

IMPERFECT DIGITAL CERTIFICATES OF PROVENANCE: A CATEGORICAL RISK- BASED APPROACH TO NON-FUNGIBLE TOKENS (NFTS)

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Non-fungible tokens (“NFTs”) are an emerging digital asset that has captured worldwide attention with multi-million-dollar price tags for what appear to be basic pixelated JPEG files and a total market value reaching into the tens of billions. On one hand, NFTs may be poised to revolutionize creative industries and drastically alter consumer interaction with digital media. On the other hand, the NFT market is ripe for speculative investment and vulnerable to criminal activity. To date, there appears to be no consensus on the regulation of NFTs, whether from the perspective of generally applicable laws, regulatory capture under existing financial market regulation, or the implementation of new digital asset laws. This article highlights several pertinent dangers of NFTs, including the profound misunderstandings of what an NFT transaction entails, their bubble-like pricing, and various criminal activity concerns. By illustrating how existing laws and regulations may not fully capture nor address these dangers, as well as the potential oversight of NFTs in newly proposed digital asset laws, this article proposes a categorical approach to regulating NFTs by reducing the current (and likely future) use cases of NFTs to their constituent categories and, thereafter, suggesting the most appropriate regulatory approach to each. Ultimately, given the potential wide-ranging use cases of NFTs, this article finally proposes that an NFT’s intended use-

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case—described in broad categorical terms—or more aptly, its underlying reference asset and simultaneous conveyance (or lack thereof) should dictate the regulatory approach.

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INTRODUCTION

An NFT, or non-fungible token, is—at its most fundamental level—a unique digital asset stored on a blockchain ledger.¹ Through a process known as “minting,” NFTs allow individuals to impute characteristics such as owner identity, transaction

1. Paul Bain et al., *What You Need to Know: Intellectual Property and Non-Fungible Tokens*, JD SUPRA (May 10, 2021), <https://www.jdsupra.com/legal-news/what-you-need-to-know-intellectual-2201399/> [<https://perma.cc/99FF-FRKY>].

history, and terms of use to a digital token, thus “linking” it to an underlying asset, ultimately allowing an NFT to function as a digital certificate of ownership and authenticity.² Viewing NFTs in this light highlights their inherent value: NFTs can allow their owner to prove both ownership and authenticity via an increasingly reliable technology known as blockchain.³ This value also parallels the art industry’s “provenance,” where the complete ownership history of an artwork is critical to validate its authenticity and, in turn, supports the artwork’s value.⁴ While an NFT is inherently a digital asset, its underlying reference assets are by no means limited to the digital space⁵—NFTs can refer to both tangible and intangible assets.⁶ In turn, the possibilities for expanding the NFT use cases are only limited by their creators’ imaginations. At least in theory, NFTs could replace traditional contracts, deeds, and certificates of title.⁷ NFTs, their underlying blockchain technology, and both their present and future use cases are further explained in Subparts I.A. and I.B. The burgeoning NFT market has also given birth to a new intermediary, NFT marketplaces: ecosystems that allow buyers and sellers to transact, experience, exchange, display,

2. See Michael A. Tomasulo, *The Intellectual Property Value of Non-Fungible Tokens*, WINSTON & STRAWN (May 25, 2021), <https://www.winston.com/en/crypto-law-corner/the-intellectual-property-value-of-non-fungible-tokens.html> [https://perma.cc/RA7E-F47Q]; Barry Sookman, *Non-Fungible Tokens (NFTs) and Intellectual Property Rights*, BARRY SOOKMAN (June 28, 2021), <https://www.barrysookman.com/2021/06/28/non-fungible-tokens-nfts-and-intellectual-property-rights/> [https://perma.cc/9ECR-Y236].

3. Lynne Lewis et al., *Non-Fungible Tokens (NFTs) and Copyright Law*, BIRD & BIRD (June 2, 2021), <https://www.twobirds.com/en/news/articles/2021/australia/non-fungible-tokens-nfts-and-copyright-law> [https://perma.cc/KLX5-93FH].

4. *Id.*; Sookman, *supra* note 2.

5. Daniel R. Kahan et al., *Not Your Standard Orange Grove: Non-Fungible Tokens & Securities Laws*, KING & SPALDING (June 16, 2021), <https://www.kslaw.com/news-and-insights/not-your-standard-orange-grove-non-fungible-tokens-securities-laws> [https://perma.cc/KB99-KAHJ].

6. Tomasulo, *supra* note 2; Robert Anello, *Digital Art May Be Next in the SEC’s Crosshairs*, FORBES (July 15, 2021, 9:48 PM), <https://www.forbes.com/sites/insider/2021/07/15/digital-art-may-be-next-in-the-secs-crosshairs/> [https://perma.cc/DLK6-7BLT].

7. Hamish Fraser et al., *Non-Fungible Tokens May Be Here to Stay: How Can Technology Law Harness Them?*, BIRD & BIRD (July 26, 2021), <https://www.twobirds.com/en/insights/2021/australia/non-fungible-tokens-may-be-here-to-stay-how-can-technology-law-harness-them> [https://perma.cc/E8BL-YNTW].

and trade NFTs.⁸ NFT marketplaces operate in a similar fashion to traditional marketplaces, like eBay or Etsy, by allowing users to list, sell, and purchase items.⁹ NFT marketplaces, as a critical intermediary to the growth of NFTs, are explored *infra* Subsection I.C.

Unsurprisingly, the existing regulatory environment was not designed to accommodate digital assets, especially NFTs. By their nature, NFTs can be linked to a variety of different assets and represent either numerous rights and obligations or none at all, posing a difficult classification challenge. To date, it does not appear that any government (federal or state) nor regulatory agency has implemented substantial regulation specifically regarding NFTs, although several state governments have implemented broad laws concerning cryptocurrencies and blockchain technology that *could* encompass NFTs.¹⁰ The current regulatory environment—or lack thereof—is highlighted *infra* Subsection I.D. While the regulatory opacity does not appear to have affected the NFT market’s exponential growth, NFTs pose several risks to purchasers, digital artists, and other parties in the NFT marketplace as a product of their digital nature and current-use cases—from a profound misunderstanding of what an NFT transaction entails, their bubble-like pricing, and the various criminal activity concerns. The dangers of NFTs are further explored *infra* Section II. Considering the lack of clear regulation and guidance despite these dangers, this article explores how certain existing regulations may capture NFTs in Section

8. Anatol Antonovici, *NFT Marketplaces: A Beginner’s Guide*, COINDESK (Aug. 1, 2022, 3:04 PM), <https://www.coindesk.com/tech/2021/07/12/nft-marketplaces-a-beginners-guide/> [<https://perma.cc/M9DM-DFGL>].

9. See Charles X, *A Complete Guide to Developing an NFT Marketplace for Art*, FINEXTRA (Sept. 29, 2021), <https://www.finextra.com/blogposting/20973/a-complete-guide-to-developing-an-nft-marketplace-for-art> [<https://perma.cc/B77L-3SMY>].

10. See Heather Morton, *Blockchain 2021 Legislation*, NAT’L CONF. OF STATE LEGISLATURES (Mar. 16, 2021), <https://www.ncsl.org/research/financial-services-and-commerce/blockchain-2021-legislation.aspx> [<https://perma.cc/9P8K-5S2Z>] (noting mostly definitional amendments to legislation and the implementation of study and research committees); Heather Morton, *Blockchain 2020 Legislation*, NAT’L CONF. OF STATE LEGISLATURES (Dec. 11, 2020), <https://www.ncsl.org/research/financial-services-and-commerce/blockchain-2020-legislation.aspx> [<https://perma.cc/KSZ3-RDKV>] (noting the same for 2020); Heather Morton, *Blockchain Legislation Introduced in 2019*, NAT’L CONF. OF STATE LEGISLATURES (Dec. 21, 2019), <https://www.ncsl.org/research/financial-services-and-commerce/blockchain-2019-legislation.aspx> [<https://perma.cc/BNX2-BUK3>] (noting the same for 2019).

III. These include generally applicable laws in the form of criminal and intellectual property laws which, at least in theory, are designed to address various criminal activity concerns. Likewise, the specific application of securities laws, commodity laws, and new digital asset laws may address the price volatility of NFTs. Further, these types of laws can be applied in an attempt to address the profound misunderstanding of NFT transactions. Ultimately, however, the dominant theme of regulatory capture of NFTs under existing laws by and large results in answers that are caveated with an “it depends” or a “based on the facts and circumstances.” This paper proposes a categorical approach to reduce regulatory opacity by simplifying the analysis for all stakeholders in the NFT market. A categorical approach does not affect generally applicable laws, such as those protecting copyright, enforcing money-laundering, and forbidding wash trading. These laws remain generally applicable, regardless of which category a particular NFT is classified. However, the variety of use cases for NFTs today, let alone in the future, justifies applying separate and distinct laws to each use-case, rather than painting all NFTs with a broad stroke definition of “digital assets.” The proposed categorical approach and its justifications and consequences are further explored *infra* Section V.

I. WHAT IS AN NFT?

An NFT, or non-fungible token, is a digital asset stored on a blockchain ledger, much like its fungible counterpart, cryptocurrencies.¹¹ Arguably, the main appeal of NFTs is their *non*-fungibility, that is, their uniqueness; other blockchain-based assets, such as cryptocurrencies are indistinguishable from each other and, therefore, can be exchanged at equivalency.¹² This fungibility makes cryptocurrencies suitable as an alternative to fiat currency for commercial transactions: each Bitcoin is identical in value to another, just as each five-dollar bill is identical in value to another.¹³ In contrast, an NFT is uniquely identifiable by its metadata, or digital signature, and is distinguishable from any

11. Bain et al., *supra* note 1.

12. Anello, *supra* note 6; Sookman, *supra* note 2.

13. Bain et al., *supra* note 1.

other NFT.¹⁴ This aspect allows for verification of an NFT's authenticity and provenance.¹⁵ As a result, each individual NFT essentially has a unique function and value.¹⁶ NFTs are created through a process known as "minting," the use of computer code known as a "smart contract" to impute characteristics such as owner identity, transaction history, and terms of use—effectively "linking" an underlying asset to the NFT.¹⁷ This process ultimately allows an NFT to function as a digital certificate of ownership.¹⁸ Most NFTs are currently minted on the Ethereum blockchain using its ERC-721 standard,¹⁹ but they can exist on any blockchain that features a defined NFT standard.²⁰ Despite their burgeoning popularity in 2021, NFTs date as far back as 2017 and were brought to prominence by the video game developers of *CryptoKitties* (a game that used NFTs to represent digital in-game cats).²¹

While an NFT is inherently a digital asset, its underlying reference assets are not so limited.²² NFTs can refer to both tangible and intangible assets, theoretically acting as a certificate of provenance and authenticity to almost any object.²³ With respect to the "link" from a digital NFT to a tangible physical asset: while an NFT verifies the blockchain address of its original creator and its transaction history, independent verification is required to identify not only the person behind the address but also that the person possesses ownership rights of the referenced asset.²⁴ Even for digital assets, the content is not necessarily

14. *Id.*

15. Anello, *supra* note 6.

16. Bain et al., *supra* note 1.

17. Sookman, *supra* note 2.

18. *See id.*

19. Lewis et al., *supra* note 3.

20. Daniel J. Barsky, *Non-Fungible Tokens and Intellectual Property Law: Key Considerations*, HOLLAND & KNIGHT (July 2021), <https://www.hklaw.com/en/insights/publications/2021/07/non-fungible-tokens-and-intellectual-property-law> [<https://perma.cc/K6WN-N83E>].

