

**REGULATION OF DECENTRALIZED SYSTEMS:
A STUDY OF UNISWAP**

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I. INTRODUCTION

Decentralized finance (“DeFi”) is an umbrella term for blockchain-based decentralized applications that offer automated, unregulated alternatives to traditional financial services. DeFi projects are powered by self-executing protocols known as “smart contracts,”¹ which are

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1. “Smart contracts” is a term used to describe blockchain-stored code that executes specified functions (outputs) when certain conditions (inputs) are met. Ethereum, which was the first blockchain to support smart contracts, see VITALIK BUTERIN, A NEXT-GENERATION SMART CONTRACT AND DECENTRALIZED APPLICATION PLATFORM (2014),

written and deployed by software developers on public platforms like the Ethereum blockchain.² Smart contracts carry out pre-specified agreements between disparate, anonymous parties without relying on central intermediaries like banks or other traditional financial institutions.³ Today, anyone in the world with an internet connection and a cryptocurrency “wallet”⁴ can engage in a variety of financial transactions using cryptocurrencies, such as lending, borrowing, trading, paying, saving, and insuring.⁵

Smart contract developers began to build DeFi applications on the Ethereum blockchain network around late 2017.⁶ Since then, the number, and transactional volume, of Ethereum-based applications have grown exponentially.⁷ In May of 2020, the volume of assets deposited as collateral on Ethereum-based DeFi platforms (a common metric

<https://translatewhitepaper.com/wp-content/uploads/2021/04/EthereumOriginal-ETH-English.pdf> [<https://perma.cc/23PJ-6GDQ>]; Shafaq Naheed Khan, Faiza Loukil, Chirine Ghe-dira-Guegan, Elhadj Benkhelifa & Anoud Bani-Hanil, *Blockchain Smart Contracts: Applications, Challenges, and Future Trends*, 14 PEER-TO-PEER NETWORKING & APPLICATIONS 2901 (2021), is often described as a distributed computing network, because it powers thousands of decentralized applications (“dapps”) that perform a wide range of simple to sophisticated functions. See Alyssa Hertig, *Which Crypto Projects are Based on Ethereum?*, COINDESK (Feb. 8, 2021, 9:57 AM), <https://www.coindesk.com/tech/2021/02/08/which-crypto-projects-are-based-on-ethereum/> [<https://perma.cc/J8CJ-EMWA>]. By contrast, Bitcoin is best known as a distributed ledger that records simple transaction data. See, e.g., Nathan Reiff & Somer Anderson, *Bitcoin vs. Ethereum: What's the Difference?*, INVESTOPEDIA (June 16, 2020), <https://www.investopedia.com/articles/investing/031416/bitcoin-vs-ethereum-driven-different-purposes.asp> [<https://perma.cc/UJ5L-78LR>] (noting that “transactions on the Ethereum network may contain executable code, while data affixed to Bitcoin network transactions are generally only for keeping notes”).

2. Jai Massari & Christian Catalini, *DeFi, Disintermediation, and the Regulatory Path Ahead*, PENN PROGRAM ON REGUL.: REGUL. REV. (May 10, 2021), <https://www.theregreview.org/2021/05/10/massari-catalini-defi-disintermediation-regulatory-path-ahead/> [<https://perma.cc/P8SU-QY9A>].

3. Gauci-Maistre Xynou, *Immutability in a Smart Contract: A Blessing or a Curse?*, LEXOLOGY (Feb. 26, 2019), <https://www.lexology.com/library/detail.aspx?g=9b0e1787-f6cc-428a-8d55-93e5994bf416> [<https://perma.cc/P6XF-FW6W>].

4. Lucas Mearian, *What's a Crypto Wallet (and How Does It Manage Digital Currency)?*, COMPUTERWORLD (Apr. 17, 2019, 3:00 AM), <https://www.computerworld.com/article/3389678/whats-a-crypto-wallet-and-does-it-manage-digital-currency.html> [<https://perma.cc/N6PP-QWDL>].

5. The website DeFi Pulse groups DeFi protocols into five categories: lending, decentralized exchanges (“DEXes”), derivatives, payments, and assets. The two largest categories are lending platforms (e.g., MakerDAO) and decentralized exchange protocols (e.g., Uniswap). See DEFI PULSE, <https://defipulse.com/> [<https://perma.cc/PHW9-VLAA>].

6. MakerDAO, one of the first applications to run on Ethereum, was launched in December 2017. See Camila Russo, *What is Decentralized Finance?: A Deep Dive by the Defiant*, COINMARKETCAP (Sept. 29, 2020), <https://coinmarketcap.com/alexandria/article/what-is-decentralized-finance#toc-defi-a-brief-history> [<https://perma.cc/V9QM-NVR2>].

7. *Ethereum Explained: A Guide to the World Supercomputer*, CRYPTOPEDIA (July 12, 2021), <https://www.gemini.com/cryptopedia/ethereum-blockchain-smart-contracts-dapps> [<https://perma.cc/X4G5-W9VV>].

known as “total value locked” (“TVL”),⁸ was less than \$9 billion.⁹ Just one year later, in May of 2021, TVL on Ethereum was more than \$85 billion.¹⁰ In November of 2021, TVL on Ethereum reached an all-time high of more than \$110 billion.¹¹

DeFi’s sudden growth is testing the ability and authority of government actors to regulate activity on peer-to-peer networks. At issue is whether and how “legacy” financial regulations — which presupposed the presence of institutional intermediaries — now apply to DeFi projects powered by code.¹² In 2018, the Securities and Exchange Commission (“SEC”) warned that the use of blockchain technology or automated smart contracts would not exempt token issuers or exchanges from complying with federal securities laws.¹³ But the SEC did not clarify how its rules would apply to decentralized protocols, and so far, the agency has been slow to bring enforcement actions.¹⁴ Scholarly attention on this subject is sparse. Previous articles have proposed new frameworks for regulating the DeFi industry,¹⁵ but have not analyzed how existing regulations may apply to today’s leading protocols.

8. TVL is the total dollar value of cryptocurrency assets locked in the smart contracts of DeFi applications. Some have argued that it overstates the size of the DeFi industry, but it remains a reliable and commonly referenced metric. Brady Dale, *Why DeFi Pulse’s Key Metric Is So Simple It’s Confusing*, COINDESK (Aug. 27, 2020, 6:00 AM), <https://www.coindesk.com/defi-pulse-decentralized-finance-data-site-tvl> [<https://perma.cc/E22S-X7E4>].

9. *Total Volume Locked (USD) in DeFi*, DEFI PULSE, <https://defipulse.com/> [<https://perma.cc/PHW9-VLAA>].

10. *Id.*

11. *Id.*

12. See Massari & Catalini, *supra* note 2. The government’s capacity to regulate activity on peer-to-peer networks is an age-old debate. Academics in the early 2000s wrangled over how to apply copyright laws to peer-to-peer file-sharing applications like Napster. See, e.g., J. Jeffrey Landen, *Beyond Napster: An Enforcement Crisis in Copyright Law?*, 28 N. KY. L. REV. 713, 713–14 (2001) (arguing that the inability of legacy copyright legislation to handle infringement on peer-to-peer file-sharing applications would give rise to an “enforcement crisis”); Mathias Strasser, *Beyond Napster: How the Law Might Respond to a Changing Internet Architecture*, 28 N. KY. L. REV. 660, 663 (2001) (arguing that legacy copyright frameworks can, and should, govern peer-to-peer applications).

13. See Press Release, SEC, Statement on Potentially Unlawful Online Platforms for Trading Digital Assets (Mar. 7, 2018), www.sec.gov/news/public-statement/enforcement-tt-statement-potentially-unlawful-online-platforms-trading [<https://perma.cc/7Q4T-XWVM>] (“Many of these platforms bring buyers and sellers together in one place and offer investors access to automated systems that display priced orders, execute trades, and provide transaction data. A number of these platforms provide a mechanism for trading assets that meet the definition of a ‘security’ under the federal securities laws.”).

14. See Press Release, SEC, SEC Charges Decentralized Finance Lender and Top Executives for Raising \$30 Million Through Fraudulent Offerings (Aug. 6, 2021), <https://www.sec.gov/news/press-release/2021-145> [<https://perma.cc/6YDN-3MDR>] (describing the case as the “Agency’s First Involving Securities Using DeFi Technology”); see also Press Release, SEC, SEC Charges EtherDelta Founder with Operating an Unregistered Exchange (Nov. 8, 2018), <https://www.sec.gov/news/press-release/2018-258> [<https://perma.cc/XG2E-BTDC>].

15. For recent scholarship in this area, see, e.g., Kristin N. Johnson, *Decentralized Finance: Regulating Cryptocurrency Exchanges*, 62 WM. & MARY L. REV. 1911, 1987 (2021).

This Note answers the question of whether the SEC has a legal basis to charge Uniswap, a peer-to-peer cryptocurrency trading platform, for violating the Securities Act of 1933 (“Securities Act”) and the Securities and Exchange Act of 1934 (“Exchange Act”).¹⁶ Uniswap is one of the largest decentralized exchanges¹⁷ by trading volume today,¹⁸ completing roughly \$2.6 billion in cryptocurrency asset trades per day.¹⁹ Uniswap’s native token, UNI, is also the twentieth most valuable cryptocurrency in the world, with a market capitalization of around \$10 billion dollars.²⁰ Because of its size and stature, Uniswap’s status under federal securities laws is likely to implicate not only other noncustodial exchanges, but also the DeFi industry as a whole.²¹

The following analysis will address whether Uniswap and UNI qualify as an “exchange” and “security” under federal securities regulations.²² To examine whether the UNI token is a security, the analysis will compare Uniswap to DAO, a decentralized investment fund²³ whose token (DAO) was classified as a security by the SEC in July of 2017.²⁴ To assess whether Uniswap is an exchange, this Note will examine the SEC’s case against the founder of EtherDelta, who was

16. See 15 U.S.C. § 77(b); 15 U.S.C. § 78(c).

17. Decentralized exchanges like Uniswap execute cryptocurrency trades without relying on order books or intermediaries. See *FAQ*, UNISWAP, <https://uniswap.org/faq/> [<https://perma.cc/75AP-JAKF>].

18. See *DEX Tracker—Decentralized Exchanges Trading Volume*, DEFIPRIME, <https://defiprime.com/dex-volume> [<https://perma.cc/LXQ6-H9W3>]. As of April 2021, Coinbase, the leading centralized exchange, executed about twice Uniswap’s daily trading volume. *DeFi Exchange*, THE BLOCK, <https://www.theblockcrypto.com/data/decentralized-finance/dex-non-custodial> [<https://perma.cc/FEY5-RF45>]. Coinbase was founded in 2012. On the day of its direct listing (April 14, 2021), Coinbase was valued at \$85.8 billion. Taylor Telford, *‘It’s more than just Coinbase’: Crypto Giant Snares \$85.8 Billion Valuation in Nasdaq Debut*, WASH. POST (Apr. 14, 2021, 4:21 PM), <https://www.washingtonpost.com/business/2021/04/14/coinbase-ipo-crypto-bitcoin/> [<https://perma.cc/DEH5-7XN6>].

19. As of December 5, 2021. See *Top Cryptocurrency Decentralized Exchanges*, COINMARKETCAP, <https://coinmarketcap.com/rankings/exchanges/dex/> [<https://perma.cc/AZR2-8DND>]; *DeFi Exchange*, *supra* note 18.

20. See *Today’s Cryptocurrency Prices by Market Cap*, COINMARKETCAP, <https://coinmarketcap.com/> [<https://perma.cc/PV8T-NN47>].

21. In September 2021, the Wall Street Journal reported that the SEC is investigating Uniswap for possible violations of federal securities laws and the Bank Secrecy Act. Dave Michaels & Alexander Osipovich, *Regulators Investigate Crypto-Exchange Developer Uniswap Labs*, WALL ST. J. (Sept. 3, 2021, 12:42 PM), <https://www.wsj.com/articles/regulators-investigate-crypto-exchange-developer-uniswap-labs-11630666800> [<https://perma.cc/AP3C-BGDE>].

22. 15 U.S.C. § 77(b)(a)(1); 15 U.S.C. § 78; see also SEC v. W. J. Howey Co., 328 U.S. 293, 297–99 (1946) (stating the necessary elements of an “investment contract”).

23. The DAO fund was raised through sales of the DAO token; operational decisions were supposed to be made by token holders (investors), who would have wielded voting power in proportion to their ownership of tokens (shares). See discussion *infra* Section II.C.

24. Uniswap and The DAO are comparable because they are decentralized and their native tokens are designed to perform a function of organizational governance. See discussion *infra* Section II.B.; see also The DAO, Exchange Act Release No. 81,207, 117 SEC Docket 745 (July 25, 2017) [hereinafter DAO Report].

charged in November of 2018 with operating an unregistered securities exchange.²⁵ This Note will also consider eighty-two (82) crypto-related SEC enforcement actions²⁶ in order to assess the likelihood of the SEC bringing charges against Uniswap.

II. BACKGROUND

A. Decentralized Exchanges

Cryptocurrency exchanges facilitate the buying and selling of cryptocurrency assets for other cryptocurrency assets or fiat currencies like USD. There are two types of cryptocurrency exchanges. Centralized exchanges (“CEXes”) like Coinbase function as trusted intermediaries: they take custody of users’ funds and ensure that their orders are fulfilled.²⁷ Decentralized exchanges (“DEXes”) like Uniswap provide platforms for buyers and sellers to transact directly.²⁸ They route cryptocurrency assets between two users’ cryptocurrency wallets without taking custody of either users’ funds,²⁹ thereby reducing the risk of third-party censorship or control.³⁰

There is no single, universally accepted definition of “decentralization.” Many applications that are nominally decentralized are actually hybrids of centralized (“off-chain”) and decentralized (“on-chain”) elements.³¹ For example, on one of the first DEXes to be widely used, trades were matched on order books stored on central servers (off-

25. The SEC’s finding that EtherDelta met the criteria of an exchange under the Securities Acts was non-binding because the finding was made pursuant to the respondent’s offer of settlement. *See* Zachary Coburn, Exchange Act Release No. 84,553, 7 (Nov. 8, 2018); *see also* SEC, Statement on Digital Asset Securities Issuance and Trading (Nov. 16, 2018), <https://www.sec.gov/news/public-statement/digital-asset-securities-issuance-and-trading> [<https://perma.cc/JSE3-LX5M>] [hereinafter Digital Asset Securities].

