrangements.[385]

Most notably, the SEC itself is not immune to political pressure. In *SEC v. SIPC*, the SEC (unsuccessfully) sued SIPC to force the guarantee of positions not held at a broker-dealer, after initially and publicly concluding that there was no right to relief.[386] The D.C. Circuit sided with SIPC, and legislative interest ultimately dimmed in reforming SIPA to cover frauds tangentially involving broker-dealers.[387] The SEC's volte-face, however, remains an ominous precedent: If crypto asset trading is nominally subject to SEC regulation, will the SEC and Congress cave to public demand and levy funds from the industry to cover crypto asset frauds and failures?

CONCLUSION

In advancing these two contradictory arguments—that the Exchange Act fits crypto asset trading, yet crypto asset trading could undermine the Exchange Act—I do not mean to suggest that they cancel each other out. The SEC can, and should, adapt its rules to embrace and accommodate crypto asset trading, and Congress should let the SEC take the lead. The SEC should nevertheless prioritize resolving traditional markets' fundamental structure issues before extending the same principles to crypto asset markets.[388] Such an approach would necessarily require the SEC to offer some calculated short-term concessions to crypto asset platforms in furtherance of laying the groundwork for long-term objectives.

It is beyond the scope of this Article to lay out a comprehensive regulatory program for crypto asset regulation under the Exchange Act: such an exercise is not yet ripe for debate in light of Congressional action on FIT21 and the ongoing

384. In the Madoff scandal, the SIPC trustee extended relief to holders of investment accounts managed by Madoff's advisory arm, even though such accounts were not held at Madoff's broker-dealer. *Id.* at 625.

385. Anita K. Krug, *Escaping Entity-Centrism in Financial Services Regulation*, 113 COLUM. L. REV. 2039, 2087 (2013).

386. SEC v. SIPC, 758 F.3d 357, 368 (D.C. Cir. 2014). In this case, the SEC argued that some investors could have been led to believe that they were purchasing certificates of deposit from Stanford International Bank, Ltd. (a foreign bank) through its U.S. broker–dealer affiliate (Stanford Group Capital)—for example, if they had accounts at the broker-dealer, dealt solely with the broker-dealer representatives, or paid for their CDs in accordance with the broker-dealer's instructions (even if the broker-dealer never handled the funds). The fact that investors and SGC employees referred generally to "Stanford" or that checks deposited to purchase CDs were payable to "Stanford" further evidenced investor confusion. *Id*.

387. *See, e.g.*, S. 1725, 113th Cong. (2013) (proposing to revise the term "customer" to include any person whose cash or securities were "converted or otherwise misappropriated by the [broker–dealer] *(or any person who controls, is controlled by, or is under common control with the debtor, if such person was operating through the debtor)*") (emphasis added).

388. *Cf.* Whitehead, *supra* note 311, at 1295.

legislative debate over the SEC's role in this marketplace. Nevertheless, it is not difficult to imagine some of the preliminary steps that the SEC could take to lay the groundwork for more ambitious market structure initiatives.[389] Such steps may be particularly important as the efficacy and political defensibility of "regulation by enforcement" wanes, and as crypto asset firms signaling cooperation with the SEC's interpretive guidance faithfully and nervously await greater clarity.[390]

As a simple example, the SEC could use its longstanding exemptive authority to grant relief to low-volume exchanges to create a safe harbor for DEXs.[391] DEXs occupy a quirky philosophical role in crypto asset trading markets: they pose low customer protection risk (they hold no assets and can only interact with wallet holders) but serve as the poster child for "decentralized" governance. Temporary low-volume exemptive relief—granted unilaterally to DEXs through a third-party certification regime, without necessarily requiring formal registration—would acknowledge these critiques without unduly compromising customer protection.