21. Mitchell Clark, *NFTs, Explained*, VERGE (June 6, 2022, 6:30 AM), <https://www.theverge.com/22310188/nft-explainer-what-is-blockchain-crypto-art-faq> [<https://perma.cc/V88N-EE43>].

22. *See* Kahan et al., *supra* note 5.

23. Tomasulo, *supra* note 2; Anello, *supra* note 6.

24. Stuart Levi et al., *Legal Considerations in the Minting, Marketing, and Selling of NFTs*, GLOB. LEGAL INSIGHTS: BLOCKCHAIN & CRYPTOCURRENCY L. AND

stored within the NFT and, consequently, the blockchain (described as “on-chain storage.”)²⁵ Instead, the underlying digital work is often hosted on a separate website or a third-party platform.²⁶ For these NFTs stored “off-chain,” therefore, an NFT is only useful while its underlying host site is maintained²⁷—which is by no means guaranteed in perpetuity.²⁸ In this sense, regardless of the referenced asset’s tangibility, NFTs are used primarily as imperfect certificates of provenance. Viewing NFTs in this light also highlights their inherent value. An NFT is not valuable simply because it is unique; its value derives from its owner’s ability to prove both ownership and authenticity, through an increasingly reliable technology known as the blockchain.²⁹ This value is not new: it parallels the art industry’s “provenance,” where the ownership history of an artwork is critical to validate its authenticity, consequently supporting the value of the artwork itself.³⁰

It is also important to note that ownership of the NFT, in and of itself, does not convey ownership of, nor rights to, the underlying asset, whether physical or digital, without separate conveyance of those rights by contract.³¹ NFT purchasers are, however, granted some rights via their purchase—most NFT marketplaces grant the purchaser a non-exclusive, non-transferable license to use the creative works underlying the NFT for personal use.³² Ultimately, claims of the value of NFTs coming from their authenticity, uniqueness, and ownership are somewhat misguided, confusing the NFT with the reference asset.³³ This is not to claim that NFTs are inherently valueless, as there

REGULS. 2022 (Oct. 21, 2021), <https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/09-legal-considerations-in-the-minting-marketing-and-selling-of-nfts> [<https://perma.cc/J9UA-DDJ4>].

25. Sookman, *supra* note 2.

26. Kyle Fath et al., *Your NFT Playbook*, CONSUMER PRIV. WORLD (July 1, 2021), <https://www.consumerprivacyworld.com/2021/07/your-nft-playbook/> [<https://perma.cc/5F8Y-XVTW>].

27. Levi et al., *supra* note 24.

28. *Id.*

29. Lewis et al., *supra* note 3.

30. *Id.*; Sookman, *supra* note 2.

31. Joseph Hall, *Are Nonfungible Tokens Securities?*, LAW360 (Apr. 14, 2021, 5:32 PM), https://www.davispolk.com/sites/default/files/2021-08/are_nonfungible_tokens_securities.pdf [<https://perma.cc/44MR-MTYS>].

32. Levi et al., *supra* note 24.

33. Sookman, *supra* note 2.

is some discernible value in an NFT's provenance—that is, an owner's ability to verify ownership of the NFT itself through a history of transactions on the blockchain.³⁴

A. *What is Blockchain?*

First, it is important to distinguish between blockchain technology and the more overarching distributed ledger technology, of which blockchain is one type. Blockchain technology is a specific type of distributed ledger technology that stores and verifies an entire history of transactions in the form of “chained blocks” between network users.³⁵ Distributed ledger technology more broadly refers to the ability of users to store and access information or records in a database that operates without a central administrative or controlling entity.³⁶

The general advantages of distributed ledger technology are simple. A centralized ledger poses inherent risks—it serves as a single point of failure and can be destroyed, hacked, or otherwise compromised so the enclosed data and records can no longer be relied upon.³⁷ The primary purpose of blockchain technology, or distributed ledger technology more generally, is to replace the usual trust that individuals must necessarily place in a third

34. *Id.*; see Vladislav Ginzburg, *5 Things People Are Getting Wrong About NFTs*, FAST CO. (Mar. 27, 2021), <https://www.fastcompany.com/90618623/nft-myths> [<https://perma.cc/FV2E-52J8>].

35. See *Blockchain/DLT 101*, R3, <https://www.r3.com/blockchain-101/> [<https://perma.cc/J652-AZZW>] (“[Distributed ledger technology] is a decentralized database managed by multiple participants, across multiple nodes. Blockchain is a type of [distributed ledger technology] where transactions are recorded with an immutable cryptographic signature called a hash.”); Amarpreet Singh, *Distributed Ledger vs Blockchain Technology, Do You Know the Difference?*, MEDIUM (June 1, 2021), <https://medium.com/brandlitic/difference-between-distributed-ledger-and-blockchain-vs-dlt-7969f3837ded> [<https://perma.cc/YTZ3-Q4F5>] (“A distributed ledger is a database that can be found across several locations or among multiple participants A blockchain is a form of distributed ledger that has a specific technological underpinning.”).

36. See R3, *supra* note 35 (“[Distributed ledger technology] is a decentralized database managed by multiple participants, across multiple nodes. Blockchain is a type of [distributed ledger technology] where transactions are recorded with an immutable cryptographic signature called a hash.”).

37. Dirk A. Zetzche et al., *The Distributed Liability of Distributed Ledgers: Legal Risks of Blockchain*, 4 U. ILL. L. REV. 1361, 1370–72 (2018).

party that both authenticates market participants and maintains a central ledger.³⁸ Instead of a single party or intermediary, blockchains and distributed ledgers are stored de-centrally on a distributed computer network.³⁹ In turn, distributed ledgers aim to address another inherent risk of a centralized ledger by requiring consensus of all the (decentralized) nodes hosting the ledger before making any changes, rather than a single administrator.⁴⁰ Consequently, no single person or group has control of it nor the ability to alter the decentralized ledger, unlike with a centralized ledger system.⁴¹ Public decentralized ledgers, like blockchain, are accessible to every Internet user.⁴² While the ledger is public and public addresses (or keys) are stored in the blockchain, each transaction on the blockchain is only associated with two addresses—these keys are not tied to a real-world identity.⁴³ Blockchain transactions are “transparent”: any node “can observe all transfers on the blockchain from its point of creation”⁴⁴ because transactions are never deleted from the blockchain, only added.⁴⁵ Ultimately, blockchain technology is an immutable, irreversible, and public digital ledger hosted individually and separately by millions of computers.

To fully understand non-fungible tokens, it is necessary to understand the blockchain technology upon which they are based—the same technology used by their counterpart fungible

38. Levi et al., *supra* note 24.

39. Markus Kaulartz & Alexander Schmid, *Legal Challenges of “Non-Fungible Tokens” (NFTs)*, CMS LAW-NOW (Apr. 22, 2021), https://www.cms-lawnow.com/ealerts/2021/04/legal-challenges-of-non-fungible-tokens-nfts?cc_lang=en [<https://perma.cc/84U9-F3Q8>].

40. MANAV GUPTA, *BLOCKCHAIN FOR DUMMIES 14* (Carrie Burchfield-Leighton et al. eds., 3rd ed. 2020); Zetzche et al., *supra* note 37.

41. Andrew L. Lee & Daniel Bernard, *Sellers Beware: Can NFTs Be Regulated Securities?*, FOLEY & LARDNER (Apr. 28, 2021, 11:00 AM), <https://www.foley.com/en/insights/publications/2021/04/sellers-beware-can-nfts-be-regulated-securities> [<https://perma.cc/Z5QG-WX7R>].

42. Praveen Jayachandran, *The Difference Between Public and Private Blockchain*, IBM SUPPLY CHAIN AND BLOCKCHAIN BLOG (May 31, 2017), <https://www.ibm.com/blogs/blockchain/2017/05/the-difference-between-public-and-private-blockchain/> [<https://perma.cc/SAG3-C9GY>].

43. Marc Pilkington, *Blockchain Technology: Principles and Applications*, in RES. HANDBOOK ON DIGIT. TRANSFORMATIONS 225, 226 (F. Xavier Olleros & Majlinda Zhegu eds., 2016).

44. Levi et al., *supra* note 24.

45. *What Is Blockchain?*, SPLUNK (Aug. 1, 2019), https://www.splunk.com/en_us/data-insider/what-is-blockchain.html [<https://perma.cc/ZV5G-DT84>].

tokens, such as Bitcoin and other cryptocurrencies.⁴⁶ While blockchain technology existed as an idea as far back as 1982, its popularity and real-world use began in 2008 with the pseudonymous white paper “Bitcoin: A Peer-to-Peer Electronic Cash System.”⁴⁷ Blockchain technology has since evolved from its initial cryptocurrency use-case, most notably expanding to NFTs. Its potential applications, however, are possible wherever there is a need to authorize and record a series of actions. Blockchains can store legal contracts, medical records, state identifications, and product inventory,⁴⁸ leading to them being described as “fundamental for forward progress in society.”⁴⁹

The term “blockchain” itself refers to how the technology stores data; its data is stored in encrypted “blocks” “chained” together.⁵⁰ It can be useful to envision blockchain as “a continuously expanding list of data records” which links new data “blocks” (new transactions) to the preceding block of transactions, creating a “chain”—ultimately forming the complete history of transactions.⁵¹ Each “block” contains not only transaction data but, also, a “nonce” and a “hash” (as well as the nonce and hash of the previous block), which are necessary for blockchain’s cryptography function.⁵² The “nonce” refers to a 32-bit number

46. Kaulartz & Schmid, *supra* note 39.

47. Kevin Voigt & Andy Rosen, *What Is Blockchain? The Technology Behind Cryptocurrency, Explained*, NERDWALLET (June 29, 2022), <https://www.nerdwallet.com/article/investing/blockchain> [<https://perma.cc/8398-QJ98>].