26. As of December 5, 2021. *Cyber Enforcement Actions*, SEC (Dec. 2, 2021), <https://www.sec.gov/spotlight/cybersecurity-enforcement-actions> [<https://perma.cc/HLP2-GZ7H>].

27. Centralized exchanges include Coinbase, Gemini, Kraken, and Binance. *See* Luke Conway, *Best Crypto Exchanges*, INVESTOPEdia (Oct. 16, 2021), <https://www.investopedia.com/best-crypto-exchanges-5071855> [<https://perma.cc/E878-95XJ>].

28. *See* Russo, *supra* note 6.

29. DEXes can accomplish this with little to no third-party intervention because they are powered by computer code that is stored, processed, and validated on a blockchain. Decentralized exchanges include Curve, Uniswap, Sushiswap, and Balancer. *See* DEXes, DEFI PULSE, <https://defipulse.com/> [<https://perma.cc/PHW9-VLAA>].

30. *See* Russo, *supra* note 6.

31. For example, custody, listing, liquidity, and trade execution are elements of DEXes that can be either centralized (exist off-chain), or decentralized (exist on-chain). *See* Tom Schmidt, *A Brief History of Decentralized Exchange*, MEDIUM (Nov. 7, 2019), <https://medium.com/wtf-dao/a-brief-history-of-decentralized-exchange-e888fb590af8> [<https://perma.cc/8YLS-U4X9>].

chain) before being executed on-chain on Ethereum.³² Subsequent DEXes eliminated off-chain order books by matching trades directly on the blockchain.³³ These DEXes host reserves (“liquidity pools”) against which users can trade at market prices at any time.³⁴ When trade orders are received, smart contracts instantly settle the transactions on the blockchain without waiting for a counterparty to take the order.³⁵

The most popular DEXes today rely on smart contracts called Automated Market Makers (“AMMs”) to set buy and sell prices for the tokens they allow users to trade.³⁶ Bancor, a DEX founded in 2017,³⁷ has been credited with popularizing AMMs.³⁸ Bancor’s original AMMs adjusted prices for a given token based on the ratio of Bancor’s reserve of the token and the token’s total circulating supply.³⁹ Subsequent AMMs set token prices using a different algorithm that compared the ratio of two tokens in a token reserve.⁴⁰ By initially combining the tokens in each liquidity pool to amounts that produced equal value, the AMM formula could automatically set the token price based on the relative sizes of the two token reserves and the sizes of incoming trades.⁴¹

Over the past year, DEXes have grown considerably in both size and importance. In June of 2020, a sudden surge of activity on Uniswap and other DEXes caused aggregate trading volumes on decentralized exchanges to increase from \$1.8 billion to \$4.8 billion in less than one month.⁴² Since then, DEX trading volumes have continued to rise, surpassing \$18 billion in November of 2020, \$60 billion in January of

32. EtherDelta was an early DEX; its founder, Zachary Cobum, was charged by the SEC in 2018 for operating an unregistered national securities exchange. *See* Zachary Cobum, Exchange Act Release No. 84,553, 3, 7 (Nov. 8, 2018).

33. *See What Is Uniswap? (UNI)*, KRAKEN, <https://www.kraken.com/en-us/learn/what-is-uniswap-uni> [<https://perma.cc/MB6R-W88U>].

34. The reserves are maintained through systems of rewards. Typically, “liquidity providers,” whose cryptocurrency assets make up the reserves, earn a percentage of every trade made on the platform in proportion to their share of the pool. *Id.*

35. *See Introducing Uniswap V3*, UNISWAP (Mar. 23, 2021), <https://uniswap.org/blog/uniswap-v3/> [<https://perma.cc/Q4X4-X73P>].

36. *See* Russo, *supra* note 6.

37. *See* Emin Gun Sirer & Phil Daian, *Bancor is Flawed*, HACKING, DISTRIBUTED (June 19, 2017, 10:18 AM), <https://hackingdistributed.com/2017/06/19/bancor-is-flawed/> [<https://perma.cc/M4LR-SAFJ>].

38. *See* Schmidt, *supra* note 31 (claiming that Bancor first popularized the use of AMMs). *See also* Owen Fernau, *Bancor Launches V3 AMM In Bid to Regain Dominance*, YAHOO (Nov. 29, 2021), <https://www.yahoo.com/now/bancor-launches-v3-amm-bid-232352408.html> [<https://perma.cc/4EF8-G5L6>] (describing Bancor as the “first-ever automated market maker (AMM)” and noting that it “holds a special place in crypto lore after attracting \$1.53B in 2017 in what was then the largest initial coin offering (ICO)”).

39. The smart contract would offer to buy the token back for higher prices when the reserve ratio was low, and for lower prices when the ratio was high. This pricing methodology was characterized by one commentator as a “central bank strategy.” *See* Sirer & Daian, *supra* note 37.

40. *See, e.g., What Is Uniswap? (UNI)*, *supra* note 33.

41. *Id.*

42. *DeFi Exchange*, *supra* note 18.

2021, and \$161 billion in May of 2021.⁴³ The leading DEXes today are less than five years old⁴⁴ and their protocols are still being updated.⁴⁵

B. Uniswap

Uniswap is a platform that facilitates trades of digital tokens. It is widely considered the leading DEX, often controlling more than half of total DEX trading volumes⁴⁶ and accounting for more than three-quarters of all DEX users on Ethereum.⁴⁷ Uniswap's recent growth has raised questions about its status under federal securities regulations.⁴⁸ Unlike its centralized counterpart, Coinbase, which has taken steps to acquire a broker-dealer license and other licenses,⁴⁹ Uniswap has not registered any aspect of its ecosystem with the SEC. The native token, UNI, is not registered as a "security," and the trading platform itself is not licensed as an "exchange" or otherwise exempted from federal registration requirements.

Uniswap's original protocol was developed by 24-year-old programmer Hayden Adams⁵⁰ and deployed on Ethereum in November of 2018.⁵¹ The V1 protocol was written to allow instant, on-chain settlement of token-to-token transactions.⁵² For every pair of tradable tokens,

43. *Id.*

44. Uniswap, Sushiswap, and Curve account for the largest shares of DEX volume today. See *id.*; *What Is Curve? (CRV)*, KRAKEN, <https://www.kraken.com/en-us/learn/what-is-curve-crv> [<https://perma.cc/8WTB-AREH>]; *What Is SushiSwap? (SUSHI)*, KRAKEN, <https://www.kraken.com/en-us/learn/what-is-sushiswap-sushi> [<https://perma.cc/6FW3-VQL6>]; *What Is Uniswap? (UNI)*, *supra* note 33.

45. See, e.g., *Introducing Uniswap V3*, *supra* note 35. Uniswap launched new versions of its protocol in 2020 (V2) and 2021 (V3).

46. See *DeFi Exchange*, *supra* note 18.

47. See Joshua Mapperson, *DEX Volumes Have Already Surpassed \$120B in 2021*, COINTELEGRAPH (Feb. 25, 2021), <https://cointelegraph.com/news/dex-volumes-have-already-surpassed-120b-in-2021> [<https://perma.cc/TM3E-XCFC>].

48. See, e.g., Aislinn Keely, *The Runaway Success of Uniswap's Token Raises an Old Question: Is It a Security?*, THE BLOCK (Sept. 18, 2020, 4:42 PM), <https://www.theblockcrypto.com/post/78231/uniswap-token-security-debate> [<https://perma.cc/27MR-SQVS>].

49. In June of 2018, Coinbase acquired a broker-dealer ("B-D") license, an alternative trading system ("ATS") license, and a registered investment advisor ("RIA") license. See Asiff Hirji, *Our Path to Listing SEC-Regulated Crypto Securities*, COINBASE BLOG (June 6, 2018), <https://blog.coinbase.com/our-path-to-listing-sec-regulated-crypto-securities-al-724e13bb5a> [<https://perma.cc/4E4F-DJ4N>]; Kate Rooney, *Coinbase Acquires Keystone Capital in Bid to Become a Regulated Broker-Dealer*, CNBC (June 6, 2018, 6:16 PM), <https://www.cnbc.com/2018/06/06/coinbase-acquires-keystone-capital-in-bid-to-become-a-regulated-broker-dealer.html> [<https://perma.cc/GGQ3-F39X>].

50. According to Adams, the idea for Uniswap came from Vitalik Buterin, the inventor of Ethereum. See Hayden Adams, *A Short History of Uniswap*, UNISWAP BLOG (Nov. 2, 2019), <https://uniswap.org/blog/uniswap-history/> [<https://perma.cc/7YX9-S6K4>].

51. *See id.*

52. See *What Is Uniswap? (UNI)*, *supra* note 33.

there is an exchange “contract” and a liquidity pool.⁵³ The latter is simply a reserve of the two tokens that is combined in amounts that produce equal value.⁵⁴ When users submit orders to trade, token prices are determined dynamically using Uniswap’s AMM formula ($x*y=k$).⁵⁵ With each trade, liquidity providers (“LPs”) whose tokens make up the liquidity pool collect fees in proportion to their shares of the reserve.⁵⁶

In May of 2020, an updated protocol known as Uniswap V2 was launched by Uniswap Labs.⁵⁷ Unlike Uniswap V1, which only allowed swaps of ERC20 tokens and Ether (“ETH”), Uniswap V2 enabled trades of any ERC20 token for another.⁵⁸ About one year after the launch of V2,⁵⁹ Uniswap V3 added several features to offer greater flexibility for both liquidity providers and traders.⁶⁰ One feature known as concentrated liquidity allows LPs to designate specific price ranges within which to offer liquidity.⁶¹ By concentrating their capital (i.e., tokens) in price ranges at which they prefer to sell, LPs can multiply their potential yields.

The current version of Uniswap consists of the Uniswap V3 smart contract protocol and a web interface that can be accessed online.⁶² Trading on Uniswap does not require sign-up. There are no accounts, deposits, or withdrawals (hence, no Know-Your-Customer (“KYC”) procedures).⁶³ To trade, the user simply connects her wallet, chooses a token pair (e.g., ETH to UNI, or UNI to DAI), and enters the volume

53. As of April 2021, Uniswap offers over 2,500 trading pairs. *See Top Decentralized Exchanges on CoinGecko by Trading Volume*, COINGECKO, <https://www.coingecko.com/en/dex> [https://perma.cc/46NS-W3L6].

54. *See What Is Uniswap? (UNI)*, *supra* note 33.

55. The ratio of the two tokens in a token reserve are factored against the size of the incoming trade. *Id.*

56. Liquidity provision on Uniswap is permissionless; anyone can become a liquidity provider and earn profits. *See id.*; *see also* Russo, *supra* note 6.

57. Uniswap Labs is the team of engineers and employees tasked with Uniswap’s ongoing development. *See Uniswap V2 Overview*, UNISWAP (Mar. 23, 2020), <https://uniswap.org/blog/uniswap-v2> [https://perma.cc/HR5Z-LNKF]. Uniswap Labs is closely related to, but not interchangeable with, Uniswap’s venture-backed company, Universal Navigation, Inc. (previously named Uniswap, LLC). *See List of SEC Filings by Universal Navigation Inc.*, SEC, <https://www.sec.gov/edgar/browse/?CIK=0001775180> [https://perma.cc/6Z58-R5GA?type=image].

58. *See Uniswap V2 Overview*, *supra* note 57.

59. Uniswap V3 launched on May 5, 2021. *See Introducing Uniswap V3*, *supra* note 35.

60. *See id.*

61. *See id.*

62. *See Uniswap App*, UNISWAP, <https://app.uniswap.org> [https://perma.cc/E8JZ-H2RG].

63. The Bank Secrecy Act (“BSA”) imposes KYC obligations on banks and other financial services providers to combat money laundering. *See Bank Secrecy Act*, 35 U.S.C. § 5311; *see also* Nick Oberheiden, *Anti-Money Laundering (AML): An Overview of Compliance and Due Diligence Under the Bank Secrecy Act and Other Laws*, NAT’L L. REV., Apr. 22, 2021, at 1, <https://www.natlawreview.com/article/anti-money-laundering-aml-overview-compliance-and-due-diligence-under-bank-secrecy> [https://perma.cc/H7AJ-F3XS].

she intends to sell.⁶⁴ Uniswap displays the tokens' exchange rate and the amount of the liquidity provider fee.⁶⁵ When the user clicks to trade, the Uniswap smart contract routes the tokens between her cryptocurrency wallet and the corresponding liquidity pool.⁶⁶ Neither the Uniswap platform nor its developers take any portion of the liquidity provider fee.⁶⁷

Traditionally, developers of decentralized applications on Ethereum⁶⁸ have "minted" new tokens for their projects⁶⁹ and sold them to members of the public in so-called initial coin offerings ("ICOs").⁷⁰ Past token sales have served one or more of the following functions: to raise capital for projects, to create vehicles for decentralized governance,⁷¹ or even to defraud unwitting investors.⁷² Uniswap's

64. See *Uniswap App*, *supra* note 62.

65. Uniswap has three separate liquidity provider fee tiers, including 0.05%, 0.30%, and 1.00%. See *Introducing Uniswap V3*, *supra* note 35.

66. See *id.*

67. See *id.* The absence of a profit-making mechanism is a notable, if not defining, characteristic of DeFi. See, e.g., Peter Van Valkenburgh, *There's No Such Thing as a Decentralized Exchange*, COIN CTR. (Oct. 3, 2020), <https://www.coincenter.org/theres-no-such-thing-as-a-decentralized-exchange/> [https://perma.cc/QD5N-QXYT] (arguing that "if a 'decentralized exchange' isn't made with free software and an open blockchain alone, and if there is also a critical middleman of some sort, then it's not really a DEX at all").

68. Most of DeFi, and the largest DEXes today, exist on Ethereum. See *Ethereum DeFi Ecosystem*, DEFIPRIME, <https://defiprime.com/Ethereum> [https://perma.cc/7Q8H-M8C7].