Second, the SEC may well clarify, as part of the rulemaking initiative outlined in the 2023 Exchange Release, the conditions under which CEXs (and DEX aggregators) may operate as broker-dealers subject to an exemption from "exchange" regulation. Such interpretive guidance would mitigate the import of classifying CEXs "as exchanges" or "clearing agencies" and the compliance burdens associated with formally separating trading, custodial and clearing functions across such entities. Public debate would then shift to the more mundane oversight of conflicts of interest in CEX operations, which can be managed by analogy to the broker-dealer registration and SRO membership process. As affirmative steps in this direction, the SEC could codify the interim staff position on "special purpose broker-dealers" and continue to tailor Regulation ATS to accommodate crypto asset trading—such as by revising filings and public disclosures to reflect the handling of crypto asset transactions.[392]

Third, the SEC might work with banking and commodity regulators to explore an allocation of jurisdiction over stablecoins, particularly those that maintain fiat reserves. For example, the SEC might find it strategically advantageous to concede that stablecoins constitute "hybrid products" subject to

389. Robert B. Ahdieh, *Law's Signal: A Cueing Theory of Law in Market Transition*, 77 S. CAL. L. REV. 215, 279–84 (2004).

390. Guseva, *supra* note 36, at 674–86 (observing the unraveling of the SEC's "logically predictable strategy" of enforcement as it pursued enforcement actions against firms otherwise signaling a willingness to "cooperate" with the SEC).

391. 15 U.S.C. § 78e(2). The SEC has previously granted such relief to a handful of innovative marketplaces. *See* Wunsch Auction Order, Exchange Act Release No. 28899, 1991 WL 292060 (Feb. 20, 1991); Tradepoint Order, Exchange Act Release No. 41199, 1999 WL 152920 (Mar. 22, 1999).

392. In addition, Regulation ATS conditions exemptive relief from "exchange" regulation on avoiding use of the term "exchange." *See* 17 C.F.R. § 242.301(b)(11).

regulation by banking regulators, rather than as "securities."[393] Ceding jurisdiction over bank-issued stablecoins early in the evolution of markets might incentivize crypto asset platforms to formally segregate the issuance of stablecoins from trading, staking, and other traditional securities operations.[394] The SEC could also clarify the Exchange Act's threshold for application to the market for a crypto asset,[395] to exclude NFTs and other less liquid crypto assets from ongoing regulation after marketing activities have ceased.

Such steps might pave the way for the SEC to invite the major CEXs to propose and commit to a common protocol for composing liquidity and aggregating price information.[396] Much as in the context of stock and bond markets, private efforts to build data aggregators may not be adequate to assure sufficient integrity for regulatory surveillance purposes—let alone price discovery, anti-manipulation, listing, and financial responsibility rules. The SEC's recent rulemaking to deregulate data consolidation—and thereby facilitate competition among data consolidators—provides a useful starting point for negotiating with market centers and aggregators to this end.[397] The SEC might eventually incorporate "fair access" requirements and intermarket routing obligations for major CEXs as part of the bargain.

None of this will happen overnight—implementing amendments to existing marketplace rules and plans, much like the siege of Troy, can take over a decade.[398] Providing some guidance—however tentative—would nevertheless accomplish three major goals. First, it would demonstrate that Congressional intervention is not necessary to build an effective trading regime for crypto assets within federal securities laws. Second, it would encourage established financial services providers to invest in and collaborate on DeFi services and applications of DLT around a shared set of regulatory expectations. And lastly, it would give the SEC an opportunity to peek into that horse before closing the gates of the Exchange Act behind it.

393. Since the late 1990s, Congress has sought to encourage federal financial regulators to work together to classify novel financial products based on, inter alia, "the history, purpose, extent, and appropriateness of the regulation of the new product under the Federal banking laws." 15 U.S.C. § 78o(j) (establishing rulemaking process for "new hybrid products").

394. The SEC could of course condition listing of stablecoin pairs on higher levels of regulation.

395. 15 U.S.C. § 78*l*(g).

396. The SEC might nevertheless avoid commissioning an SRO-built infrastructure in favor of existing or emerging blockchain protocols.

397. 17 C.F.R. § 242.614.

398. Notice of Filing of the National Market System Plan Governing the Consolidated Audit Trail, Exchange Act Release No. 77724, 81 Fed. Reg. 30614, 30659–60 (May 17, 2016).