48. *See Making Sense of Bitcoin, Cryptocurrency and Blockchain*, PWC, <https://www.pwc.com/us/en/industries/financial-services/fintech/bitcoin-blockchain-cryptocurrency.html> [<https://perma.cc/EZ4U-XHEL>] (“[Blockchain’s] [p]otential applications can include fund transfer, settling trades, voting, and many other issues.”); Voigt & Rosen, *supra* note 47 (“[B]lockchain technology has promising applications for legal contracts, property sales, medical records and any other industry that needs to authorize and record a series of actions or transactions.”); Adam Hayes, *Blockchain Explained*, INVESTOPEDIA (Nov. 4, 2021), <https://www.investopedia.com/terms/b/blockchain.asp> [<https://perma.cc/TJ7G-9UVQ>] (“Blockchain can, in theory, be used [for] . . . votes in an election, product inventories, state identifications, deeds to homes, and much more.”).

49. MELANIE SWAN, *BLOCKCHAIN: BLUEPRINT FOR A NEW ECONOMY* viii (1st ed. 2015).

50. Bernard Marr, *What Is Blockchain?*, BERNARD MARR & CO., <https://bernardmarr.com/what-is-blockchain/> [<https://perma.cc/RG5T-MLY2>].

51. Kaulartz & Schmid, *supra* note 39.

52. Sam Daley, *Blockchain. What Is Blockchain Technology? How Does It Work?*, BUILT IN, <https://builtin.com/blockchain> [<https://perma.cc/TG4D-AB52>] (“When the first block of a chain is created, a nonce generates the cryptographic hash. The data in the block is considered signed and forever tied to the nonce and hash unless it is mined.”).

that is randomly generated when a block is created, while the “hash” refers to a 256-bit number that is “wedded” to the nonce.⁵³ The combination of nonce and hash function as the block’s digital fingerprint or unique timestamp⁵⁴ allows blockchain to be immutable and irreversible. Each subsequent block must use the previous block’s hash for verification before it can be added to the “chain.”⁵⁵ This process also prevents any block from being altered *or* a block from being inserted into the chain—if a block’s underlying data is altered, its digital fingerprint or timestamp is altered, notifying the subsequent block⁵⁶—ultimately protecting blockchain from tampering.⁵⁷

As transactions take place and transaction data is generated, a new “block” is created and attempts to attach itself to the existing blockchain. However, this process requires a consensus or “a majority of nodes [to first] verify and confirm the legitimacy of the new data before the block is added.”⁵⁸ For this to occur, a blockchain is duplicated, stored, and hosted across an entire network of computers—“nodes”—rather than being held by a single entity.⁵⁹ These computers are connected through a shared open-source software that allows them to communicate.⁶⁰ The network’s nodes review their own local copies of the ledger to ensure the requested transaction has the requisite digital “signature” and the requesting parties possess the necessary assets they intend to exchange.⁶¹ Once the transaction is verified by the net-

53. *Id.*

54. Zetzche et al., *supra* note 37, at 1372.

55. Daley, *supra* note 52.

56. National Institute of Standards and Technology, *Blockchain: Overview*, NIST: INFO. TECH., <https://www.nist.gov/blockchain> [<https://perma.cc/TD3E-K5MP>].

57. GUPTA, *supra* note 40, at 14.

58. David Rodeck, *What Is Blockchain?*, FORBES: ADVISOR (Apr. 28, 2022, 1:16 PM), <https://www.forbes.com/advisor/investing/what-is-blockchain/> [<https://perma.cc/Y8UX-CFTC>].

59. Jimi S., *Blockchain: What Are Nodes and Masternodes?*, MEDIUM: COINMONKS (Sept. 5, 2018), <https://medium.com/coinmonks/blockchain-what-is-a-node-or-masternode-and-what-does-it-do-4d9a4200938f> [<https://perma.cc/A4KA-5RR3>]; *What Is Blockchain?*, EUROMONEY, <https://www.euromoney.com/learning/blockchain-explained/what-is-blockchain> [<https://perma.cc/6XD9-XLY4>] (“Blockchain is different because nobody is in charge; it’s run by the people who use it.”).

60. Jimi S., *supra* note 59.

61. *Id.*

work's consensus, the block of transactions is added to the blockchain.⁶² Simultaneously, each node updates its local ledger to reflect the transaction.⁶³ Thus, no single node can alter the blockchain because all other nodes possess their own verified and untampered record.⁶⁴ Therefore, each node would be able to detect, and reject, the attempted addition of the tampered block.⁶⁵ It is worth noting that the precise consensus mechanism of blockchains is split between “proof of work” and “proof of stake.”⁶⁶ Most original blockchain iterations, including Bitcoin, rely on proof of work mechanisms, while more recent iterations, like Solana and Cardano, rely on proof of stake mechanisms.⁶⁷ Although there are notable differences between the two mechanisms in terms of scalability and energy consumption, fundamentally they only differ in their method of developing consensus.⁶⁸ A proof of work consensus mechanism requires participants to solve a complex mathematical equation before any new transactions are added to the existing blockchain.⁶⁹ Yet, a proof of stake mechanism relies on participants staking or depositing their own cryptocurrency to vote on the addition of a legitimate transaction; participants “voting” on a legitimate transaction are rewarded with additional cryptocurrency.⁷⁰

62. *Consensus Mechanisms in Blockchain: A Beginner's Guide*, CRYPTO.COM (May 13, 2022), <https://crypto.com/university/consensus-mechanisms-in-blockchain> [<https://perma.cc/4QQZ-AMPX>].

63. H.K. APPLIED SCI. TECH. RES. INST., WHITEPAPER ON DISTRIBUTED LEDGER TECHNOLOGY 10 (2016), https://www.hkma.gov.hk/media/eng/doc/key-functions/finanical-infrastructure/Whitepaper_On_Distributed_Ledger_Technology.pdf [<https://perma.cc/8Q2U-C4J3>].

64. Marr, *supra* note 50.

65. *Id.*

66. Simon Chandler, *Proof of Stake v. Proof of Work: Key Differences Between These Methods of Verifying Cryptocurrency Transactions*, BUS. INSIDER (Nov. 21, 2022, 2:12 PM), <https://www.businessinsider.com/personal-finance/proof-of-stake-vs-proof-of-work> [<https://perma.cc/5WZ8-GJ6N>].

67. *Id.*

68. *Proof-of-Stake vs. Proof-of-Work: Differences Explained*, COINTELEGRAPH, <https://cointelegraph.com/blockchain-for-beginners/proof-of-stake-vs-proof-of-work-differences-explained> [<https://perma.cc/8R2X-DXAQ>].

69. *Id.*

70. *Id.*

B. *The Present Use Cases and Future Promise of NFTs*

Current use cases for NFTs appear largely limited to art, collectibles, and references to other digital assets—industries where a need to verify authenticity, ownership, and provenance generally already exist. In most circumstances, NFTs are used in these industries to allow, at least in theory, consumers to verify their purchased item’s authenticity and provenance without the need for extensive paper trails. These use cases encompass the most popular and recognizable NFT projects, including *CryptoPunks*, *Bored Ape Yacht Club*, and *NBA Top Shot*.⁷¹ For creative industries, NFTs may also provide additional methods of monetization while maintaining control over rights and royalties.⁷² Fees on secondary sales could be automatically generated by being built into the smart contract code of an NFT.⁷³ In other words, the original owner of an NFT can continue to generate royalties each time the NFT is sold or transacted in the future. While this royalty structure has largely been used in the digital art use-case of NFTs, one could imagine its use in the music industry, where royalties are fundamental to revenue generation.⁷⁴ Underlying technology aside, NFTs may also provide a greater audience for creators,⁷⁵ as well as helping to replace or supplant gatekeeping intermediaries, like art galleries and record labels.⁷⁶ In the music industry, high-profile artists have al-

71. Ornella Hernández, *Biggest NFT Drops and Sales in 2021*, COINTELEGRAPH (Dec. 23, 2021), <https://cointelegraph.com/news/biggest-nft-drops-and-sales-in-2021> [<https://perma.cc/UZ4Q-A7NP>].

72. Elizabeth Howcroft, *Explainer: What Are NFTs?*, REUTERS (Nov. 18, 2021, 6:55 AM), <https://www.reuters.com/technology/what-are-nfts-2021-11-17/> [<https://perma.cc/Y2TX-6DV7>].

73. *Id.*; Lee & Bernard, *supra* note 41.

74. Casey Newton, *Is the Music Industry’s Future on the Blockchain?*, VERGE (Nov. 24, 2021, 12:45 PM), <https://www.theverge.com/22800746/music-industry-royalties-blockchain-crypto-royal-paradigm> [<https://perma.cc/JV3B-S5JC>].

75. Alexandra Luzan, *Upgradable NFTs: How Collaborations Will Leap Forward*, COINTELEGRAPH (Oct. 27, 2021), <https://cointelegraph.com/news/upgradable-nfts-how-collaborations-will-leap-forward> [<https://perma.cc/8ETQ-5WTH>].