69. Anyone can mint a token on Ethereum by copying a standard coding protocol known as the ERC20 protocol and paying the ETH gas fees required to run an application built on Ethereum. See *Understand the ERC-20 Token Contract*, ETHEREUM (Apr. 4, 2020), <https://ethereum.org/en/developers/tutorials/understand-the-erc-20-token-smart-contract/> [https://perma.cc/85K7-5RGZ]; *FAQ*, *supra* note 17; *Ethereum Explained: A Guide to the World Supercomputer*, *supra* note 7.

70. For example, Bancor, one of Uniswap V1's biggest DEX competitors, famously raised \$153 million in its June 2017 ICO. See Gene Marks, *The Crazy New Way this Start-up Raised \$153 Million in Just Three Hours*, WASH. POST (June 15, 2017), <https://www.washingtonpost.com/news/on-small-business/wp/2017/06/15/the-crazy-new-way-this-start-up-raised-153-million-in-just-three-hours/> [https://perma.cc/EY85-BDV6].

71. DeFi project tokens often confer on their owners the right to vote on their protocol's future. Most governance structures enable anyone who owns at least one of the project's tokens (also known as "governance tokens") to vote on proposals to alter the protocol. See Fabian Schär, *Decentralized Finance: On Blockchain- and Smart Contract-Based Financial Markets*, 103 FED. RSRV. BANK ST. LOUIS REV. 153, 170 (2021), <https://files.stlouisfed.org/files/htdocs/publications/review/2021/04/15/decentralized-finance-on-blockchain-and-smart-contract-based-financial-markets.pdf> [https://perma.cc/RM2C-MTB9] ("[S]ome projects rely on voting schemes, where the respective governance tokens grant their owners the right to vote on the protocol's future. However, in many cases, the majority of governance tokens are held by a small group of people, effectively leading to similar results as with admin keys.")

72. According to a 2018 study that investigated around 1,500 ICOs, 78 percent of ICO projects were scams. See Klaus Grobys, *Did You Fall For It? 13 ICO Scams That Fooled Thousands*, COIN TELEGRAPH (Dec. 6, 2020), <https://cointelegraph.com/news/did-you-fall-for-it-13-ico-scams-that-fooled-thousands> [https://perma.cc/24TZ-SU35]. ICO scams are frequently prosecuted by the SEC. See *Cyber Enforcement Actions*, *supra* note 26. A 2020 study found that 39 out of 75, or 52 percent, of cryptocurrency-related SEC enforcement actions

founder famously eschewed the ICO route, choosing to fund his project's early development through a combination of private grants and venture capital.⁷³ In late 2018, Adams incorporated his project as a Delaware limited liability company named Uniswap LLC; the name was later changed to Universal Navigation, Inc.⁷⁴ In April of 2019, the company was reported to have raised \$1.8 million in a seed round led by Paradigm, a cryptocurrency hedge fund.⁷⁵ One month after the launch of Uniswap V2, a June 2020 Uniswap blog post confirmed that the company had raised \$11 million in a second round of funding led by venture capital firm Andreessen Horowitz (also known as a16z).⁷⁶

The sudden influx of investment into the Uniswap company caused people to speculate that a token offering was imminent.⁷⁷ On September 16, 2020, Uniswap announced that it would begin distributing a token called UNI.⁷⁸ One of the token's stated functions was to enable governance of the Uniswap ecosystem.⁷⁹ In essence, with each UNI representing a stake in the Uniswap community, UNI owners could

brought between July 2013 and December 2020 alleged fraud in the offer or sale of securities. See SIMONA MOLA, SEC CRYPTOCURRENCY ENFORCEMENT: Q3 2013–Q4 2020 (2021), <https://www.comerstone.com/Publications/Reports/SEC-Cryptocurrency-Enforcement-Q3-2013-Q4-2020> [<https://perma.cc/5HZX-BRSQ>].

73. In a blog post about the early development of Uniswap, founder Hayden Adams wrote that from late 2017 to summer of 2018, he received funding in the form of modest grants from friends. See Adams, *supra* note 50. In August of 2018, Adams received a \$100,000 grant from the Ethereum Foundation to develop Uniswap. See *Ethereum Foundation Grants Update — Wave III*, ETHEREUM (Aug. 17, 2018), <https://blog.ethereum.org/2018/08/17/ethereum-foundation-grants-update-wave-3/> [<https://perma.cc/7X4F-9RY7>].

74. Universal Navigation, Inc. (company number 7053324) was incorporated on September 12, 2018. See Department of State: Division of Corporations, Delaware.gov, <https://icis.corp.delaware.gov/eCorp/EntitySearch/NameSearch.aspx> [<https://perma.cc/HJQ4-YW48>] (search “Universal Navigation, Inc.” in the Entity Name search bar; then follow the hyperlink under the search button titled “Universal Navigation, Inc.”); see also Universal Navigation Inc., Notice of Exempt Offering of Securities (Form D) (June 19, 2020) (listing Uniswap LLC as a “previous name” for Universal Navigation, Inc.).

75. Frank Chaparro, *Paradigm Backs Decentralized Exchange Protocol Uniswap*, THE BLOCK (Apr. 24, 2019), <https://www.yahoo.com/now/paradigm-backs-decentralized-exchange-protocol-184824051.html> [<https://perma.cc/3XKK-QR3F>]; see also Universal Navigation Inc., Notice of Exempt Offering of Securities (Form D) (Apr. 29, 2019) (showing a \$1,825,000 sale of equities on April 4, 2019).

76. Series A, Uniswap (Aug. 6, 2020), <https://uniswap.org/blog/uniswap-raise/> [<https://perma.cc/4VNT-MR8J>] (writing that the \$11 million funding round was led by Andreessen Horowitz “with additional investments from USV, Paradigm, Version One, Variant, Parafi Capital, SV Angel, and A.Capital”). See also Universal Navigation Inc., *supra* note 74 (showing a \$11,000,000 sale of equities on June 19, 2020).

77. See, e.g., Ashwath Balakrishnan, *Uniswap Raises \$11 Million from Top VCs, Token Imminent?*, CRYPTO BRIEFING (Aug. 7, 2020), <https://cryptobriefing.com/uniswap-raises-11-million-top-vc-token-imminent/> [<https://perma.cc/6RQ6-FQ9A>].

78. *Introducing UNI*, UNISWAP (Sept. 16, 2020), <https://uniswap.org/blog/uni/> [<https://perma.cc/N4H3-F5Q7>].

79. *Id.* (“Uniswap is now particularly well positioned for community-led growth, development, and self-sustainability. The introduction of UNI (ERC-20) serves this purpose, enabling shared community ownership and a . . . dedicated governance system . . .”).

draft and vote on “governance proposals” to enact changes to the Uniswap protocol.⁸⁰

Uniswap’s announcement explained that 1 billion UNI would be issued and allocated in the following way:

- (1) 60 percent (600 million UNI) to Uniswap community members, including 15 percent (150 million UNI) to preexisting users and 43 percent (430 million UNI) to Uniswap’s governance treasury;
- (2) 21.266 percent (212,660,000 UNI) to Uniswap team members and future employees;
- (3) 18.044 percent (180,440,000 UNI) to investors;⁸¹
- (4) 0.69 percent (6.9 million UNI) to advisors.⁸²

Of the 600 million UNI allocated to the Uniswap community, one-quarter (150 million) was made immediately available to Uniswap’s *preexisting* user base⁸³: anyone who had traded or provided liquidity on Uniswap before September 1, 2020. This cohort was eligible to redeem an “airdrop” of 400 UNI tokens in their Ethereum wallets.⁸⁴ All other tokens were scheduled to vest on a continuous and uniform basis over four years. These included the community tokens (430 million UNI, or 43 percent of total UNI supply) retained by Uniswap’s governance treasury, as well as the combined 400 million UNI (40 percent) allocated to Uniswap’s team members, future employees, investors, and advisors (hereinafter, “insiders”).⁸⁵ Notably, for every cohort, the vesting schedule was designed to enable the majority of tokens (70 percent) to vest during the first two years.⁸⁶

Uniswap’s token distribution model is not unusual for DeFi. Several other leading protocols have allocated comparable amounts of their

80. *See id.*

81. *Id.* Investors included VC firms like a16z and Union Square Ventures. There were two funding rounds: April 2019 (\$1.8 million) and June 2020 (\$11 million). Investors purchased shares of Uniswap’s company (originally Uniswap LLC, renamed Universal Navigation Inc.). *See* List of SEC Filings by Universal Navigation Inc., *supra* note 57.

82. *Introducing UNI*, *supra* note 78.

83. *Id.*

84. By the next morning (Sept. 17, 2020), 41,282,200 UNI had been claimed by 55,739 Ethereum addresses. The total value of 400 UNI at the time was around \$1,200. *See* Robbie Liu, *Uniswap Drops ‘Free Money’ UNI Tokens — But What Are They Really Worth?*, OKEX (Sept. 17, 2021), <https://www.okex.com/academy/en/uniswap-drops-free-money-uni-tokens-but-what-are-they-really-worth-market-watch> [<https://perma.cc/J2B3-DL7L>].

85. These 430 million UNI were to be distributed “on an ongoing basis through contributor grants, community initiatives, liquidity mining, and other programs.” *See Introducing UNI*, *supra* note 78.

86. To illustrate, the 430 million UNI destined for Uniswap’s governance treasury were scheduled to vest as follows: in Year 1, 40 percent of the governance treasury, or 172 million UNI vest; in Year 2, an additional 30 percent (129 million tokens); in Year 3, an additional 20 percent (86 million tokens); in Year 4, the remaining 10 percent (43 million tokens). *Id.*

tokens for insiders like employees and advisors. For example, both Curve (another DEX) and Compound (a lending protocol) reserved around 30 and 50 percent of their tokens for employees and investors.⁸⁷ Two other lending protocols, Yearn and Aave, distributed their tokens only amongst community investors.⁸⁸

C. The DAO

The Decentralized Autonomous Organization (“The DAO”) was a decentralized investment fund created from the proceeds of a May 2016 ICO of the DAO token.⁸⁹ The purpose of The DAO was to accelerate the development of the Ethereum network by creating a vehicle (the DAO token) for ordinary investors (token owners) to invest in future Ethereum projects.⁹⁰ About one month after The DAO’s ICO, a hacker stole approximately one-third of The DAO’s assets.⁹¹ The Ethereum community responded by instituting a “hard fork,” which allowed the stolen funds to be returned to their original owners.⁹² The DAO token was delisted from major cryptocurrency trading platforms later that year, and The DAO ceased to operate.⁹³

Like Uniswap, The DAO was designed to be completely permissionless. Just as anyone could trade on Uniswap or buy the UNI token after it launched, anyone could buy the DAO token and thereby earn

87. See, e.g., *Understanding Tokenomics*, CURVE FIN., <https://resources.curve.fi/base-features/understanding-tokenomics> [<https://perma.cc/9QBZ-L67H>] (Curve allocated 30 percent of CRV tokens to “shareholders (team and investors)” and 3 percent to “employees”); Robert Leshner, *Compound Governance Is Live*, MEDIUM (Apr. 16, 2020), <https://medium.com/compound-finance/compound-governance-decentralized-b18659f811e0> [<https://perma.cc/KP23-WX5P>] (out of 10 million total COMP, 4,995,051 (about 50 percent) were allocated to investors, founders, and current and future team members).

88. See *Yearn.finance*, MESSARI, <https://messari.io/asset/yeam-finance/profile> [<https://perma.cc/HG7Z-VBEG>]; *Incentives Policy & AAVE Reserve*, AAVENOMICS, <https://docs.aave.com/aavenomics/incentives-policy-and-aave-reserve> [<https://perma.cc/G9C6-4R35>] (the decentralized lending protocols Yearn and Aave did not allocate their native tokens (YFI and AAVE, respectively) to team members or investors, allowing them to be governed completely by community members).

89. The DAO’s ICO raised more than \$160 million from 11,000 investors, setting a record at the time as the largest crowdfunding campaign in history. See Laila Metjahic, *Deconstructing the DAO: The Need for Legal Recognition and the Application of Securities Laws to Decentralized Organizations*, 39 CARDOZO L. REV. 1533, 1533–34 (2018). Subsequently, Bancor’s June 2017 ICO raised \$153 million. See Marks, *supra* note 70; Stan Higgins, Alex Sunnarborg & Pete Rizzo, *\$150 Million: Tim Draper-Backed Bancor Completes Largest-Ever ICO*, COINDESK (June 12, 2017, 1:45 PM), <https://www.coindesk.com/markets/2017/06/12/150-million-tim-draper-backed-bancor-completes-largest-ever-ico/> [<https://perma.cc/7HAN-WKHP>].

90. See Metjahic, *supra* note 89, at 1534–35.

91. See *id.* at 1535.

92. Michael del Castillo, *Ethereum Executes Blockchain Hard Fork to Return DAO Funds*, COINDESK (Sept. 11, 2021, 8:23 AM), <https://www.coindesk.com/tech/2016/07/20/ethereum-executes-blockchain-hard-fork-to-return-dao-funds/> [<https://perma.cc/N86V-6Q2T>].

93. See *id.*

both a voting right in The DAO as well as a share of its future investment profits. Like Uniswap, The DAO did not have a conventional management structure — it lacked executive officers, a board of directors, or employees who controlled day-to-day operations. At the same time, like Uniswap, The DAO was associated with a corporate entity composed of its original developers. Finally, like Uniswap’s company,⁹⁴ Slock.it UG, the German blockchain company behind The DAO, existed before The DAO was formed.⁹⁵

D. EtherDelta

EtherDelta is a decentralized exchange founded by Zachary Coburn in July 2016.⁹⁶ Like Uniswap, EtherDelta provided a way to buy ERC20 tokens that were not listed on bigger, centralized exchanges.⁹⁷ Unlike Uniswap, EtherDelta earned revenue from the trades it facilitated.⁹⁸ Coburn collected these profits until he sold EtherDelta to foreign buyers in November of 2017.⁹⁹ By December 16, 2017, Coburn was neither operating nor collecting fees from the platform.¹⁰⁰

EtherDelta used an order book rather than AMMs to match and execute orders.¹⁰¹ When an order “maker”¹⁰² on EtherDelta submitted

94. Uniswap LLC (later renamed Universal Navigation Inc.) was incorporated on September 12, 2018. *See* Department of State: Division of Corporations, *supra* note 74. Uniswap V0 was deployed on Ethereum in November 2018. *See* Adams, *supra* note 50.