76. Lowey Admin, *Securities or Not? The NFT Market and Potential SEC Regulation*, LOWEY DANNENBERG (Aug. 11, 2021), <https://lowey.com/blog/securities-or-not-the-nft-market-and-potential-sec-regulation/> [<https://perma.cc/FP9Z-S7U7>].

ready utilized NFTs: Eminem, Steve Aoki, and Grimes have already sold more than USD \$10 million worth of NFT copies of their songs.⁷⁷

Another significant current use-case for NFTs involving digital assets revolves around the video game industry, which has adopted NFTs to improve transferability of digital in-game assets,⁷⁸ particularly considering the remarkable sums gamers spend on in-game assets.⁷⁹ One of the most popular games involving the use of NFTs is *Axie Infinity*, where players use creatures, in the form of NFTs, to “duel other players, battle enemies and complete daily quests.”⁸⁰ In a similar vein, another future growth opportunity for NFTs within this industry is the “metaverse,” an immersive, shared online state. While still in nascent stages, projects like *Decentraland*, where users purchase virtual land or property in its metaverse, may serve as a model for metaverse applications of NFTs.⁸¹

Tokenizing digital works seems to be rather intuitive—while original physical objects, like a painting, can be distinguished from copies, the concept of a “digital original” is harder

77. Jet Encila, *Music NFTs Are Taking Over 2022 – And Here’s Why*, BITCOINIST, <https://bitcoinist.com/music-nfts-are-taking-over-2022-and-heres-why-part-1-of-2/> [<https://perma.cc/E86L-TPZK>].

78. Victor Kao, *How NFTs Can Disrupt Gaming*, BUILT IN (June 29, 2021), <https://builtin.com/blockchain/how-nfts-can-disrupt-gaming> [<https://perma.cc/A57U-JF3K>] (“There are endless possibilities for how NFTs can be used in the gaming world to allow for the ownership and transferability of digital assets.”). *But see, e.g.*, Jason Schreier, *Blockchain in Gaming Is All the Rage for No Good Reason*, BLOOMBERG (Nov. 12, 2021, 1:00 PM), <https://www.bloomberg.com/news/newsletters/2021-11-12/crypto-in-video-games-is-all-the-rage-but-why?/> [<https://perma.cc/P5ER-GG26>] (“The [use of blockchain in games] is really only practical for one specific scenario: multiple games made by a single company that has a vested interest in letting players transfer loot within its ecosystem . . . [g]ame companies are investing in blockchain because it sounds like it could be something cool one day, not because it has practical applications . . .”).

79. *See* Lawrence Wintermeyer, *NFTs Combat Bubble Burst Claims As Real Life Use Cases Push Forward*, FORBES (Apr. 29, 2021, 4:20 PM), <https://www.forbes.com/sites/lawrencewintermeyer/2021/04/29/nfts-combat-bubble-burst-claims-as-real-life-use-cases-push-forward/> [<https://perma.cc/S6QG-7QLV>].

80. Hernández, *supra* note 71.

81. Alex Tapscott, *With NFTs, the Digital Medium Is the Message*, FORTUNE (Oct. 4, 2021, 5:00 PM), <https://fortune.com/2021/10/04/nfts-art-collectibles-medium-is-the-message/> [<https://perma.cc/TJ6L-2GHH>].

to imagine.⁸² Nevertheless, there is also an emergence of NFTs with reference to physical assets. Major global businesses have begun exploring the use of NFTs: Walmart, Pfizer, AIG, Siemens, and Unilever have each explored or incorporated blockchain into their management systems.⁸³ For example, Walmart engaged in a proof of concept to use NFTs to trace fresh produce through its supply chain to quickly identify any source of outbreaks of foodborne illnesses, ultimately finding a reduction in the time taken to trace an individual produce item from 7 days to 2.2 seconds.⁸⁴

Despite their promise, the current use cases represent only the tip of the iceberg for NFT use cases. Given how NFTs may reference an underlying physical tangible asset, the possibilities of expanding the use of NFTs are only limited by their creators' imaginations. In theory, NFTs and their smart contracts could replace traditional contracts, deeds, and certificates of title.⁸⁵ Dubbed "tokenization," NFTs can allow any tangible asset to be bought and sold more efficiently "while reducing the probability of fraud."⁸⁶ For example, NFTs could represent fractional interests in housing property, mirroring the operation of shares in a housing cooperative arrangement.⁸⁷ Multiple companies appear to be pioneering a "tokenization" movement, using NFTs to represent high value assets, such as football stadium season tickets, concert tickets, and classic cars.⁸⁸ Nike recently received a patent for its NFT project, "CryptoKicks," allowing Nike to attach an NFT to each pair of sneakers.⁸⁹ Similarly, The Fine Art

82. Robert Michálek, *NFT: What Is the Non-Fungible Token and Why It Is on the Rise*, MEDIUM (Oct. 8, 2021), <https://medium.com/busytechnology/nft-what-is-the-non-fungible-token-and-why-it-is-on-the-rise-79ce38ef315c> [<https://perma.cc/V6H7-P5T2>].

83. Adam Hayes, *Blockchain Facts: What Is It, How It Works, and How It Can Be Used*, INVESTOPEDIA (Sept. 18, 2022), <https://www.investopedia.com/terms/b/blockchain.asp> [<https://perma.cc/R976-LYSD>].

84. *Case Study: How Walmart Brought Unprecedented Transparency to the Food Supply Chain with Hyperledger Fabric*, HYPERLEDGER FOUND., <https://www.hyperledger.org/learn/publications/walmart-case-study> [<https://perma.cc/66YG-G5Q3>].

85. Fraser et al., *supra* note 7.

86. Rakesh Sharma, *Non-Fungible Token (NFT): What It Means and How It Works*, INVESTOPEDIA (June 22, 2022), <https://www.investopedia.com/non-fungible-tokens-nft-5115211> [<https://perma.cc/DG58-5Y8P>].

87. Lee & Bernard, *supra* note 41.

88. Kaulartz & Schmid, *supra* note 39.

89. Fraser et al., *supra* note 7.

Ledger created a platform to enable physical art to be fractionally owned through NFTs.⁹⁰ Additional examples that illustrate the broad horizon of NFTs range from medical research funding⁹¹ and commercialization of student-athlete name, image, and likeness rights,⁹² to animal conservation⁹³ and space exploration.⁹⁴ Notably, this “tokenization” does not necessarily differ from the use of NFTs in creative industries, but, rather, presents situations where the underlying reference asset is physical or the proceeds of NFT sales are used for a non-profit motive. The potential network of NFT use cases “becomes more complex when considering the emerging trend towards the financialization of NFTs.”⁹⁵ Given the exorbitant prices NFTs currently trade at, they could be used as loan collateral⁹⁶ and a digital alternative to the traditional share certificate.⁹⁷ The potential of issuing insurance policies in NFT form has also arisen, based on the idea that all policy writers contribute premiums to a protection pool used to pay out claims.⁹⁸ These projects “contemplate that the insurance writers will be able to trade their share of the protection pool and accompanying rights to premiums on secondary markets” via NFTs.⁹⁹

90. Collin Starkweather et al., *How Intellectual Property Rights Can Complicate NFT Market*, LAW360 (Aug. 17, 2021, 5:26 PM), <https://www.law360.com/articles/1412858/how-intellectual-property-rights-can-complicate-nft-market> [<https://perma.cc/C27Z-HEAC>].

91. See Ling W. Kong, *The Value of Uniqueness: Non-Fungible Tokens in the Age of Name, Image and Likeness*, NAT'L L. REV. (July 9, 2021), <https://www.natlawreview.com/article/value-uniqueness-non-fungible-tokens-age-name-image-and-likeness> [<https://perma.cc/2F66-FR6E>].

92. *Id.*

93. Hamish Monk, *The Future of NFTs: Democratizing Space and Digitizing Endangered Species*, FINEXTRA (Aug. 17, 2021), <https://www.finextra.com/the-long-read/250/the-future-of-nfts-democratising-space-and-digitising-endangered-species> [<https://perma.cc/8PBR-CDY8>].

94. *Id.*

95. Deric Behar et al., *NFTS: But Is It Art (or a Security)?*, JD SUPRA (Mar. 15, 2021), <https://www.jdsupra.com/legalnews/nfts-but-is-it-art-or-a-security-1053589/> [<https://perma.cc/6T7Z-FJR7>].

96. *Id.*

97. *Id.*

98. *Id.*; See NEXUS MUTUAL, <https://nexusmutual.io/> [<https://perma.cc/92MK-WV6F>] (providing further information on insurance policies for NFTs and insurance policies generally).

99. Behar et al., *supra* note 95.

C. NFT Marketplaces and Other Intermediaries

This article now turns to explore the roles of the diverse intermediaries in the NFT market and their potential exacerbation and/or mitigation of the dangers of NFTs. These intermediaries can be divided into core intermediaries and related intermediaries, based on the proximity of their role to the NFT transaction.¹⁰⁰ While these intermediaries have been instrumental, perhaps even critical, to the development and growth of the NFT market, some may now serve as potential centralized points of failure—whether it be security and privacy concerns; the ultimate longevity of the NFT and its link to the underlying asset; or the implicit exposure of the NFT market to criminal activity.

Core intermediaries are those that are required for ongoing blockchain technology viability and are, thus, critical to supporting the NFT market.¹⁰¹ Most obviously, this includes platform providers (the creators of the blockchain technology on which NFTs are based) who are responsible for creating the framework in which NFTs can be created, transacted, and verified.¹⁰² For the most part, NFTs are traded on the Ethereum blockchain, meaning the Ethereum Foundation is the relevant intermediary; but, NFTs can exist on any blockchain that has a defined NFT standard.¹⁰³ Given the Ethereum Foundation’s increasing and prohibitive transaction costs, or “gas,” NFTs on other blockchains are growing in popularity.¹⁰⁴ Arguably, core intermediaries also include cryptocurrency exchanges and wallets, without which NFTs could not be purchased and sold. Cryptocurrency exchanges may be centralized, like Coinbase and Gemini, which offer certain protections, such as insurance for cybersecurity breaches and adherence to licensing requirements. However, they also inherently serve as a potential single

100. Kathleen Bridget Wilson et al., *Prospecting Non-Fungible Tokens in the Digital Economy: Stakeholders and Ecosystem, Risk and Opportunity*, 65 BUS. HORIZONS 657, 661–62 (2022).