95. Samuel Falkon, *The Story of the DAO— Its History and Consequences*, MEDIUM (Dec. 24, 2017), <https://medium.com/swlh/the-story-of-the-dao-its-history-and-consequences-71e6a8a551ee> [<https://perma.cc/A2SW-9WMJ>] (“At the beginning of May 2016, a few members of the Ethereum community announced the inception of The DAO, which was also known as Genesis DAO The coding framework [for the DAO] was developed open source by the Slock.It team but it was deployed under ‘The DAO’ name by members of the Ethereum community.”). Slock.it UG continued to operate even after the dissolution of The DAO. *See, e.g.*, Christoph Jentzsch, *Blockchains Acquires Slock.it*, SLOCK.IT BLOG (June 3, 2019), <https://blog.slock.it/blockchains-acquires-slock-it-4b3a0276893d> [<https://perma.cc/5XF5-MAD6>].

96. Emily Chan, *Registration Requirements for “Decentralized” Exchanges Under the Federal Securities Laws: The Case of EtherDelta*, JD SUPRA (Nov. 16, 2018), <https://www.jdsupra.com/legalnews/registration-requirements-for-96626/> [<https://perma.cc/3PNY-9GLC>].

97. EtherDelta was the most widely used decentralized exchange on Ethereum in 2017. Its highest volume months coincided with the peak of the 2017 ICO boom. Alethio, *DEX Trades History*, TABLEAU PUBLIC (June 25, 2019), <https://public.tableau.com/profile/alethio#!/vizhome/DEXTradesHistory/Dashboard1> [<https://perma.cc/5V37-XHP2>]; *See* Higgins et al., *supra* note 89 (discussing ICO boom).

98. Zachary Coburn, Exchange Act Release No. 84,553, 7 (Nov. 8, 2018) (“To promote trade volume, EtherDelta did not charge a fee to a maker for placing an order. Takers, on the other hand, were charged 0.3% of a transaction’s trade volume.”).

99. *Id.*

100. *See id.*

101. *Id.*

102. In cryptocurrency trading markets, “makers” create orders and wait for them to be filled by “takers.” Makers create liquidity by making it possible for takers to instantly buy or

a request to buy or sell ERC20 tokens for a specified amount of Ether (“ETH”), or vice versa, EtherDelta’s website relayed the order to an order book on a centralized server maintained by EtherDelta.¹⁰³ When a “taker,” through the website interface, clicked on an order displayed on the order book and indicated her intent to trade, the smart contract securely routed the funds, and the smart contract’s internal ledger on the Ethereum blockchain reflected the transaction.¹⁰⁴

Like Uniswap, EtherDelta allowed users to retain custody of their cryptocurrency assets at all times. This noncustodial model may have reduced the risks of stored assets being stolen by external hackers¹⁰⁵ or by unscrupulous exchange operators, but it raised others. In December of 2017, an attacker hijacked the EtherDelta website’s Domain Name System (“DNS”), replaced it with an identical site, and stole more than \$270,000 in ETH and other ERC20 tokens from users who believed they were trading on the exchange.¹⁰⁶ In November of 2018 (the same month as Uniswap V1’s launch), EtherDelta’s founder settled unrelated charges with the SEC for operating an unregulated securities exchange.¹⁰⁷

III. FAILURE TO REGISTER AS A SECURITY OR EXCHANGE

In 2017, the SEC cautioned the cryptocurrency industry that the use of blockchain technology or automated smart contracts would not exempt token issuers or exchanges from respecting securities laws and regulations.¹⁰⁸ Since then, the agency has issued informal guidance on the potential application of existing laws to digital assets and applications,¹⁰⁹ and pursued dozens of enforcement actions against

sell cryptocurrencies. *Market Makers and Market Takers Explained*, BINANCE ACAD. (Aug 17, 2021), <https://academy.binance.com/en/articles/what-are-makers-and-takers> [<https://perma.cc/WLR7-3QGW>].

103. *See Coburn*, Exchange Act Release No. 84,553, 6 (Nov. 8, 2018).

104. *See id.*

105. In 2014, Mt. Gox, the world’s largest bitcoin exchange, suffered a hack that resulted in the theft of \$460 million in bitcoin. *See* Robert McMillan, *The Inside Story of Mt. Gox, Bitcoin’s \$460 Million Disaster*, WIRE (Mar. 3, 2014, 6:30 AM), <https://www.wired.com/2014/03/bitcoin-exchange/> [<https://perma.cc/2U6S-ZTMF>].

106. Kai Sedgwick, *One Week on from the Etherdelta Hack, Funds Are Still Being Stolen*, BITCOIN.COM (Dec. 26, 2017), <https://news.bitcoin.com/one-week-etherdelta-hack-funds-still-stolen/> [<https://perma.cc/6RJ7-9D9C>].

107. *See* Press Release, SEC, SEC Charges EtherDelta Founder With Operating an Unregistered Exchange (Nov. 8, 2018), <https://www.sec.gov/news/press-release/2018-258> [<https://perma.cc/XG2E-BTDC>]. Neither the cease-and-desist order, nor the SEC’s press release, mentioned the 2017 hack.

108. DAO Report, *supra* note 24 (“The automation of certain functions through [distributed ledger or blockchain] technology, ‘smart contracts,’ or computer code, does not remove conduct from the purview of the U.S. federal securities laws.”).

109. *See, e.g., Framework of ‘Investment Contract’ Analysis of Digital Assets*, SEC (last modified Apr. 3, 2019), <https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets> [<https://perma.cc/263E-CYWW>] [hereinafter SEC Framework].

cryptocurrency companies and founders for a range of violations, including failures to register a securities offering, broker-dealer, investment company, or exchange; violations of anti-touting provisions; and fraud.¹¹⁰

This Part will address three questions: (1) whether the UNI token is an unregistered security; (2) whether the Uniswap platform is an unregistered exchange; and (3) whether the SEC is likely to bring charges against Uniswap or its founders for failures to register under Sections 5(a) and (c) of the Securities Act or Section 5 of the Exchange Act.¹¹¹ The analysis will conclude that the UNI token may qualify as a security, that Uniswap likely qualifies as an exchange, and that the SEC is not likely to charge Uniswap or its founders for the failure to register UNI as a security, but may charge them for the failure to register Uniswap as an exchange.

A. Is the UNI Token a Security?

The SEC issued its first statement on the potential application of federal securities laws to decentralized organizations in July of 2017.¹¹² In a report summarizing the findings of an investigation into The DAO (the “DAO Report”), the SEC concluded that (1) DAO tokens were “securities” as defined by Section 2(a)(1) of the Securities Act and Section 3(a)(10) of the Exchange Act,¹¹³ and (2) The DAO (the unincorporated organization), had violated Section 5 of the Exchange Act by failing to register UNI as a security.¹¹⁴ Despite these findings, the SEC chose not to pursue an enforcement action against The DAO or any of its founders and developers.¹¹⁵

To determine whether the DAO token qualified as a security, the SEC applied the *Howey* test, which holds that an investment contract is

110. See *Cyber Enforcement Actions*, *supra* note 26; see also SIMONA MOLA, SEC CRYPTOCURRENCY ENFORCEMENT: Q3 2013–Q4 2020 (2021), <https://www.comerstone.com/Publications/Reports/SEC-Cryptocurrency-Enforcement-Q3-2013-Q4-2020> [<https://perma.cc/5HZX-BRSQ>].

111. 15 U.S.C. § 77e; 15 U.S.C. §§ 78e–f.

112. See DAO Report, *supra* note 24, at 1, 16–17.

113. See 15 U.S.C. § 77b(a)(1); 15 U.S.C. § 78c(a)(10).

114. See DAO Report, *supra* note 24, at 17. The DAO Report also found that exchange platforms that traded DAO tokens were likely to be “exchanges”: “The Platforms that traded DAO Tokens appear to have satisfied the criteria of Rule 3b-16(a) and do not appear to have been excluded from Rule 3b-16(b).” *Id.*

115. *Id.* at 1 (announcing that “[t]he Commission has determined not to pursue an enforcement action in this matter based on the conduct and activities known to the Commission at this time”). By the time The DAO Report was issued in July 2017, more than a year after the hack, The DAO was largely defunct. See Quinn DuPont, *Experiments in Algorithmic Governance: A History and Ethnography of “The DAO,” a Failed Decentralized Autonomous Organization*, in BITCOIN AND BEYOND: CRYPTOCURRENCIES, BLOCK CHAINS AND GLOBAL GOVERNANCE 157, 165 (Malcolm Campbell-Verduyn ed. 2017) (ebook) (noting that after the hack, “the [Ethereum] blockchain ledger was updated to effectively erase The DAO. The DAO, and its political vision, was dead”).

(a) an investment of money (b) in a common enterprise (c) with a reasonable expectation of profits (d) to be derived from the entrepreneurial or managerial efforts of others.¹¹⁶ This Section will consider the SEC's *Howey* analysis of the DAO token in relation to UNI.

1. Investors in UNI Invested Money

The DAO Report established that “in determining whether an investment contract exists, the investment of ‘money’ need not take the form of cash.”¹¹⁷ Just as DAO tokens were purchased using ETH, UNI tokens are purchased using ETH or any ERC20 token. Under established precedent, there is little doubt that such investments of ETH constitute contributions of value that meet the first prong of *Howey*.¹¹⁸

2. In a Common Enterprise

A key SEC guidance on *Howey*'s application to digital assets states that “[i]n evaluating digital assets, we have found that a ‘common enterprise’ typically exists.”¹¹⁹ The federal courts, however, have held that a common enterprise may exist by virtue of either “horizontal commonality” or “strict vertical commonality.”¹²⁰ Horizontal commonality requires that “the fortunes of each investor in a pool of investors” are tied to one another and to the “success of the overall venture”;¹²¹ there must be a “sharing or pooling of funds.”¹²² Vertical commonality requires that the fortunes of investors be tied to the fortunes of the promoter.¹²³

116. *United Hous. Found., Inc. v. Forman*, 421 U.S. 837, 852 (1975) (stating the “touchstone” of an investment contract “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” (citing *SEC v. W.J. Howey Co.*, 328 U.S. 293, 301 (1946))).

117. *See* DAO Report, *supra* note 24, at 11.

118. *See* SEC v. Shavers, No. 13-cv-416, 2014 WL 4652121, at *1 (E.D. Tex. Sept. 18, 2014) (holding that an investment of Bitcoin, a virtual currency, meets the first prong of *Howey*).

119. *See id.* (“Based on our experiences to date, investments in digital assets have constituted investments in a common enterprise because the fortunes of digital asset purchasers have been linked to each other or to the success of the promoter’s efforts.” (citing *SEC v. Int’l Loan Network, Inc.*, 968 F.2d 1304, 1307 (D.C. Cir. 1992))).

120. There is a circuit split on this issue. *Compare* *Revak v. SEC Realty Corp.*, 18 F.3d 81, 87–88 (2d Cir. 1994), *with* *Balestra v. ATBCOIN*, 380 F. Supp. 3d 340, 353 (S.D.N.Y. 2019).

121. *Revak*, 18 F.3d at 87 (citing *Hart v. Pulte Homes of Mich. Corp.*, 735 F.2d 1001, 1004 (6th Cir. 1984)). The court there did not find horizontal commonality. *Id.* (“The rents and expenses attributable to each unit were not shared or pooled in any manner, but were instead the sole responsibility of the unit owner. Plaintiffs owned individual units, and could make profits or sustain losses independent of the fortunes of other purchasers.”).

122. *See In re J.P. Jeanneret Assocs., Inc.*, 769 F. Supp. 2d 340, 359 (S.D.N.Y. 2011) (quoting *Revak*, 18 F.3d at 87).

123. *See Brodt v. Bache & Co., Inc.*, 595 F.2d 459, 461 (9th Cir. 1978) (citing *Hector v. Wiens*, 533 F.2d 429, 433 (9th Cir. 1976)).

The SEC is likely to find a common enterprise exists in Uniswap, just as it found one to exist in The DAO.¹²⁴ The fortunes of UNI owners — which depend on the UNI token’s appreciation — are tied horizontally with the fortunes of other UNI owners, and vertically with those of Uniswap company employees, including its founder, Adams.¹²⁵

3. With a Reasonable Expectation of Profits

“Profits” include “dividends, other periodic payments, or the increased value of the investment.”¹²⁶ The DAO Report found that a “reasonable investor would have been motivated, at least in part, by the prospect of profits on their investment of ETH in The DAO.”¹²⁷ The report pointed out that DAO token holders stood to share in the potential profits from projects they voted to fund, and that this aspect was advertised by “various promotional materials disseminated by Slock.it and its co-founders.”¹²⁸ A similar finding can be made with regard to Uniswap. The UNI token created a reasonable expectation of profits from the increased value of the investment;¹²⁹ both investors and “air-drop” recipients of the UNI token were motivated to either buy or hold their UNI tokens by the prospect of such profits.¹³⁰ The UNI token easily satisfies *Howey*’s third prong.¹³¹

4. Derived from the Managerial Efforts of Others

According to the SEC, “[w]hen a promoter, sponsor, or other third party (or affiliated group of third parties) (each, an ‘Active Participant’ or ‘AP’) provides essential managerial efforts that affect the success of the enterprise . . . then this prong of the test is met.”¹³² The central issue

124. See DAO Report, *supra* note 24, at 11 (“Investors who purchased DAO Tokens were investing in a common enterprise and reasonably expected to earn profits through that enterprise when they sent ETH to The DAO’s Ethereum Blockchain address in exchange for DAO Tokens.”).

125. Current and future UNI team members control 21.266 percent of UNI tokens. *Introducing UNI*, *supra* note 78.

126. See DAO Report, *supra* note 24, at 11 (citing SEC v. Edwards, 540 U.S. 389, 394 (2004)).

127. See *id.* at 12.

128. *Id.* at 11–12.