101. *Id.*

102. Fath et al., *supra* note 26.

103. Clark, *supra* note 21.

104. See Jay Ho, *Ethereum Fees Are Skyrocketing—But Traders Have Alternatives*, COINTELEGRAPH (Mar. 6, 2021), <https://cointelegraph.com/news/ethereum-fees-are-skyrocketing-but-traders-have-alternatives> [https://perma.cc/M99S-KPBA].

point of failure.¹⁰⁵ Alternatively, exchanges may also be decentralized, allowing users to connect their crypto-wallet to buy and sell cryptocurrencies on a strictly pseudonymous peer-to-peer basis.¹⁰⁶ Likewise, crypto-wallets vary in their exact specifications, whether they be “hot” or “cold,” “custodial” or “exchange,” but function in more or less the same capacity: they allow the user to store their private keys to access cryptocurrencies on the relevant blockchain (keys necessary to purchase and sell NFTs).¹⁰⁷

Related intermediaries provide ongoing support in the NFT market, either by assisting in the minting process or “in after-market and re-sale activities.”¹⁰⁸ These intermediaries include developers who build ecosystems to allow users to transact, experience, exchange, display, and trade NFTs, namely NFT marketplaces such as OpenSea, Rarible, and SuperRare.¹⁰⁹ Also, entities like Dapper Labs, who developed the platform and user experience for the *NBA Top Shot* NFT platform, are included.¹¹⁰ NFT marketplaces can be either public and open, such as OpenSea and Rarible, where “any artist may upload their content,” or closed, such as SuperRare, where only curated content is listed.¹¹¹ These marketplaces generally host the referenced digital asset underlying the NFT; but, it is possible that the digital asset is hosted by a separate intermediary.¹¹²

Given the critical role NFT marketplaces play in the NFT industry, it is important to discuss how they function and operate. NFT marketplaces operate in a similar fashion to traditional marketplaces, like eBay or Etsy, allowing users to list, sell, and purchase items.¹¹³ Creators and sellers can upload

105. See Bailey Reutzler, *How to Invest in Cryptocurrency: Exchanges, Apps, Wallets and More*, CNBC (Oct. 11, 2021), <https://www.cnbc.com/select/how-to-invest-in-cryptocurrency-exchanges-apps-wallets-and-more/> [<https://perma.cc/CMK2-3QU9>].

106. *What Are Decentralized Exchanges, and How Do DEXs Work?*, COINTELEGRAPH, <https://cointelegraph.com/defi-101/what-are-decentralized-exchanges-and-how-do-dexs-work> [<https://perma.cc/5SEM-9M3Y>].

107. Ryan McNamara, *Best Crypto Wallets*, BENZINGA (June 13, 2022), <https://www.benzinga.com/money/best-crypto-wallet/> [<https://perma.cc/TE9S-ZCWN>].

108. Wilson et al., *supra* note 100, at 662.

109. *Id.*

110. *Id.* at 660, 662.

111. *Id.*

112. Fath et al., *supra* note 26.

113. See Charles X, *supra* note **Error! Bookmark not defined.**

NFTs to the platform, where they can provide a name and description and set a price or auction for their NFT.¹¹⁴ Likewise, buyers and collectors are able to search for the specific NFT they wish to purchase through keywords, tags, creator names, or NFT features and purchase an NFT through their connected crypto-wallet—a process that operates in a similar way that PayPal operates for eBay.¹¹⁵ Similar to traditional online marketplaces, reviews and ratings can also be left for creators.¹¹⁶ Unlike their traditional counterparts, however, the non-fungible nature of NFTs means that NFT marketplaces track consequent transactions of the NFT, allowing secondary and tertiary purchasers to view the transaction history of the NFT.¹¹⁷ An NFT marketplace’s business model centers around earning a small commission for each NFT sale; for example, OpenSea earns a 2.5% commission per NFT transaction.¹¹⁸ This seemingly small commission has earned OpenSea in excess of USD \$235 million in revenue in 2021¹¹⁹ as part of its processing of “more than USD \$10 billion worth of [NFT] transactions since launching in December 2017.”¹²⁰ In fact, OpenSea’s revenue in 2021 was comparable to that of eBay.¹²¹ Notably, the market concentration in the NFT marketplace industry: As of October 2021, OpenSea represented over 60% of the NFT marketplace by market share as measured by aggregate price of NFTs sold¹²² and the top five

114. *Id.*

115. *Id.*

116. *Id.*

117. See, e.g., *Where Can I Find NFT Sales Records?*, OPENSEA, <https://support.opensea.io/hc/en-us/articles/1500003230922-Where-can-I-find-NFT-sales-records> [<https://perma.cc/667E-8B56>].

118. *Is OpenSea an Undervalued NFT Marketplace?*, COINTELEGRAPH (Nov. 18, 2021), <https://cointelegraph.com/news/cointelegraph-consulting-is-opensea-an-undervalued-nft-marketplace> [<https://perma.cc/SDQ4-ERRR>].

119. *Id.*

120. *Id.*

121. *Id.*

122. Tony Zerucha, *OpenSea the Dominant NFT Site with 60% Market Share*, CROWDFUND INSIDER (Oct. 26, 2021, 9:26 PM), <https://www.crowdfunder.com/2021/10/182177-opensea-the-dominant-nft-site-with-60-market-share/> [<https://perma.cc/Z3D2-3KTT>].

marketplaces (when measured by this metric) represented over 95% of the entire NFT market.¹²³

D. Current Regulatory Environment

By their nature, NFTs can be linked to a variety of different assets and represent either (1) numerous rights and obligations or (2) none, posing a difficult classification challenge. Unsurprisingly, the existing regulatory environment is not designed to accommodate digital assets, especially NFTs. To date, it does not appear that any government (federal or state) nor regulatory agency has implemented substantial regulation regarding NFTs specifically, although several state governments have implemented broad laws concerning cryptocurrencies and blockchain technology that *could* encompass NFTs.¹²⁴ An example of the more substantive and broadly applicable state blockchain laws is Wyoming’s law that exempts “consumptive” tokens that “may be exchangeable for . . . content or property, whether real or tangible personal property” from state securities laws and money transmission laws.¹²⁵ Similarly, neither the Securities Exchange Commission (SEC), the Commodities Futures Trading Commission, nor any other financial regulatory agency has offered substantial regulatory guidance on how to treat NFTs as a financial asset.¹²⁶ One broker-dealer “recently petitioned the SEC for rulemaking regarding NFTs,” noting that the critical issue of when and whether an NFT is a security is unclear and

123. *See id.* (The sum total of market volume from OpenSea (USD \$9.4 billion), Axle Infinity (USD \$2.67 billion), CRYPTOPUNKS (USD \$1.5 billion), NBA Top Shot (USD \$710 million), and Rarible (USD \$232.1 million) equates to approximately USD \$14.5 billion, or over 96% of the total market volume).

124. Bain et al., *supra* note 1.

125. H.B. 0062, 65th Leg., 2019 Gen. Sess. (Wyo. 2019) (“An open blockchain token with the following characteristics constitutes intangible personal property . . . [t]he predominant purpose of the token is consumptive . . . [and] [t]he developer or seller did not market the token to the initial buyer as a financial investment . . .”), <https://www.wyoleg.gov/Legislation/2019/HB0062> [<https://perma.cc/2DP5-BH4Q>]; Gregory Lisa, *Wyoming Passes Bill Exempting Some Tokens from Securities Laws*, HOGAN LOVELLS (Mar. 9, 2018), <https://www.engage.hoganlovells.com/knowledgeservices/news/wyoming-passes-bill-exempting-some-tokens-from-securities-laws> [<https://perma.cc/ZP9V-YSF5>]; Matthew Kohen & Carlton Fields, *State Regulations on Virtual Currency and Blockchain Technologies*, JD SUPRA (Mar. 15, 2021), <https://www.jdsupra.com/legalnews/state-regulations-on-virtual-currency-2160466/> [<https://perma.cc/U9NV-CKNJ>].

126. Kahan et al., *supra* note 5.

requires substantial legal analysis—a cost-prohibitive exercise for early-stage companies.¹²⁷ The inherently cross-border nature of NFT transactions, and cryptocurrency transactions generally, raises complex issues of applicable regulation when NFTs are sold both inter-state and globally. Other jurisdictions can also maintain regulatory regimes which may or may not be relevant to NFTs.¹²⁸ Yet, there is almost no specific global regulatory guidance for the treatment of NFTs, with most nations only announcing plans to regulate blockchain technology or crypto-assets more broadly.¹²⁹ The sole exception to this regulatory opacity can be seen in Liechtenstein, which has established a law regarding the civil and supervisory framework for the tokenization of rights in physical assets, explicitly covering NFTs.¹³⁰ Ultimately, while the regulatory opacity has seemingly not affected the exponential growth of today’s NFT market, NFT transactions on the blockchain are stored perpetually—meaning any retroactive laws could apply without significant difficulty.

127. Keith R. Murphy et al., *Reports Analyze Bitcoin Price, Energy Consumption; SEC Petitioned on NFTs, NFT Platform Sued; FDIC and FATF Focus on Crypto; Hacks and Fraud Continue*, BAKERHOSTETLER (May 21, 2021), <https://www.theblockchainmonitor.com/2021/05/reports-analyze-bitcoin-price-energy-consumption-sec-petitioned-on-nfts-nft-platform-sued-fdic-and-fatf-focus-on-crypto-hacks-and-fraud-continue/> [https://perma.cc/P4TK-2TRG].

128. Diego Ballon Ossio et al., *Non-Fungible Tokens: The Global Legal Impact*, CLIFFORD CHANCE 8 (2021), <https://www.cliffordchance.com/content/dam/cliffordchance/briefings/2021/06/non-fungible-tokens-the-global-legal-impact.pdf> [https://perma.cc/9TT4-L8KK].

129. *Id.* at 4.

130. *Blockchain Laws Liechtenstein*, LCX (Nov. 17, 2020), <https://www.lcx.com/blockchain-laws-liechtenstein/> [https://perma.cc/8K83-Z5M8] (“Liechtenstein is the first country to introduce a comprehensive regulation for the blockchain industry, for cryptocurrencies, utility tokens, payment tokens, stable coins, and digital securities like security tokens.”); Philipp Sandner, *Liechtenstein Blockchain Act: How Can Nearly Any Right and Therefore Any Asset Be Tokenized Based on the Token Container Model?*, MEDIUM (Oct. 7, 2019), <https://philippsandner.medium.com/liechtenstein-blockchain-act-how-can-nearly-any-right-and-therefore-any-asset-be-tokenized-based-389fc9f039b1> [https://perma.cc/Q3GU-5KUH] (“One of the building blocks of the Liechtenstein Blockchain Act is the so-called Token Container Model (TCM). With this framework, a token serves as a container with the ability to hold rights of all kinds. The container can be “loaded” with a right that represents a real asset such as real estate, stocks, bonds, gold, access rights, money.”).