129. The token’s value as a governance token was expected to increase as the Uniswap platform grew.

130. See, e.g., William Foxley, *DeFi’s UNI Token Jumps 92% in One Week, Passes \$15*, COINDESK (Sept. 14, 2021, 7:02 AM), <https://www.coindesk.com/markets/2021/01/27/defis-uni-token-jumps-92-in-one-week-passes-15/> [<https://perma.cc/7YHN-6SNE>].

131. A list of characteristics that create a greater likelihood that there is a reasonable expectation of profit is listed in the SEC’s Framework. The UNI token displays several of these characteristics. See SEC Framework, *supra* note 109.

132. *Id.*

is “whether the efforts made by those other than the investor are the undeniably significant ones, those essential managerial efforts which affect the failure or success of the enterprise.”¹³³

The fourth prong of *Howey* is difficult to apply to entities like Uniswap and The DAO, whose token values are closely tied to the growth and success of their respective decentralized communities.¹³⁴ These ecosystems are not self-initializing; their existence depends upon the efforts of their founders or developers to advertise, promote, and support their networks until they achieve enough users to operate efficiently.¹³⁵ In the case of The DAO, the SEC found that the role of Slock.it and its founders was significant enough to satisfy *Howey*’s last prong.¹³⁶ The SEC focused on the role the founders had in not only creating and promoting The DAO,¹³⁷ but also in designating certain individuals as “Curators,” with the power to screen governance proposals before they were presented to token holders for a vote.¹³⁸ The SEC found, specifically, that “although any DAO Token holder could put forth a proposal, each proposal would follow the same protocol, which included vetting and control by the current Curators.”¹³⁹ Noting the Slock.it founders’ role in “actively oversee[ing] The DAO,” the SEC concluded that “investors in The DAO reasonably expected Slock.it and its co-founders, and The DAO’s Curators, to provide significant managerial efforts after The DAO’s launch.”¹⁴⁰

Uniswap appears to have avoided many of these pitfalls¹⁴¹ by delaying its token launch and marketing UNI as a governance token rather

133. DAO Report, *supra* note 24, at 12 (citing *SEC v. Glenn W. Turner Enters., Inc.*, 474 F.2d 476, 482 (9th Cir. 1973)).

134. *See, e.g.,* Metjahic, *supra* note 89, at 1562 (describing the determinants of DAO token values: “Each token provides the investor with a portion of ownership over the DAO along with a right to share in the profits of its investments in crowdfunded ventures. . . . If the DAO chooses to fund an unsuccessful venture, each token-holder experiences a loss of profit that could have been achieved through another venture”).

135. For example, Uniswap cannot operate without liquidity providers depositing their cryptocurrencies into token reserves. *What is Uniswap? (UNI)*, *supra* note 33.

136. DAO Report, *supra* note 24, at 12.

137. The SEC noted Slock.it’s essential role in creating and promoting The DAO. *See id.* Slock.it designed the protocol, created The DAO’s website, published its White Paper, disseminated information on online forums about how The DAO would operate, and advertised the expertise and credentials of The DAO’s creators and curators. *Id.*

138. Curators could “impose their own subjective criteria for whether [proposals] should be whitelisted for a vote by DAO Token holders.” *Id.* at 13.

139. *Id.*

140. *Id.* at 12–13. The DAO Report further found, “Slock.it and its co-founders did, in fact, actively oversee The DAO. They monitored The DAO closely and addressed issues as they arose,” including vulnerabilities in The DAO’s code and the attack. *Id.* at 13.

141. A March 2018 article conceived of this possibility: “The timing of the token sale relative to the development of the project has critical implications, since it affects the marketing and sales strategy, as well as the degree to which potential purchasers rely on the efforts of others to make profits.” FENNIE WANG, PRIMAVERA DE FILIPPI, ALEXIS COLLOMB & KLARA SOK, FINANCING OPEN BLOCKCHAIN ECOSYSTEMS: TOWARD COMPLIANCE AND

than a profit-yielding investment.¹⁴² By the time the UNI token launched, the Uniswap platform had a self-sustaining user base and was fully autonomous.¹⁴³ Unlike The DAO, the Uniswap protocol did not require “Curators” to vet governance proposals; any individual or group with at least one percent of delegated UNI tokens could submit a proposal to a community vote.¹⁴⁴ Because the “managerial efforts” of the Uniswap team¹⁴⁵ did not appear to be as “essential” as they were in the case of The DAO,¹⁴⁶ Uniswap could claim, at least initially, that the UNI token’s value was not significantly affected by the team’s efforts.

The Uniswap team’s ability to affect UNI’s value has become more apparent over time. The launch of Uniswap V3 (the first update to the protocol after the introduction of UNI)¹⁴⁷ coincided with sharp increases in the price of the token.¹⁴⁸ Although the exact causes of price increases are difficult to pick out against broader trends,¹⁴⁹ there are reasons to believe that UNI’s rally in the spring of 2021 was driven, at

INNOVATION IN INITIAL COIN OFFERING 24 (2018), <https://hal.archives-ouvertes.fr/hal-02046793/document> [<https://perma.cc/TMT5-YA6B>].

142. The UNI launch announcement emphasized the token’s utility as a vehicle of governance: “Uniswap is now particularly well positioned for community-led growth, development, and self-sustainability. The introduction of UNI (ERC-20) serves this purpose, enabling shared community ownership and a vibrant, diverse, and dedicated governance system, which will actively guide the protocol towards the future.” *Introducing UNI*, *supra* note 78.

143. By the time UNI was launched on September 16, 2020, trading volumes on Uniswap had surpassed \$1 billion per day. Samuel Haig, *Yield Farming Frenzy Pushes Uniswap Daily Volume over \$1 Billion*, COINTELEGRAPH (Sept. 3, 2020), <https://cointelegraph.com/news/yield-farming-frenzy-pushes-uniswap-daily-volume-over-1-billion> [<https://perma.cc/94NK-B6DW>].

144. *See Introducing UNI*, *supra* note 78.

145. The exact number of employees at Uniswap is not known. A July 2021 article suggested that Uniswap has “a few dozen employees.” Tim Fries, *With 33x Fewer Employees, Uniswap Has 77% of Coinbase’s Trading Volume*, TOKENIST (July 6, 2021), <https://tokenist.com/with-33x-fewer-employees-uniswap-has-77-of-coinbases-trading-volume/> [<https://perma.cc/2QDB-5DU5>].

146. *See* SEC Framework, *supra* note 109.

147. Newer versions of the protocol, like Uniswap V3, do not replace earlier versions. Uniswap V1, V2, and V3 are all fully functional. *See, e.g., The Uniswap V1 Protocol*, UNISWAP DOCS, <https://uniswap.org/docs/v1/> [<https://perma.cc/EF8M-CHQT>]; *Uniswap V2 Overview*, UNISWAP DOCS (Mar. 23, 2020), <https://uniswap.org/blog/uniswap-v2/> [<https://perma.cc/R4EQ-DA4V>].

148. UNI’s price reached all-time high of \$44.92 on May 3, 2021, two days before Uniswap V3 launched. *Uniswap (UNI)*, COIN GECKO, <https://www.coingecko.com/en/coins/uniswap> [<https://perma.cc/3799-BHB6>].

149. The entire cryptocurrency market was rallying in the spring of 2021, leading up to Uniswap V3’s launch. *See, e.g.,* Anthony Cuthbertson, *Bitcoin Price 2021, Record-Breaking Run Still Far From Peak But ‘90% Crash and Crypto Winter’ Will Follow, Expert Warns*, INDEPENDENT (Mar. 24, 2021), <https://www.independent.co.uk/life-style/gadgets-and-tech/bitcoin-price-2021-record-latest-prediction-b1819094.html> [<https://perma.cc/L5XJ-6E57>]. When the market crashed in late May, the price of UNI dropped to under \$17 from an earlier high of \$45. *See* Allison Morrow, *A Crypto Crash Wiped out \$1 Trillion This Week Here’s What Happened*, CNN (May 22, 2021, 9:11 AM), <https://www.cnn.com/2021/05/22/investing/crypto-crash-bitcoin-regulation/index.html> [<https://perma.cc/VNX6-L5WW>]; *Uniswap (UNI)*, *supra* note 148.

least in part, by news of Uniswap’s upcoming launch.¹⁵⁰ To the extent that future updates bolster or undermine perceptions of Uniswap as an easy and cost-efficient way to exchange cryptocurrencies,¹⁵¹ the price of UNI will continue to be affected by the “managerial efforts” of Uniswap’s team.

The fourth *Howey* prong may be implicated, alternatively, by Uniswap’s governance structure and token distribution model. The SEC previously stated that where “an [active participant (AP)] has a lead or central role in the direction of the ongoing development of the network or the digital asset,” investors are more likely to be relying on the efforts of others.¹⁵² “In particular, an AP plays a lead or central role in deciding *governance issues*, code updates, or how third parties participate in the validation of transactions that occur with respect to the digital asset.”¹⁵³ Today, most aspects of Uniswap’s ongoing development, from protocol changes to committee appointments,¹⁵⁴ are decided by its DAO.¹⁵⁵ But the rules of the DAO (where 1 UNI equals 1 vote) concentrate power in those who hold the most tokens. Uniswap’s DAO requires 2.5 million UNI (0.25 percent of all UNI) to submit a

150. See, e.g., Joseph Young, *Uniswap V3 announced — UNI Prices Surges by 8% in Minutes*, COINTELEGRAPH (Mar. 23, 2021), <https://cointelegraph.com/news/uniswap-v3-launches-uni-prices-surges-by-8-in-minutes> [<https://perma.cc/RX5Y-FPKF>]. Subsequent reports suggested that Uniswap V3 was “highly anticipated” and “one of the most eagerly awaited events in the crypto calendar this year.” Martin Young, *Uniswap v3 Became a ‘Uniflop’ on Opening Day*, YAHOO (May 5, 2021), <https://www.yahoo.com/now/uniswap-v3-became-uniflop-opening-064500555.html> [<https://perma.cc/FKZ9-AL9M>]. Price prediction posts online often tie potential price increases to protocol updates. See, e.g., Elena R., *Uniswap Price Prediction- Will UNI Price Hit \$100 in 2021?*, UNISWAP (June 2, 2021), <https://coinpedia.org/price-prediction/uniswap-uni-price-prediction/> [<https://perma.cc/YR9Q-9P9E>] (suggesting that UNI “might even reach higher with certain improvements with its protocol”); see also Shawn Du’Mmett, *Uniswap Price Prediction 2021–2025*, CRYPTOPOLITAN (Oct 28, 2021, 5:04 PM), <https://www.cryptopolitan.com/uniswap-price-prediction-2021-2025/> [<https://perma.cc/VP6E-D4DZ>] (“The introduction of the v3 factors could help propel UNI prices skywards, especially considering the available data shows that the update has already helped Uniswap become the largest DEX on the Ethereum network.”).

151. See Kathleen Marshall, *Uniswap (UNI) Price Prediction*, BENZINGA (Oct 5, 2021), <https://www.benzinga.com/money/uniswap-uni-price-prediction/> [<https://perma.cc/C9NU-9ACS>] (describing Uniswap as a platform that “offer[s] more efficiency and better liquidity than many centralized exchanges”).

152. See *id.*

153. See *id.* (emphasis added).

154. In one of its earlier votes, the Uniswap DAO voted to create and appoint a six-member Uniswap Grants Allocation Committee, which would decide how to spend Uniswap’s gargantuan treasury. *Uniswap Grants Program v0.1*, UNISWAP (Dec. 31, 2020), <https://app.uniswap.org/#/vote/3> [<https://perma.cc/523J-2UBW>].

155. “DAO” is a generic term used to describe any decentralized, autonomous governance structure. Cathy Hackl, *What Are DAOs and Why You Should Pay Attention*, FORBES (June 1, 2021, 8:00 AM), <https://www.forbes.com/sites/cathyhackl/2021/06/01/what-are-daos-and-why-you-should-pay-attention/?sh=3f143b027305> [<https://perma.cc/6AYP-4ZLD>].

proposal,¹⁵⁶ and a simple majority — as long as at least 40,000,000 votes are cast for quorum — to pass.¹⁵⁷ Because the quorum rule requires a minimum number of *votes* and not *voters*, in theory, large holders — such as employees, investors, and advisors — may both propose and ratify motions without the endorsement of many other community members.¹⁵⁸ These individuals may be found to play a “lead or central role” over Uniswap’s ongoing development.

The employee, investor, and advisor allocations may raise concern for an additional reason. Unlike the 600 million “community” tokens, which are programmed (by smart contracts) to vest over four years, the 400 million UNI assigned to employees, investors, and advisors are not locked up in smart contracts, but held in regular Ethereum addresses.¹⁵⁹ At least in theory, the unidentified holders of these addresses’ private keys have the sole discretion to increase or restrict the number of tokens circulated at any given time. The SEC has stated that active participants that “control[] the creation and issuance of the digital asset” or “take[] other actions to support a market price of the digital asset, such as by limiting supply or ensuring scarcity” may be indicative of reliance on

156. When Uniswap’s DAO first launched, an individual voter was required to own 10 million UNI (1 percent of total supply) to submit a proposal. See *Community Governance Process*, UNISWAP, <https://gov.uniswap.org/t/community-governance-process/7732> [<https://perma.cc/E5WB-JN3P>]. In June 2021, the threshold was lowered to 2.5 million UNI by community vote. See *Reduce the UNI Proposal Submission Threshold to 2.5M*, UNISWAP (June 13, 2021), <https://app.uniswap.org/#/vote/0/4> [<https://perma.cc/RS7V-W8BZ>]. Because Uniswap’s DAO allows users to “delegate” their votes to others, it is possible for an individual who owns less than 2.5 million UNI to submit a proposal by gathering others’ votes. See *Process*, UNISWAP, <https://docs.uniswap.org/protocol/concepts/governance/process> [<https://perma.cc/8JLP-DUSC>].

157. The Uniswap DAO’s governance rules closely resemble those of Compound. *The Uniswap V2 Protocol: Process*, UNISWAP, <https://uniswap.org/docs/v2/governance/process/> [<https://perma.cc/2AYP-WVUN>].