II. DANGERS OF NFTS

As a product of their digital nature and current-use cases, NFTs pose several dangers for purchasers, digital artists, and other parties in the NFT marketplace. First and most notably, there appears to be a profound misunderstanding of what an NFT conveys. Second, the sudden and exponential rise—and ensuing dramatic fall—in the prices of NFTs is reminiscent of price bubbles of years past; and significant price volatility potentially calls for an appropriate regulatory response from a financial market standpoint. Finally, the unregulated and pseudonymous nature of the NFT market, and blockchain technology in general, inherently poses potential for the NFT market to serve as a harbor for illegal activities largely outside the purview of law enforcement.

A. *Misunderstanding NFT Transactions*

The fundamental misunderstanding of NFT transactions stems from the fact that ownership of an NFT, in and of itself, does not convey ownership of, nor rights to, the underlying asset (whether physical or digital) without separate conveyance of those rights by contract.¹³¹ Additionally, NFTs are not necessarily representative of a unique asset nor limited in number; there is little preventing an NFT creator from minting as many NFTs of the exact same asset as they desire.¹³² While the exact rights vary by the accompanying contract or license to the NFT transaction, NFT holders do appear to generally purchase some legal rights.¹³³ As it stands, most “current NFT marketplaces grant an NFT purchaser a non-exclusive and non-transferable license to use, copy and display the creative works underlying the NFT for personal use” and “set forth certain restrictions on how [the NFT] may be used.”¹³⁴ In this sense, claims that the value of NFTs derives from their authenticity, uniqueness, and ownership are misguided because they confuse the NFT with the

131. Sandner, *supra* note 130.

132. Barsky, *supra* note 20. While each asset may represent its own unique iteration of a non-fungible token, they could, nevertheless, reference the exact same physical asset in the same way that there may be thousands of Charizard Pokémon cards, otherwise entirely unique, but reference the exact same asset.

133. Sookman, *supra* note 2.

134. Levi et al., *supra* note 24.

underlying reference asset.¹³⁵ NFTs are not inherently valueless, as there is some discernible value in an NFT's provenance—that is, an owner's ability to verify ownership of the NFT itself through a history of transactions on the blockchain.¹³⁶ NFTs can be better understood as a digital certification of an item.¹³⁷ Rather than extensive paper trails, NFTs create a blockchain-based proof of provenance.¹³⁸ However, the specific reference or link from the digital blockchain-based NFT to the asset, especially with respect to physical assets, warrants some explanation. An NFT verifies the blockchain address of its creator and its ensuing transaction history; yet, “some independent verification is required” to identify the person behind the address or the referenced asset in addition to its existence and owner.¹³⁹ Even for digital assets, the content is not necessarily stored on the NFT and the blockchain through “on-chain storage.”¹⁴⁰ The underlying digital work is *instead* hosted on a separate website or third-party platform.¹⁴¹ Therefore, for these specific “off-chain” digital assets, an NFT “is therefore only as valuable as the persistence of its underlying work” and the work's host site,¹⁴² which is not guaranteed to operate in perpetuity.¹⁴³

Investors are generally prone to suffer from two shortfalls when trading complex financial instruments, which NFTs now arguably have become in today's market: (1) shrouded price equilibriums and (2) bounded rationality.¹⁴⁴ Shrouded price equilibriums refer to a product's “hidden” add-ons that may not be considered during the purchase and can, consequently, fail to

135. Cf. Sookman, *supra* note 2.

136. *Id.*; Ginzburg, *supra* note 34.

137. Tal Elyashiv, *Setting the Record Straight on NFTs, the Most Misunderstood Financial Advancement in History*, VENTUREBEAT (May 20, 2021, 1:20 PM), <https://venturebeat.com/2021/05/20/setting-the-record-straight-on-nfts-the-most-misunderstood-financial-advancement-in-history/> [https://perma.cc/32KK-RK6Y].

138. *Id.*

139. Levi et al., *supra* note 24.

140. Sookman, *supra* note 2.

141. Fath et al., *supra* note 26.

142. Levi et al., *supra* note 24.

143. *Id.*

144. See Troy A. Paredes, *Blinded by the Light: Information Overload and Its Consequences for Securities Regulation*, 81 WASH. U. L.Q. 417, 432 (2003); Robert P. Bartlett, *Inefficiencies in the Information Thicket: A Case Study of Derivative Disclosures During the Financial Crisis*, 4 UC BERKELEY: BERKELEY PROGRAM IN L. AND ECON. (2010).

be factored into the purchase price.¹⁴⁵ However, most pertinent to the risk of misunderstanding NFT transactions by investors is the issue of bounded rationality—a consumer’s inherent limited ability to process information.¹⁴⁶ Given the present fundamental misunderstanding of the ownership, property, and licensing rights (or lack thereof) an NFT confers, combined with the substantial price tags that NFTs are being sold for, NFTs appear to exceed the bounded rationality of certain investors. Further, “entertainment” and “sensation seeking” have been identified by retail investors as significant reasons for trading financial instruments.¹⁴⁷ This trend, combined with findings that the more often an investor trades, the worse their returns are likely to be,¹⁴⁸ present a troubling scenario. Holding all else equal, an “entertainment” seeking retail investor is inclined to trade as many times as possible to maximize their entertainment value, even though this may also increase the likelihood for negative returns. While the problem illustrated earlier may be attributed to a fundamental lack of comprehension, this scenario suggests significant government intervention is required not only to inform retail investors so they trade rationally but, also, to adequately protect those that purchase and sell NFTs for entertainment and sensation-seeking purposes.

B. 21st Century Tulip Mania

At its peak, the NFT market saw hundreds of millions of dollars, if not more, move through it. In the second quarter of 2021, the Ethereum blockchain alone saw trading volumes of over USD \$700 million in NFTs¹⁴⁹ with nearly 200,000 active wallets.¹⁵⁰ The growth of the NFT market has been nothing short of exponential. Sales volumes recorded on the largest NFT

145. Xavier Gabaix & David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets*, 121 Q. J. ECON. 505, 505–06 (2006).

146. Paredes, *supra* note 144, at 435.

147. See Rob Bauer et al., *Option Trading and Individual Investor Performance*, 33 J. BANKING & FIN. 731, 743 (2009).

148. *Id.* at 742.

149. Michelle Lim, *Has the NFT Bubble Burst? The Data Says Otherwise*, FORKAST (July 16, 2021, 4:05 AM), <https://forkast.news/has-the-nft-bubble-burst-the-data-says-otherwise/> [<https://perma.cc/AV5Q-PW49>].

150. *Id.*

trading platform, OpenSea, exceeded USD \$1.9 billion in August 2021—a figure over ten times larger than March 2021, where only USD \$148 million was transacted.¹⁵¹ The March figure, in turn, dwarfed the USD \$8 million sold in January 2021.¹⁵² The interest in NFTs arguably peaked when a computer-generated artwork by digital artist Mike Winkelmann, known as Beeple, sold his collage, *Everydays: The First 5,000 Days*, through a Britain-based auction house, Christie’s, for USD \$69.3 million.¹⁵³ The sale of Beeple’s artwork was not an aberration either—*101 Bored Apes* sold for USD \$24 million at Sotheby’s.¹⁵⁴ One out of the 10,000 unique *CryptoPunks* sold for USD \$7.6 million¹⁵⁵ and Twitter founder Jack Dorsey’s first tweet sold for USD \$2.9 million.¹⁵⁶ That said, the NFT market has fallen from its peak NFT trading day, when USD \$176 million were sold in a single day in May of 2021,¹⁵⁷ to a much lower—yet still significant—USD \$19.4 million in the first week of June.¹⁵⁸ Average prices of NFTs fell by almost 70% from their late-February peak of USD \$4,000 to about USD \$1,250 in early April.¹⁵⁹ Likewise, the number of

151. Elizabeth Howcroft, *NFT Sales Surge as Spectators Pile in, Skeptics See Bubble*, REUTERS (Aug. 25, 2021, 3:56 AM), <https://www.reuters.com/technology/nft-sales-surge-speculators-pile-sceptics-see-bubble-2021-08-25/> [<https://perma.cc/A3K4-YWKN>].

152. *Id.*

153. Scott Reyburn, *Art’s NFT Question: Next Frontier in Trading, or a New Form of Tulip?*, N.Y. TIMES (Apr. 29, 2021), <https://www.nytimes.com/2021/03/30/arts/design/nft-bubble.html> [<https://perma.cc/9GWS-RRAG>].

154. Ivan Castano, *NFTs to Drive Our Parallel Universe—If a Bubble Doesn’t Pop First*, NASDAQ (Sept. 20, 2021, 11:51 AM), <https://www.nasdaq.com/articles/nfts-to-drive-our-parallel-universe-if-a-bubble-doesnt-pop-first-2021-09-20> [<https://perma.cc/V7DE-S9EH>].

155. Varsha Meghani, *Has the NFT Bubble Already Burst?*, FORBES INDIA (Sept. 9, 2021, 1:43 PM), <https://www.forbesindia.com/article/take-one-big-story-of-the-day/has-the-nft-bubble-already-burst/69691/1> [<https://perma.cc/6AQB-HVPU>].

156. *Id.*

157. Ryan Browne, *NFT Sales Are Dropping but Believers Still See a Future for Digital Collectibles*, CNBC (June 15, 2021, 5:02 AM), <https://www.cnbc.com/2021/06/15/nft-price-crash-what-next-for-digital-collectibles.html> [<https://perma.cc/GE8T-ZBMQ>].

158. *The NFT Market Bubble Has Popped and We’ve Got the Charts to Prove It*, PROTOS (June 2, 2021, 3:39 PM), <https://protos.com/nft-market-bubble-popped-crypto-collectibles-are-over/> [<https://perma.cc/77DU-TPMN>].

159. Paul R. La Monica, *The NFT Bubble Might Be Bursting Already*, CNN: MARKETS NOW (Apr. 5, 2021, 8:38 PM), <https://edition.cnn.com/2021/04/05/investing/nft-prices-falling/index.html> [<https://perma.cc/PR53-8CJ2>].

users trading NFTs fell by about seventy percent between May and June of 2021.¹⁶⁰

The sudden exponential rise and dramatic fall in the value of NFTs is by no means unprecedented and, if anything, is reminiscent of other historic examples—from tulip mania in the 1600s,¹⁶¹ to the “tronics boom” of the early 1960s, to the “biotech bubble” of the early 1980s, to the Dotcom bubble, and, more recently, the initial coin offering (ICO) bubble of the late 2010s.¹⁶² For example, tulip mania began when tulips were first brought to Western Europe at the end of the 16th century and were viewed as exotic goods, with some seen as a status symbol.¹⁶³ Their rarity led to shockingly high valuations.¹⁶⁴ In February of 1637, just a year after the flowers had made it on the Amsterdam Stock Exchange, a single flower bulb sold for 6,700 guilders, enough for a “grand house in one of Amsterdam’s most desirable districts.”¹⁶⁵ Only one month later, “prices of more common tulip bulbs [fell] by as much as 95%.”¹⁶⁶ Similar stories depicting speculative bubbles are visible throughout history. For instance, the

160. Theo Wayt, *The NFT Bubble Is Popping, With Sales Reportedly Dropping 90 Percent*, N.Y. POST (June 3, 2021, 11:55 AM), <https://nypost.com/2021/06/03/nft-bubble-popping-with-sales-reportedly-dropping-90-percent/> [<https://perma.cc/WX5W-DSW5>].

161. La Monica, *supra* note 159.

162. See, e.g., Dan Marticio, *What Was the Dotcom Bubble?*, BALANCE (Jan. 15, 2022), <https://www.thebalance.com/what-was-the-dotcom-bubble-5209336> [<https://perma.cc/4PQL-DPLV>] (“The internet was a hot topic during the 1990s and this led many investors to predict a profitable future in internet-based businesses. This resulted in increased investment in tech startups, which drove their price shares to higher levels. Many companies even changed their names to include “.com,” “.net,” or “Internet”—this simple change contributed to those companies outperforming their competitors by 63%.”); Eric Brouwer, *ICOs: A History of Building Castles in the Air*, MEDIUM (Nov. 10, 2019), <https://medium.com/swlh/icos-a-history-of-building-castles-in-the-air-a4b508efdc5> [<https://perma.cc/WM2S-FYXZ>] (“Similar to the tronics boom where investors appropriated the word “electronics or tronics” to make money, promoters during the ICO bubble started leveraging the words blockchain and crypto. They sprinkled those terms into their whitepapers and released ERC-20 tokens to the public to meet the crazed public who awaited any opportunity to invest in this space. . . . Investors did not care that the ICOs and ideas behind any of the projects were speculative, all that mattered was that these ICO tokens had the potential to skyrocket in price and make them rich.”).

163. Yura Lazebnikov, *Why NFT Is Not Just Another Bubble, but a New Stage of Evolution*, EMERGING EUR. (Aug. 31, 2021), <https://emerging-europe.com/voices/why-nft-is-not-just-another-bubble-but-a-new-stage-of-evolution/> [<https://perma.cc/4C3J-432L>].

164. Reyburn, *supra* note 153.

165. *Id.*

166. *Id.*

“tronics boom” of the 1960s was so named because stock offerings associated in some obscure manner with “electronics” were viewed as being worth multiples of those that lacked such an association, despite the former having nothing to do with the electronics industry.¹⁶⁷ Additionally, the “biotech bubble” of the early 1980s repeated this scenario, with excessive shareholder optimism toward companies in the biotechnology industry.¹⁶⁸ The Dotcom bubble continued the theme with internet-based businesses.¹⁶⁹ Finally, the ICO bubble of 2017 saw extreme investment in anything related to “crypto” and “blockchain.”¹⁷⁰ While these bubbles capture irrational investor hype, optimism, and speculative investment, they nevertheless accompanied new technology and arguably served to accelerate investment and mainstream adoption.¹⁷¹ Without the dotcom bubble in 2000, the world might be without the Internet—or at least, the development of the Internet would not have progressed as quickly. Similarly, while tulip mania was an extreme bubble, “the Dutch still rule the roost in flowers” almost 400 years later.¹⁷²

The question that stems from these examples is whether this price volatility justifies a regulatory response. The risks that price volatility and price bubbles, especially in the context of speculative investing, pose both to investors and the economy at large are common subjects of scholarship. Regulation designed to prevent bubbles and reduce volatility is “often motivated by the desire to discourage speculation and limit negative externalities, where the behavior of an individual investor or group of investors can destabilize the [entire] financial market.”¹⁷³ Even on a micro-economic level, “extreme price volatility has the potential to expose investors to rapid and severe losses

167. BURTON G. MALKIEL, *A RANDOM WALK DOWN WALL STREET: THE TIME-TESTED STRATEGY FOR SUCCESSFUL INVESTING* 57–58 (10th ed. 2012).

168. *Id.* at 72.

169. *See id.* at 73.

170. *See* Brouwer, *supra* note 162.

171. Dominic Frisby, *Yes, NFTs Are a Bubble. But Like Many Bubbles of the Past, They Will Change Everything*, MONEYWEEK (Apr. 13, 2021), <https://moneyweek.com/investments/alternative-finance/bitcoin/603080/nfts-non-fungible-tokens-bubble> [<https://perma.cc/69A8-9NNZ>].

172. *Id.*

173. Adrian Buss et al., *The Intended and Unintended Consequences of Financial-Market Regulations: A General-Equilibrium Analysis*, 81 J. MONETARY ECON. 25, 25 (2016).

and undermine market confidence.”¹⁷⁴ There appear to be at least two fundamental reasons why price volatility with respect to NFTs justifies at least some regulatory response. First, behavioral finance asserts that many investors frequently fail to “gather optimal information to evaluate the fundamentals of assets . . . or calculate probabilities and risk.”¹⁷⁵ This appears to be the case in the NFT market, where there seems to be a fundamental misunderstanding of what an NFT transaction entails, as discussed previously *supra* Section II.A.

The second reason relates to the potential negative externalities affecting other portions of the financial sector, or worse, the general economy.¹⁷⁶ In other words, the potentially devastating financial losses from an NFT crash may not be limited to those individuals investing in NFTs, who may be able to bear the losses from existing cryptocurrency profits.¹⁷⁷ In comparison, while the deflation of the dotcom bubble and consequent losses in the stock market were, for the most part, absorbed by individual investors, the housing market bubble spurred the worst recession since the 1930s, largely due to a highly leveraged financial sector causing widespread fears of insolvency and illiquidity.¹⁷⁸ While the NFT market, as it exists today, likely does not bear the same potential systemic risk as the nation’s housing market, there have been multiple developments in the NFT market that suggest real potential to generate future systemic risk.

The first development is fractional-NFTs (f-NFTS), semi-fungible tokens that represent fractional interests in an NFT, which have been developed to allow a broader group of investors to purchase a portion of an otherwise rare or expensive digital

174. Statement, Allison Herren Lee, Acting Chair, Hester M. Peirce, Elad L. Roisman & Caroline A. Crenshaw, Comm’rs, SEC, Statement of Acting Chair Lee and Comm’rs Peirce, Roisman, and Crenshaw Regarding Recent Market Volatility (Jan. 29, 2021), <https://www.sec.gov/news/public-statement/joint-statement-market-volatility-2021-01-29> [<https://perma.cc/9C4Y-HFA8>].

175. Erik F. Gerding, *Laws Against Bubbles: An Experimental-Asset-Market Approach to Analyzing Financial Regulation*, 2007:5 WIS. L. REV. 977, 995 (2007) (citing Nicholas C. Barberis & Richard H. Thaler, *A Survey of Behavioral Finance*, in 1B HANDBOOK OF THE ECONOMICS OF FINANCE 1065–74 (George M. Constantinides, Milton Harris & René M. Stulz, eds., 2003)).

176. Lawrence J. White, *Preventing Bubbles: What Role for Financial Regulation?*, 31 CATO J. 603, 603 (2011).

177. See Veronica Irwin, *NFTs Could Be Next to Crash*, PROTOCOL (May 18, 2022), <https://www.protocol.com/newsletters/protocol-fintech/nft-crash-risk?rebelltitem=1#rebelltitem1> [<https://perma.cc/2769-ALTN>].

178. See White, *supra* note 176, at 607–08.

asset.¹⁷⁹ Inherently, the process of fractionalizing an NFT to increase the liquidity of an NFT generates a secondary market.¹⁸⁰ By providing the general public an opportunity to invest in the NFT market, f-NFTs also expose a greater population to the NFT market's inherent price volatility. The second development that poses systemic risk concerns is the insertion or packaging of NFTs into traditional financial products as well as the general exposure that traditional financial products may have to the NFT market. For example, Ceresion, a decentralized trading platform, proposed a platform where investors could buy into exchange-traded funds, which contained NFTs as their underlying assets.¹⁸¹ Similar, albeit indirect, exposure to the NFT market is also seen in more traditional stocks.¹⁸² A significant depreciation of NFTs, in this sense, certainly has the potential for broader consequences for the financial market at-large.

Two additional factors that exacerbate or at least relate to the price volatility of NFTs are also worth mentioning. The first factor is built on the foundational property of NFTs, their non-fungibility. In theory, because each NFT is unique, each NFT may also necessarily be completely illiquid or, at the very least, they may be exceptionally price elastic. That is, the demand for a particular NFT may completely fall once the NFT exceeds a certain price. In turn, this would render the NFT illiquid: its owner likely will not wish to sell it below its purchase price and any purchaser will be unwilling to exceed a certain price. The second factor derives from the fact that NFTs can only be bought and sold with the relevant blockchain's cryptocurrency. Given

179. David Z. Morris, *Are NFTs Securities?*, COINDESK (Sept. 14, 2021, 7:44 AM), <https://www.coindesk.com/markets/2021/08/24/are-nfts-securities/> [<https://perma.cc/6EF8-6ETD>].

180. *Id.*

181. See Ceresion NFT, *Linking ETFs and NFT*, Ceresion's Decentralized Sphere, YAHOO (Aug. 3, 2021), <https://www.yahoo.com/now/linking-etfs-nft-ceresions-decentralized-103400497.html> [<https://perma.cc/7MK6-ZB5Z>].

182. See Shivani Kumaresan, *Consumer Stocks with NFT Exposure Slide As Cryptos Take Hit*, MARKETS INSIDER (Sept. 20, 2021, 2:18 PM), <https://markets.businessinsider.com/news/stocks/consumer-stocks-with-nft-exposure-slide-as-cryptos-take-hit-1030810870> [<https://perma.cc/KQP7-DWGV>]; Usman Kabir, *10 Best NFT Stocks to Buy Now*, YAHOO (Aug. 10, 2021), <https://www.yahoo.com/now/10-best-nft-stocks-buy-142001419.html> [<https://perma.cc/2AL8-V6PQ>] (“Investors eager to explore this new market should keep an eye on famous NFT stocks like Twitter, Inc. (NYSE: TWTR), Cloudflare, Inc. (NYSE: NET), and Mattel, Inc. (NASDAQ: MAT), among others.”).

that cryptocurrencies are inherently volatile,¹⁸³ the illiquidity of NFTs appears to generate a second layer or multiple of volatility, rendering NFTs as an asset particularly prone to significant price fluctuation.