158. A November 2020 article reported that “the surprise UNI drop made as many as 250,000 tiny holders (the users) about 50,000 moderate-sized holders (the liquidity providers) and a few dozen really big whales (the staff, investors and advisers).” Brady Dale, *Uniswap’s Retroactive Airdrop Vote Put Free Money on the Campaign Trail*, COINDESK (Sept. 14, 2021, 6:27 AM), <https://www.coindesk.com/business/2020/11/03/uniswaps-retroactive-airdrop-vote-put-free-money-on-the-campaign-trail/> [<https://perma.cc/CHC2-CUF8>]. Today, Uniswap’s “whales” include well-known cryptocurrency companies like Compound and Dharma, as well as university delegates like the Harvard Law Blockchain & Fintech Initiative, Blockchain at Berkeley, Blockchain at UCLA, and the Stanford Blockchain Club. See Jeff Amico, *On Crypto Governance*, ANDREESSEN HOROWITZ (Feb. 5, 2021), <https://a16z.com/2021/02/05/on-crypto-governance/> [<https://perma.cc/HYQ2-V872>].

159. According to a report published shortly after the token launch, UNI tokens allocated to the employees, advisors, and investors are “held in regular Ethereum addresses (i.e. externally owned addresses, or EOAs) with no transfer restrictions.” Liesl Eichholz, *The UNI Token: Is Uniswap Really Decentralized?*, GLASSNODE INSIGHTS (Sept. 24, 2020), <https://insights.glassnode.com/uni-token-is-uniswap-really-decentralized/> [<https://perma.cc/2A2G-TT8C>].

the efforts of others.¹⁶⁰ By this standard, core members of the Uniswap team — those who have the power to disburse tokens to new and existing employees, advisors, and investors — may be found to “control” the issuance of the UNI token.

* * * * *

The above facts and circumstances suggest that the UNI token may qualify as a security under the *Howey* test.

B. Is Uniswap an Exchange?

Section 3(a)(1) of the Exchange Act defines an “exchange” as:

any organization, association, or group of persons, whether incorporated or unincorporated, which constitutes, maintains, or provides a market place or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange as that term is generally understood, and includes the market place and the market facilities maintained by such exchange.¹⁶¹

Exchange Act Rule 3b-16(a) provides a functional test. An organization, association, or group of persons will qualify as an exchange if it:

(1) brings together the orders for securities of multiple buyers and sellers; and (2) uses established, non-discretionary methods (whether by providing a trading facility or by setting rules) under which such orders interact with each other, and the buyers and sellers entering such orders agree to the terms of the trade.¹⁶²

In 2018, EtherDelta’s founder settled with the SEC over charges that he had caused EtherDelta to operate as an unregistered national

160. See SEC Framework, *supra* note 109; accord Blockchain of Things, Inc., Securities Act Release No. 10,736 (Dec. 18, 2019) (“By far the largest portion of the maximum token supply — sixty percent (60%) — was to be held in reserve by the company, to be used or issued by BCOT at its sole discretion.”).

161. 15 USC § 78c(a)(1).

162. 17 C.F.R. § 240.3b-16(a).

securities exchange.¹⁶³ In its cease-and-desist order, the SEC stated that the functional criteria of Rule 3b-16(a) were satisfied because EtherDelta “operated as a market place for bringing together the orders of multiple buyers and sellers in tokens that included securities as defined by Section 3(a)(10).”¹⁶⁴ The SEC order found:

EtherDelta brought together orders by receiving and storing orders in tokens in the EtherDelta order book and displaying the top 500 orders (including token symbol, size, and price) as bids and offers. . . . EtherDelta provided the means for these orders to interact and execute through the combined use of the EtherDelta website, order book, and pre-programmed trading protocols defined in the EtherDelta smart contract. These established non-discretionary methods allowed Users to agree upon the terms of their trades in tokens on EtherDelta during the Relevant Period.¹⁶⁵

By this analysis, Uniswap’s trading platform would easily qualify as an exchange. Uniswap hosts many of the same tokens that traded on EtherDelta and qualified as securities as defined by Section 3(a)(10).¹⁶⁶ Uniswap’s protocol “brings together” the orders for tokens of multiple buyers and sellers by providing a vehicle (liquidity pools) where trades are “matched” and executed.¹⁶⁷ Finally, Uniswap’s AMMs provide a

163. Prior charges against cryptocurrency trading venues alleged failures to register as brokers and dealers, not as exchanges. *See* TokenLot, LLC, Securities Act Release No. 10,543, Exchange Act Release No. 84,075, Investment Company Act Release No. 33,221, 2018 WL 4329662, *2–3, *2 n.2 (Sept. 11, 2018) (noting respondents acted as unregistered brokers by marketing and facilitating the sale of digital tokens on behalf of their issuers, in exchange for a fee; and as dealers by purchasing digital tokens, often at a discount, storing them, and then selling them to investors at a profit); Complaint at 2, 4–5, SEC v. ICOBox, No. 19-cv-08066 (C.D. Cal. Sept. 18, 2019) (alleging that respondents acted as brokers by promoting and facilitating the sale of digital tokens on behalf of their issuers, in exchange for fees); Complaint at 2, SEC v. Cecilia Millan, No. 20-cv-06575 (S.D.N.Y. Aug. 18, 2020) (alleging that respondents acted as broker-dealers by taking and executing investment orders from investors they recruited).

164. *See* Zachary Coburn, Exchange Act Release No. 84,553, 9 (Nov. 8, 2018).

165. *See id.*

166. The vast majority of tokens that are traded on Uniswap are likely to qualify as securities under the *Howey* test; so far, the SEC has only stated that Bitcoin and Ether are definitively not securities. *See, e.g.*, Peter Van Valkenburgh, *What Can the EtherDelta Settlement Tell Us About How Decentralized Exchanges Are Regulated?*, COIN CTR. (Nov. 8, 2018), <https://www.coincenter.org/what-can-the-etherdelta-settlement-tell-us-about-how-decentralized-exchanges-are-regulated/> [<https://perma.cc/3LGE-TBTU>].

167. *See* Digital Asset Securities, *supra* note 25. Technically, buy and sell orders on Uniswap are not “matched.” Buyers and sellers transact with the reserve.

nondiscretionary means for buy and sell orders to interact, and buyers and sellers agree to the terms of these trades.¹⁶⁸

C. Past SEC Enforcement Actions

The SEC has the discretion to initiate investigations of individuals and companies it suspects of violating its regulations.¹⁶⁹ In 2013, the SEC brought its first crypto-related enforcement action against a Texas man and his company for defrauding investors in a Ponzi scheme involving Bitcoin.¹⁷⁰ Since then, the SEC has brought eighty-one (81) more cryptocurrency-related enforcement actions.¹⁷¹ The vast majority alleged one or more of five types of violations¹⁷²: (1) failure to register a security;¹⁷³ (2) failure to register a broker-dealer;¹⁷⁴ (3) failure to register an exchange;¹⁷⁵ (4) fraud;¹⁷⁶ and (5) violations of anti-touting laws.¹⁷⁷

In September 2021, the Wall Street Journal reported that the SEC had begun to investigate Uniswap for possible violations of federal securities laws and the Bank Secrecy Act.¹⁷⁸ If the SEC finds that UNI is

168. *Id.* (“A system uses established non-discretionary methods if it provides a trading facility or sets rules. For example, an entity that provides an algorithm, run on a computer program or on a smart contract using blockchain technology, as a means to bring together or execute orders could be providing a trading facility.”).

169. *See* 15 U.S.C. § 78(u).

170. *See* Press Release, SEC, SEC Charges Texas Man With Running Bitcoin-Denominated Ponzi Scheme (July 23, 2013), <https://www.sec.gov/news/press-release/2013-132> [<https://perma.cc/UR8T-FNLV>].

171. The SEC lists eighty-two “cyber enforcement actions” involving digital assets or ICOs. *See Cyber Enforcement Actions*, *supra* note 26. In many of these cases, the use of cryptocurrencies was merely incidental to the securities law violations alleged. For example, in several cases, the SEC charged the defendant for failure to register securities that were not themselves blockchain-based assets, but were denominated in or purchased using cryptocurrencies like Bitcoin. *See, e.g.*, Press Release, SEC, *supra* note 170 (describing SEC investigation of Treadon T. Shavers); Press Release, SEC, SEC Charges Bitcoin Entrepreneur With Offering Unregistered Securities (June 3, 2014), <https://www.sec.gov/news/press-release/2014-111> [<https://perma.cc/N2DK-ZWA2>] (describing SEC investigation of Eric T. Voorhees); Press Release, SEC, SEC Sanctions Operator of Bitcoin-Related Stock Exchange for Registration Violations (Dec. 8, 2014), <https://www.sec.gov/news/press-release/2014-273> [<https://perma.cc/D9G2-E4EC>] (describing SEC investigation of BTC Trading, Corp. and Ethan Burnside); Press Release, SEC, SEC Announces Enforcement Action for Illegal Offering of Security-Based Swaps (Dec. 8, 2014), <https://www.sec.gov/news/pressrelease/2015-123.html> [<https://perma.cc/5HVS-SAJN>] (describing SEC investigation of Sand Hill Exchange) [hereinafter SEC Press Release, Sand Hill Exchange].

172. There are two exceptions. One case in 2015 alleged a failure to register security-based swaps in violation of Section 5(e) of the Securities Act and Section 6(l) of the Exchange Act. *See* SEC Press Release, Sand Hill Exchange, *supra* note 171. Another — involving The DAO, *see* discussion *supra* Section II.C. — did not result in charges being brought.

173. Violation of Securities Act § 5(a) and (c).

174. Violation of Exchange Act § 15(a)(1).

175. Violation of Exchange Act § 5.

176. Violation of Exchange Act § 10(b), Rule 10(b)(5) or Securities Act § 17(a).

177. Violation of Securities Act § 17(b).

178. *See* Michaels & Osipovich, *supra* note 21.

an unregistered security, it may bring charges against Uniswap (or its founder, Adams) under Section 5(a) or 5(c) of the Securities Act.¹⁷⁹ If the SEC finds that Uniswap is an unregistered exchange, it may bring charges under Section 5 of the Exchange Act.¹⁸⁰

A survey of the SEC's past cyber-enforcement actions reveals the following.¹⁸¹

- (1) The majority of cases — 65 out of 82 cases (79 percent) — involved an unregistered securities offering violation.
- (2) Almost half of all cases — 38 out of 82 cases (46 percent) — raised a fraud allegation along with the allegation of an unregistered securities offering.
- (3) In five cases, the SEC charged for the failure to register as an exchange.
- (4) Two cases raised a fraud allegation with the charge of an unregistered exchange.
- (5) Six cyber enforcement actions were filed between 2013 and 2016; five were filed in 2017; 15 were filed in 2018; 17 were filed in 2019; 22 were filed in 2020; and 17 have been filed in 2021.¹⁸²

Although previous statements by members of the SEC have suggested that the agency may relax its enforcement of securities regulations with regard to digital token offerings,¹⁸³ more recent reports have suggested the opposite.¹⁸⁴

179. Section 5(a) of the Securities Act prohibits the sale of securities through interstate commerce or the mails unless a registration statement is in effect, while Section 5(c) of the same Act prohibits the offer to sell any security through interstate commerce or the mails, unless a registration statement has been filed. *See* 15 U.S.C. § 77e.

180. Section 5 of the Exchange Act makes it unlawful for any broker, dealer, or exchange to effect any transaction in a security, or to report any such transaction, unless the exchange is registered as a national securities exchange under Section 6 of the Exchange Act, or exempted from such registration. *See* 15 U.S.C. §§ 78(e), 78(f).

181. *See Cyber Enforcement Actions, supra* note 26; *infra* Appendix. For purposes of my analysis, I considered companion cases to be a single matter, even if multiple charges were brought on different dates.

182. As of December 5, 2021.

183. *See, e.g.,* Statement, Hester M. Peirce, Commissioner, SEC, Token Safe Harbor Proposal 2.0 (Apr. 13, 2021), <https://www.sec.gov/news/public-statement/peirce-statement-token-safe-harbor-proposal-2.0> [<https://perma.cc/XSM2-QA4P>].

184. Kevin Feldis, Reagan Lynch & Margaret Myers, *Crypto and ESG Both on the Radar: SEC Outlines a Strong Enforcement Approach*, JDSUPRA (Nov. 9, 2021), <https://www.jdsupra.com/legalnews/crypto-and-esg-both-on-the-radar-sec-9464198/> [<https://perma.cc/8JU2-G37K>].

1. Under Securities Act §§ 5(a) and (c)

To date, the SEC has brought sixty-five (65) enforcement actions against token issuers or other actors¹⁸⁵ for violating Sections 5(a) and (c) of the Securities Act. In more than half of these cases, the government has also alleged fraud¹⁸⁶ under either or both Exchange Act Section 10(b), Rule 10b-5¹⁸⁷ and Securities Act Section 16(a). Only twenty-seven (27) prior SEC enforcement actions have accused defendants of issuing unregistered securities without also alleging fraud.¹⁸⁸ The purported securities in these cases have differed from Uniswap's UNI token in two key ways.

First, unlike UNI, which was marketed as a “governance token” representing votes within a DAO, many tokens were presented as merely seed investments into future projects.¹⁸⁹ The tokens in these cases lacked consumptive uses when they were issued and sold because the projects they were meant to support were still being developed.¹⁹⁰ The SEC's Framework has stated that it is less likely to find the *Howey* test met where the “network and digital asset are fully developed and operational,” and where holders of the digital asset are “immediately able to use it for its intended functionality on the network.”¹⁹¹ The stronger the presence of these characteristics, the less likely the test is met.¹⁹² Though not determinative, this factor weighs against charging Uniswap for an unregistered securities issuance. From the moment of issuance, the UNI token had a discernible, functional utility as a governance token in the Uniswap DAO.¹⁹³

Second, most, if not all, of the prior non-fraud enforcement actions alleged that the defendants had actively promoted their securities in ways that garnered speculation. Many promised excessive profits¹⁹⁴ or

185. See discussion *supra* note 181 (not all of these cases involved ICOs).

186. See *Cyber Enforcement Actions*, *supra* note 26.

187. 15 U.S.C. § 78j(b); 17 C.F.R. § 240.10b-5.

188. See *Cyber Enforcement Actions*, *supra* note 26.

189. See, e.g., Complaint at 7, SEC v. Coinseed, Inc., No. 21-cv-01381 (S.D.N.Y. Feb. 17, 2021) (noting when soliciting investments, defendants claimed that they needed “support to accelerate [Coinseed's] growth and global expansion,” and promised to use investments to “[scale] up the Coinseed platform in the US and globally”).

190. See *id.* at 10.

191. See SEC Framework, *supra* note 109.

192. See *id.*

193. See discussion *supra* Section III.A.4.

194. See, e.g., Complaint at 20, SEC v. Pacheco, No. 19-cv-00958, 2020 WL 5100849 (C.D. Cal. May 22, 2019) (describing the token as an opportunity for investors to earn money); Complaint at 2, SEC v. Brown, No. 21-cv-04791, 740 F. Supp. 2d 148 (S.D.N.Y. 2021) (promising investors profits as high as 40 percent per month); Salt Blockchain Inc., Securities Act Release No. 10,865, at 3 (Sept. 30, 2020) (claiming tokens were being sold at a “discount” to the expected post-ICO price of \$10); Blockchain of Things, Securities Act Release No. 10,736, 5 (Dec. 18, 2019) (setting forth a pricing schedule that would increase prices as more tokens were sold).

touted the experience of their founders and investors.¹⁹⁵ Several involved so-called bounty programs, which would offer free tokens in exchange for promotion by third parties with large social media audiences.¹⁹⁶ Others promised to support secondary trading markets for the tokens to guarantee liquidity.¹⁹⁷ These practices increased the potential for investors to be harmed and likely contributed to the SEC’s decision to charge. Unlike these projects, the Uniswap team never publicly promoted UNI as a speculative asset.¹⁹⁸ When UNI was initially issued, it was characterized as a governance token and distributed to as many as 300,000 individual wallets, completely free of charge.¹⁹⁹

Irrespective of past practices, concerns about market manipulation and harm arising from UNI’s unequal token distribution could trigger an enforcement action by the SEC. Uniswap’s employees, advisors, and investors collectively owned 160 million UNI as of September 16, 2021,²⁰⁰ worth more than \$4.1 billion at the time.²⁰¹ In theory, these insiders could sell their holdings and precipitate sudden drops in UNI’s price. Whether this qualifies as a material information asymmetry²⁰² —

195. *See, e.g.*, Tierion, Inc., Securities Act Release No. 10,914, 2 (Dec. 23, 2020) (touting the experience and past corporate partnerships of founders and investors); Block.one, Securities Act Release No. 10,714, 5 (Sept. 30, 2019) (encouraging reliance on “founders’ expertise and vision”); Complaint at 9, SEC v. LBRY, Inc., No. 21-cv-00260 (D.N.H. Mar. 29, 2021) (highlighting and publicizing its employees and “advertising their technical prowess and business acumen”).

196. *See, e.g.*, Complaint at 10, SEC v. Blockvest, LLC, No. 18-cv-02287 (S.D. Cal. Oct. 3, 2018); Coinalpha Advisors LLC, Securities Act Release No. 10,582, 2 (Dec. 7, 2018); Enigma MPC, Securities Act Release No. 10,755, 3 (Feb. 19, 2020); Bitclave PTE Ltd., Securities Act Release No. 10,788, 3 (May 28, 2020); ShipChain, Inc., Securities Act Release No. 10,909, 3 (Dec. 21, 2020).

197. *See, e.g.*, Munchee Inc., Securities Act Release No. 10,445, 1–2 (Dec. 11, 2017); Unikrn, Inc., Securities Act Release No. 10,841, 2 (Sept. 15, 2020); Complaint at 12, LBRY, No. 21-cv-00260.

198. Instead, UNI was marketed as a governance token. *See* discussion *supra* Section III.A.4.

199. Within 24 hours of UNI token airdrop announcement, “55,739 Ethereum addresses had claimed a total of 41,282,200 UNI.” According to one estimate, 251,754 Ethereum addresses were eligible to redeem free UNI tokens. Liu, *supra* note 84.

200. At issuance, in September 2020, 400 million UNI were allocated to the Uniswap team, advisors, and investors, to vest continuously over four years. Under the four-year vesting schedule, 40 percent vested by the end of Year 1 (September 2021); an additional 30 percent will vest by the end of Year 2 (September 2022); an additional 20 percent by the end of Year 3 (September 2023); and the final 10 percent by the end of Year 4 (September 2024). *See* Introducing UNI, *supra* note 78. The tokens allocated to these cohorts are not tied up in smart contracts, and could theoretically be released on a shorter timeline. *See* discussion *supra* Section III.A.4.

201. On May 3, 2021, UNI’s price reached an all-time high of \$44.92. *Uniswap (UNI)*, *supra* note 148. At UNI’s September 16, 2021 price of \$26.08, 160 million UNI was worth more than \$4.1 billion. At a price of \$40, 160 million UNI would be worth \$6.4 billion.

202. “Absent the disclosures required by law . . . significant informational asymmetries may exist between the management and promoters of the enterprise . . . and investors and prospective investors The reduction of these information asymmetries through required disclosures protects investors and is one of the primary purposes of the federal securities laws.” SEC Framework, *supra* note 109.

given that UNI's distribution has been public knowledge since the day it was issued²⁰³ — is unclear. But it seems as though registration and disclosure would not have added much to investors' security.²⁰⁴

Officials at SEC have publicly affirmed that registration, offering process, and disclosure requirements are principally motivated by the SEC's mandate to protect investors and the integrity of markets.²⁰⁵ Given the SEC's primary interest in deterring excessive speculation and fraud, evidenced in past charging decisions, Uniswap and its developers are unlikely to be prosecuted for issuing an unregistered security.

2. Under Exchange Act § 5

The SEC has brought five enforcement actions against cryptocurrency exchanges for violating Section 5 of the Exchange Act.²⁰⁶ The two most recent enforcement actions occurred in August 2021 and August 2019.²⁰⁷ In both cases (as in many ICO enforcement actions)²⁰⁸, the SEC reacted to losses that investors had already incurred. In 2021, the SEC charged Poloniex, LLC with operating an unregistered exchange that “facilitated buying and selling digital assets, including digital assets that were investment contracts and therefore securities.”²⁰⁹ Similarly, in 2019, the SEC charged Bitqyck, Inc. and its founders with operating an unregistered exchange, issuing unregistered securities, and

203. See *Introducing UNI*, *supra* note 78.

204. In this regard, the UNI token is more like Bitcoin and Ether, both of which the SEC has declined to classify as securities, than tokens that the SEC has previously charged. See, e.g., William Hinman, Dir., Div. of Corp. Fin., SEC, Digital Asset Transactions: When Howey Met Gary (Plastic) (June 14, 2018), <https://www.sec.gov/news/speech/speech-hinman-061418> [<https://perma.cc/JV9A-WFJR>] (“[P]utting aside the fundraising that accompanied the creation of Ether, . . . the Ethereum network and its decentralized structure, current offers and sales of Ether are not securities transactions. And, as with Bitcoin, applying the disclosure regime of the federal securities laws . . . would seem to add little value.”).

205. See, e.g., Press Release, Jay Clayton, Chairman, SEC, Statement on Cryptocurrencies and Initial Coin Offerings (Dec. 11, 2017), <https://www.sec.gov/news/public-statement/statement-clayton-2017-12-11> [<https://perma.cc/9ZC4-DUBY>] (stating at the height of the ICO bubble: “I urge you to be guided by the principal motivation for our registration, offering process and disclosure requirements: investor protection and, in particular, the protection of our Main Street investors.”).

206. See Press Release, SEC, SEC Charges Poloniex for Operating Unregistered Digital Asset Exchange (Aug. 9, 2021), <https://www.sec.gov/news/press-release/2021-147> [<https://perma.cc/Z5RF-BKQH>]; Complaint at 16, SEC v. Bitqyck, Inc., No. 19-cv-02059 (N.D. Tex. Aug. 29, 2019); Zachary Coburn, Exchange Act Release No. 84,553 (Nov. 8, 2018); Press Release, SEC, SEC Charges Former Bitcoin-Denominated Exchange and Operator With Fraud (Feb. 21, 2018), <https://www.sec.gov/news/press-release/2018-23> [<https://perma.cc/ZS3K-ZLEM>]; Press Release, SEC, SEC Sanctions Operator of Bitcoin-Related Stock Exchange for Registration Violations, *supra* note 171.

207. See Press Release, SEC, SEC Charges Poloniex for Operating Unregistered Digital Asset Exchange, *supra* note 206; Complaint at 16, *Bitqyck*, No. 19-cv-02059.

208. See, e.g., *Cyber Enforcement Actions*, *supra* note 26.

209. See Press Release, SEC, SEC Charges Poloniex for Operating Unregistered Digital Asset Exchange, *supra* note 206.

defrauding investors.²¹⁰ The defendants were accused of selling \$13 million worth of digital tokens, creating a custodial online trading platform that enabled investors to trade their tokens for Bitcoin,²¹¹ and making fraudulent misrepresentations that caused investors to lose more than two-thirds of their investments.²¹²

By comparison, the EtherDelta action was more prescriptive. As the ICO craze took hold in late 2017 and early 2018, trading volumes on EtherDelta were reaching all-time highs.²¹³ Users were flocking to EtherDelta because it provided a way to trade without KYC or intermediaries.²¹⁴ At the same time, the hack of EtherDelta's website in December 2017 showed that no exchange was safe simply because it was noncustodial.²¹⁵

In March 2018, the SEC brought attention to the lack of investor protections on digital asset trading platforms.²¹⁶ In a "Statement on Potentially Unlawful Online Platforms for Trading Digital Assets," the agency warned:

Many platforms refer to themselves as "exchanges," which can give the misimpression to investors that they are regulated or meet the regulatory standards of a national securities exchange. Although some of these platforms claim to use strict standards to pick only high-quality digital assets to trade, the SEC does not review these standards or the digital assets that the platforms select Likewise, the SEC does not

210. See Complaint at 10, 13–14, *Bitqyck*, No. 19-cv-02059. The SEC charged Bitqyck for violating Section 5 of the Exchange Act, and charged its founders for aiding and abetting the violation.

211. Defendants created the trading platform after finding it too time-consuming and expensive to list Bitqy tokens for trading on third-party digital-asset trading platforms. Unlike EtherDelta or Uniswap, Bitqyck's exchange required users to create and fund an account on its website before requesting trades. It stored users' orders to buy or sell Bitqy on an order book that lived on a centralized server (off-chain) and tracked all transactions and changes of ownership internally without updating or interacting with a blockchain. *See id.* at 10–13.

212. *Id.* at 10. The defendants exaggerated the value of the tokens by making several material misrepresentations. They promised to allocate Bitqyck, Inc. common stock to token investors, made false claims about owning a cryptocurrency mining facility in Washington state, and exaggerated the value of an online marketplace they claimed would help drive up the price of the tokens. *Id.* at 2.

213. See Kai Sedgwick, *Decentralized Exchange IDEX Hits \$13 Million a Day While Etherdelta Falters*, BITCOIN.COM (Mar. 6, 2018), <https://news.bitcoin.com/decentralized-exchange-idx-hits-13-million-a-day-while-etherdelta-falters/> [<https://perma.cc/M923-2BSG>].

214. *See id.* ("Given that they don't hold user funds, decentralized exchanges are meant to be unhackable, but an ingenious attacker hijacked the site's DNS, replaced it with a lookalike site and stole hundreds of thousands of dollars in ether and tokens.")

215. See discussion *supra* Section II.D.

216. See Press Release, SEC, Statement on Potentially Unlawful Online Platforms for Trading Digital Assets, *supra* note 13.

review the trading protocols used by these platforms, which determine how orders interact and execute, and access to a platform’s trading services may not be the same for all users.²¹⁷

In the same statement, the SEC urged users of digital asset trading platforms to ask “[w]hat are the platform’s protections against cybersecurity threats, such as hacking or intrusions?”²¹⁸

In November of 2018, the SEC announced settled charges against EtherDelta’s founder, Zachary Coburn, ordering disgorgement of \$300,000 in profits and a \$75,000 fine.²¹⁹ The SEC’s order stated that “EtherDelta Violated Section 5 of the Exchange Act,” and “Coburn Caused EtherDelta to Violate Section 5 of the Exchange Act.”²²⁰ In a subsequent statement, the SEC reiterated that:

EtherDelta's activities clearly fell within the definition of an exchange The activity that actually occurs between the buyers and sellers — and not the kind of technology or the terminology used by the entity operating or promoting the system — determines whether the system operates as a marketplace and meets the criteria of an exchange under Rule 3b-16(a).²²¹

In so many words, the SEC indicated that it was prepared to scrutinize decentralized protocols that are designed to move virtually unlimited quantities of digital assets between wallets.

* * * * *

Uniswap’s size and vulnerability to hacks is unlikely to escape the SEC’s notice. In April of 2020, Uniswap suffered a hack that resulted in the theft of between \$300,000 and \$1.1 million in tokens, less than 5 percent of its total value under lock.²²² A hack of Uniswap, with its current total value locked (“TVL”)²²³ of more than \$8.29 billion,²²⁴

217. *See id.*

218. *See id.*

219. Zachary Coburn, Exchange Act Release No. 84,553, 10 (Nov. 8, 2018).

220. *Id.*

221. *See* Digital Asset Securities, *supra* note 25.

222. The hack forced the exchange to go offline for several hours. *See* Duncan Riley, \$25M in Cryptocurrency Stolen in Hack of Lendf.me and Uniswap, SILCONANGLE (Apr. 19, 2020), <https://siliconangle.com/2020/04/19/25m-cryptocurrency-stolen-hack-lendf-uniswap/> [<https://perma.cc/EZ8N-X36C>]. At the time, Uniswap had less than \$25 million under lock. *Uniswap*, DEFI PULSE, <https://defipulse.com/uniswap> [<https://perma.cc/S6G3-TMLT>].

223. *See* Dale, *supra* note 8.

224. As of December 6, 2021. *Uniswap*, *supra* note 222.

could cause far more substantial losses today.²²⁵ Other arguably smaller harms may also arise from Uniswap. For example, investors may be harmed by traders who use Uniswap to “dump” tokens.²²⁶ Honest investors may also be hurt by dishonest investors who disregard securities regulations (e.g., insider trading rules) while using Uniswap to trade so-called synthetic equities.²²⁷

IV. CONCLUSION

As the DeFi industry continues to attract more capital and crime,²²⁸ regulatory scrutiny of DeFi platforms will only increase. However, DeFi applications present significant challenges for regulators. The absence of traditional intermediaries and reliance on decentralized community governance make it difficult — if not impossible — for the government to properly ascertain jurisdiction, impose liability, and penalize misconduct. This is due in part to the fact that many laws that have traditionally governed financial institutions appear to have limited application to decentralized entities.

The foregoing analysis illustrates that the same is not necessarily true of federal securities laws. In the case of Uniswap, a legal basis for the SEC to assert jurisdiction already appears to exist: under existing laws, the SEC may bring charges against Uniswap (or its developers) for operating an unregistered securities exchange. If anything, recent enforcement actions have indicated the SEC’s willingness to stretch its statutory definitions as needed. For example, in a recent case, the SEC

225. See *Uniswap*, *supra* note 222.

226. In September 2020, a hacker who stole “upwards of \$200 million in crypto coins” used Uniswap to exchange stolen tokens. By dumping large amounts of certain tokens in Uniswap liquidity pools, the hacker caused the price of those tokens to plummet, hurting the tokens’ liquidity providers. See Jamie Redman, *Kucoin Hacker Leverages Uniswap to Dump Vast Number of ERC20 Tokens*, BITCOIN.COM (Sept. 27, 2020), <https://news.bitcoin.com/kucoin-hacker-leverages-uniswap-to-dump-vast-number-of-erc20-tokens/> [<https://perma.cc/VWE2-MMCK>].

227. Synthetic equities are blockchain-based representations of stocks that can be bought and sold without owning the underlying stock. *Around the Block#8: The Promise and Potential of Synthetic Assets*, COINBASE BLOG (Sept. 4, 2020), <https://coinmarketcap.com/alexandria/glossary/synthetic-asset> [<https://perma.cc/QQJ6-4CP8>]. For example, synthetic versions of Tesla, Apple, and Amazon stocks can be traded on Uniswap. See Michael P. Regan, *Fake Versions of Tesla and Apple Stocks Have Started Trading on Blockchains*, FORTUNE (July 6, 2021, 10:25 AM), <https://fortune.com/2021/07/06/fake-tesla-apple-stocks-trade-blockchains-crypto-exchange/> [<https://perma.cc/632T-HDV3>].

228. See KIM GRAUER & HENRY UPDEGRAVE, *THE 2021 CRYPTO CRIME REPORT* 84–85 (2021), <https://go.chainalysis.com/2021-Crypto-Crime-Report.html> [<https://perma.cc/7YUJ-FM3F>]. A recent report found that DeFi platforms were the most common targets of crypto thefts in 2020, causing losses of more than \$170 million in users’ funds. “DeFi platforms’ usage has skyrocketed in 2020 but has also given cybercriminals a new, uniquely vulnerable service to attack. Despite representing just 6% of all cryptocurrency activity, DeFi platforms lost roughly 33% of all cryptocurrency stolen in 2020 and were victims in nearly half of all individual attacks.” *Id.* at 84.

charged several high-level *promoters* of BitConnect, a well-known (now defunct) digital asset investment scheme, with unlawful issuance of unregistered securities.²²⁹ The *BitConnect* case departed from the SEC's previous treatment of promoters as merely broker-dealers.²³⁰ An expanded definition of securities "issuers" could theoretically open the door to charges against individuals like Uniswap's founder and developers, who, by writing the code that "minted" UNI tokens, may have offered and sold unregistered securities.

As the need for better regulation in DeFi becomes clearer,²³¹ the government may begin to explore new avenues of regulation. Agencies may resort to completely novel methods, such as embedded supervision, a form of regulation built into the protocol itself. If implemented, the affirmative reporting obligations of money services businesses ("MSBs") under the Bank Secrecy Act ("BSA") may one day be written into DeFi protocols themselves such that certain transactions are automatically reported to relevant government authorities.²³² Such an approach would have several benefits, including being low-cost, transparent, and if properly implemented, inescapable. As of now, they exist only in theory, but they may quickly become a reality.

229. The promoters were also charged with violating broker-dealer registration requirements. *See* Complaint at 2, 5, 33, SEC v. Trevon Brown, No. 21-cv-04791 (S.D.N.Y. May 28, 2021).

230. *See, e.g.*, Complaint at 10, SEC v. Cecilia Millan, No. 20-cv-06575 (S.D.N.Y. Aug 18, 2020) (charging top promoters of Airbit, an investment club that purported to trade digital assets, for operating as unregistered broker-dealers by "actively promoting Airbit, taking investor cash and orders, and receiving payments for recruiting investors").

231. Recent reports on cryptocurrency crime indicate that the use of DeFi for money laundering and fraud sharply increased in 2020. These trends are expected to continue in 2021. *See, e.g.*, CIPHERTRACE, CRYPTOCURRENCY CRIME AND ANTI-MONEY LAUNDERING REPORT (2021), <https://ciphertrace.com/wp-content/uploads/2021/01/CipherTrace-Cryptocurrency-Crime-and-Anti-Money-Laundering-Report-012821.pdf> [<https://perma.cc/C8NF-6A6B>] (finding that DeFi is "the next major threat vector for fraud and money laundering"); GRAUER & UPDEGRAVE, *supra* note 228, at 109.

232. *See generally* Raphael Auer, *Embedded Supervision: How to Build Regulation into Blockchain Finance* (Bank for Int'l Settlements Working Paper No. 811, 2019), <https://www.bis.org/publ/work811.pdf> [<https://perma.cc/Z3X5-GZF6>].

APPENDIX

Table 1: SEC Enforcement Actions²³³ Involving “Digital Assets and Initial Coin Offerings”

Action Name	Date Filed	Unregistered Securities ²³⁴	Fraud ²³⁵	Anti-Touting ²³⁶	Unregistered Broker-Dealer ²³⁷	Unregistered Exchange ²³⁸
<i>SEC v. Shavers</i>	7/23/2013	x	x			
<i>In re Erik T. Voorhees</i>	6/3/2014	x				
<i>In re BTC Trading, Corp. and Ethan Burnside</i>	12/8/2014	x			x	x
<i>In re Sand Hill Exchange, et al.</i>	6/17/2015					
<i>SEC v. Garza, et al.</i>	12/1/2015	x	x			
<i>In re Bitcoin Investment Trust and SecondMarket, Inc.</i>	7/11/2016					
<i>SEC v. Renwick Haddow, et al.</i>	6/30/2017		x		x	
<i>Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO²³⁹</i>	7/25/2017	x				
<i>SEC v. REcoin Group Foundation, LLC, et al.</i>	9/29/2017	x	x			
<i>SEC v. PlexCorps, et al.</i>	12/1/2017	x	x			
<i>In re Munchee, Inc.</i>	12/11/2017	x				
<i>SEC v. AriseBank, et al., Jared Rice Sr. and Stanley Ford²⁴⁰</i>	1/25/2018	x	x			

233. *Cyber Enforcement Actions*, *supra* note 26.

234. Violation of Securities Act §§ 5(a) and (c).

235. Violation of Exchange Act § 10(b), Rule 10(b)(5) or Securities Act § 17(a).

236. Violation of Securities Act § 17(b).

237. Violation of Exchange Act § 15(a)(1).

238. Violation of Exchange Act § 5.

239. The SEC stated that a violation had occurred, but did not bring charges.

240. Companion cases (grouped by SEC); first filing 12/11/18.

Action Name	Date Filed	Unregistered Securities	Fraud	Anti-Touting	Unregistered Broker-Dealer	Unregistered Exchange
<i>SEC v. Montroll, et al.</i>	2/21/2018	x	x			x
<i>SEC v. Sharma, et al., SEC v. Sharma, et al.</i> ²⁴¹	4/20/2018	x	x			
<i>SEC v. Titanium Blockchain Infrastructure Services Inc., et al.</i>	5/22/2018	x	x			
<i>SEC v. Jesky, et al.</i>	7/2/2018	x				
<i>Tomahawk Exploration LLC and David T. Laurance</i>	8/14/2018	x	x			
<i>TokenLot LLC, Lenny Kugel, and Eli Lewitt</i>	9/11/2018	x			x	
<i>Crypto Asset Management, LP and Timothy Enneking</i>	9/11/2018	x	x			
<i>SEC v. Ipool Ltd. a.k.a. IBroker, et al.</i>	9/27/2018				x	
<i>SEC v. Blockvest LLC, et al.</i>	10/11/2018	x	x			
<i>Zachary Coburn</i>	11/8/2018					x
<i>Paragon Coin, Inc. / CarrierEQ, Inc., d/b/a Airfox</i>	11/16/2018	x				
<i>Floyd Mayweather, Jr.</i>	11/29/2018			x		
<i>Khaled Khaled ("DJ Khaled")</i>	11/29/2018			x		
<i>CoinAlpha Advisors LLC</i>	12/7/2018	x				
<i>Gladius Network LLC</i>	2/20/2019	x				
<i>Mutual Coin Fund LLC and Usman Majeed</i>	4/1/2019	x	x			
<i>SEC v. Natural Diamonds Investment Co., et al.</i>	5/13/2019	x	x			

241. Companion cases (grouped by SEC); first filing 4/2/18.

Action Name	Date Filed	Unregistered Securities	Fraud	Anti-Touting	Unregistered Broker-Dealer	Unregistered Exchange
<i>NextBlock Global Ltd. and Alex Tapscott</i>	5/14/2019		x			
<i>SEC v. Pacheco</i>	5/22/2019	x	x			
<i>SEC v. Kik Interactive Inc.</i>	6/4/2019	x				
<i>SEC v. Longfin Corp., et al., SEC v. Altahawi</i> ²⁴²	6/5/2019	x	x			
<i>SimplyVital Health, Inc.</i>	8/12/2019	x				
<i>SEC v. Middleton, et al.</i>	8/12/2019	x	x			
<i>ICO Rating</i>	8/20/2019			x		
<i>SEC v. Bitqyck, Inc., et al.</i>	8/29/2019	x	x			x
<i>SEC v. ICOBox, et al.</i>	9/18/2019	x			x	
<i>SEC v. Lucas</i>	9/20/2019	x	x			
<i>Block.one</i>	9/30/2019	x				
<i>SEC v. Telegram Group Inc., et al.</i>	10/11/2019	x				
<i>SEC v. Eyal, et al.</i>	12/11/2019	x	x			
<i>Blockchain of Things, Inc.</i>	12/18/2019	x				
<i>SEC v. Grybniak, et al.</i>	1/21/2020	x	x			
<i>SEC v. Ackerman</i>	2/11/2020		x			
<i>Enigma MPC</i>	2/19/2020	x				
<i>Steven Seagal</i>	2/27/2020			x		
<i>SEC v. Meta 1 Coin Trust, et al.</i>	3/20/2020	x	x			
<i>SEC v. Dropil, Inc., et al.</i>	4/23/2020	x	x			
<i>SEC v. Putnam, et al.</i>	5/7/2020	x	x			
<i>BitClave PTE Ltd.</i>	5/28/2020	x				

242. Companion cases (grouped by SEC); first filing 4/6/18.

Action Name	Date Filed	Unregistered Securities	Fraud	Anti-Touting	Unregistered Broker-Dealer	Unregistered Exchange
<i>SEC v. High Street Capital Partners, LLC, et al.</i>	6/16/2020		x			
<i>SEC v. NAC Foundation, LLC, et al.</i>	6/25/2020	x	x			
<i>Boon.Tech, et al.</i>	8/13/2020	x	x			
<i>SEC v. Millan, et al.</i>	8/18/2020				x	
<i>SEC v. FLiK, et al.</i>	9/10/2020	x	x			
<i>Unikrn, Inc.</i>	9/15/2020	x				
<i>SoluTech, Inc., et al.</i>	9/25/2020	x	x			
<i>Salt Blockchain Inc.</i>	9/30/2020	x				
<i>SEC v. McAfee, et al.</i>	10/5/2020		x			
<i>SEC v. Elmaani</i>	12/9/2020	x	x			
<i>ShipChain, Inc.</i>	12/21/2020	x				
<i>SEC v. Qin, et al.</i>	12/22/2020		x			
<i>SEC v. Ripple Labs, Inc., et al.</i>	12/22/2020	x				
<i>Tierion, Inc.</i>	12/23/2020	x				
<i>Wireline, Inc.</i>	1/15/2021	x	x			
<i>SEC v. Krstic, et al.</i>	2/1/2021	x	x		x	
<i>SEC v. Coinseed, Inc., et al.</i>	2/17/2021	x				
<i>SEC v. Cutting</i>	3/5/2021	x	x			
<i>SEC v. LBRY, Inc.</i>	3/29/2021	x				
<i>SEC v. Radjabli, et al.</i>	6/11/2021	x	x			
<i>SEC v. Hamid, et al., SEC v. Manor, et al.</i> ²⁴³	6/15/2021	x	x			
<i>Loci, Inc., et al.</i>	6/22/2021	x	x			

243. Companion cases (grouped by SEC); first filing 1/17/2020.

Action Name	Date Filed	Unregistered Securities	Fraud	Anti-Touting	Unregistered Broker-Dealer	Unregistered Exchange
<i>Blotix Ltd., f/d/b/a Coinschedule Ltd.</i>	7/14/2021			x		
<i>SEC v. Uulala, Inc., et al.</i>	8/4/2021	x	x			
<i>Blockchain Credit Partners d/b/a DeFi Money Market, et al.</i>	8/6/2021	x	x			
<i>Poloniex, LLC</i>	8/9/2021					x
<i>SEC v. BitConnect, et al., SEC v. Brown, et al.</i> ²⁴⁴	9/1/2021	x			x	
<i>SEC v. Rivetz Corp., et al.</i>	9/8/2021	x				
<i>GTV Media Group, Inc., et al.</i>	9/13/2021	x				

244. Companion cases (grouped by SEC); first filing 5/28/2021.