C. Harbor for Illegal Activities

The unregulated and pseudonymous nature of the NFT market, and blockchain technology more generally, poses the potential to serve as a harbor for illegal activities, largely outside the purview of law enforcement. For the most part, there appear to be three significant areas of concern regarding criminal activity within the NFT market: (1) counterfeiting and intellectual property law infringement; (2) wash trading; and (3) money laundering.

The creation of “counterfeit” NFTs can be achieved through two methods: first, by violating intellectual property laws and minting an artist’s work into an NFT without their permission, or second (and more crudely), creating and selling an NFT that refers to nothing. For example, artworks in the digital collection of the Rijksmuseum in Amsterdam were minted as NFTs and listed for sale, without the museum’s consent.¹⁸⁴ Similarly, the process of selling NFTs on Rarible, a popular NFT marketplace, was susceptible to fairly rudimentary identity fraud—artist Derek Laufman’s artwork was minted as NFTs and listed for sale without his permission, only for the fraud to be discovered through social media.¹⁸⁵ Rarible’s vetting process only involves submitting social media accounts that presumably must align with the artwork to be uploaded.¹⁸⁶ There is no further verification of whether the social media accounts are owned by the purported uploader.¹⁸⁷ More alarmingly, OpenSea, another popular NFT marketplace, appears to have no verification process at

183. See Nicole Lapin, *Explaining Crypto’s Volatility*, FORBES (Dec. 23, 2021, 6:00 AM), <https://www.forbes.com/sites/nicolelapin/2021/12/23/explaining-cryptos-volatility/?sh=462c57ac7b54> [<https://perma.cc/UX22-3X5U>].

184. *Non-Fungible Tokens—Risks and Challenges*, 101 BLOCKCHAINS (Sept. 14, 2021), <https://101blockchains.com/nft-risks-and-challenges/> [<https://perma.cc/ZYV8-RGTL>].

185. Bijan Stephen, *NFT Mania Is Here, and so Are the Scammers*, VERGE (Mar. 20, 2021, 8:00 AM), <https://www.theverge.com/2021/3/20/22334527/nft-scams-artists-opensea-rarible-marble-cards-fraud-art> [<https://perma.cc/TB5H-9N8J>].

186. *Id.*

187. *Id.*

all.¹⁸⁸ In turn, NFT marketplaces, despite being in the best position to prevent intellectual property law infringement and the production of “counterfeit” NFTs, seem to turn a blind eye, serving almost as enablers.

Often referred to as “crypto’s open secret,”¹⁸⁹ wash trading refers to the purchase and sale of NFTs by the same person or a group of people in collusion, often at increasingly higher prices to simulate increasing demand and publicity.¹⁹⁰ Wash trading is by no means limited to malicious individuals, either: there are suspicions that many NFT marketplaces themselves engage in wash trading to artificially inflate trading volume.¹⁹¹ The possibility of wash trading is exacerbated by the pseudonymous nature of blockchain technology, where there are few obstacles to one person creating multiple crypto-wallets in order to pose as numerous individuals. It is surely possible to monitor the blockchain for wash trading to some extent, especially when there are numerous purchases and sales between the same two addresses; but, the analysis becomes much more difficult for one-off transactions.¹⁹² In the high-profile case of *CryptoPunk #9998*’s sale for the Ether equivalent of USD \$532 million, there is high suspicion of wash trading, as the *CryptoPunk* NFT moved between the two same addresses multiple times.¹⁹³ The potential widespread nature of wash trading within the NFT market could be

188. *Id.*

189. Omar Faridi, *Researchers Argue That Wash Trading Might Become Problem in Fast-Growing Blockchain Based NFT Market*, CROWDFUND INSIDER (Mar. 14, 2021, 10:18 AM), <https://www.crowdfundinsider.com/2021/03/173166-researchers-argue-that-wash-trading-might-become-problem-in-fast-growing-blockchain-based-nft-market/> [https://perma.cc/FB4M-JQFE].

190. Dafky2000, *What is “Wash Trading” and Why Is It Negative for Non-Fungible Tokens?*, NONFUNGIBLE (Aug. 18, 2020), <https://nonfungible.com/blog/wash-trading-and-why-its-negative-for-non-fungible-tokens> [https://perma.cc/RA6U-RF5K]; *What Are NFTs and Are They Used for Illegal Activities?*, REGTANK (Apr. 22, 2021), <https://regtank.com/what-are-nfts-and-are-they-used-for-illegal-activities/> [https://perma.cc/E3AE-T8Z3].

191. *Wash Trading Invades the NFT Industry*, RFOX FIN. (June 6, 2020), <https://www.rfox.finance/wash-trading-invades-the-nft-industry> [https://perma.cc/WT6Q-QL7S].

192. *See \$500M CryptoPunk Sale Was Just Wash Trading, Because of Course It Was*, PROTOS (Oct. 29, 2021, 7:34 PM), <https://protos.com/cryptopunk-500m-wash-trading-crypto-nft-of-course/> [https://perma.cc/3PBN-W56T].

193. Nick Baker, *An NFT Just Sold for \$532 Million, but Didn’t Really Sell at All*, BLOOMBERG (Oct. 29, 2021, 6:55 AM), <https://www.bloomberg.com/news/articles/2021-10-29/here-s-a-532-million-nft-trade-that-wasn-t-what-it-appeared> [https://perma.cc/4YFK-KTCE].

more likely, considering the fact that purchases and sales of NFTs are highly concentrated—one particular study found that “the top 10% of traders alone perform 85% of all transactions and trade 97% of all assets at least once.”¹⁹⁴

Arguably, the simplest illicit activity using NFTs and the blockchain is traditional money laundering. Money laundering can be loosely defined as “taking criminal profits and moving them in a prohibited manner . . . often with the intent to disguise the nature, location, source, ownership, or control of the funds.”¹⁹⁵ Money laundering is a significant issue in the art industry because of artwork’s inherently subjective value; and it is no surprise money laundering would also impact the NFT industry, with the additional benefit of the blockchain’s pseudonymous nature.¹⁹⁶ The prices of NFTs make it entirely possible to launder money extremely quickly, as single transactions for NFTs go well into the millions.¹⁹⁷ Further, no physical delivery is required.¹⁹⁸ With minimal know-your-client and anti-money-laundering procedures for many crypto-wallets and NFT marketplaces, this process is more possible.¹⁹⁹ Even with these procedures in place, cryptocurrency trades can nevertheless enhance the challenges of chasing money laundering schemes, as “a complicated series of transactions across numerous wallets make tracing the illicit funds’ path tedious and difficult for

194. Matthieu Nadini et al., *Mapping the NFT Revolution: Market Trends, Trade Networks, and Visual Features*, 11 SCI. REPS. 20902 at 4 (2021).

195. Douglas Leff, *Money Laundering and Asset Forfeiture*, FBI L. ENFT BULL. (Apr. 1, 2012), <https://leb.fbi.gov/articles/legal-digest/legal-digest-money-laundering-and-asset-forfeiture-taking-the-profit-out-of-crime> [https://perma.cc/3U6J-6V8H].

196. Connie Loizos, *As More Artists and Musicians Turn Their Attention to NFTs, so, Likely, Do Money Launderers*, TECHCRUNCH (Mar. 25, 2021, 12:34 AM), https://techcrunch.com/2021/03/24/nft_users/ [https://perma.cc/V2EA-AHLD]; Ann Brown, *Crypto NFTs Are Said To Be Used for Money Laundering: 3 Things to Know*, MOGULDOM NATION (Sept. 1, 2021), <https://moguldom.com/370883/crypto-nfts-are-said-to-be-used-for-money-laundering-3-things-to-know/> [https://perma.cc/G37V-DW9R].

197. See, e.g., Hernández, *supra* note 71.

198. Fred Clark et al., *What Are the Legal Issues Concerning Non-Fungible Tokens (NFTs)?*, ART L. & MORE (July 8, 2021), <https://artlawandmore.com/2021/07/08/what-are-the-legal-issues-concerning-non-fungible-tokens-nfts/> [https://perma.cc/8Y4T-TUM3].

199. See REGTANK, *supra* note 190; A.J. Woloszynski, *NFTs and Money Laundering*, EISNERAMPER (Aug. 26, 2021), <https://www.eisneramper.com/non-fungible-tokens-money-laundering-flvs-blog-0821/> [https://perma.cc/XX73-CEPK].

fraud examiners or law enforcement.”²⁰⁰ One failsafe for law enforcement, however, is that the blockchain stores every transaction from inception, meaning all illicit transactions are theoretically traceable into perpetuity.²⁰¹

III. EXISTING REMEDIAL REGULATORY APPROACHES

Considering the lack of clearly applicable regulation or guidance, this article now explores how certain existing regulatory approaches may apply to NFTs—namely, generally applicable laws in the form of criminal and intellectual property laws, as well as specifically applied laws in the form of securities laws, commodity laws, and digital asset laws. The first regulatory approach—leaving NFTs mostly unregulated and only subject to generally applicable laws—stems largely from the popular argument amongst NFT stakeholders: the NFT market should remain de-regulated to avoid hindering its function, with laws solely to prevent strictly illegal activity. The application of securities laws draws upon its historical aim of mandating disclosure to reduce significant information asymmetries between stakeholders—an environment the NFT market resembles.²⁰² Likewise, commodity laws acknowledge NFTs’ value as a good or asset and that necessary legal protections must be implemented to prevent consumer abuse and maintain market order. Finally, digital asset laws, largely in response to the burgeoning cryptocurrency market, build upon existing financial market regulation to place digital assets (including NFTs) under the regulatory purview of the relevant government agencies. Ultimately, the interpretation and application of these laws, or a combination thereof, not only affect NFTs today but, also, their future growth.

A. *Generally Applicable Laws*

“As a practical matter, most NFT platforms currently provide the sales terms as part of a license agreement located on the platform itself,” meaning there is an enforceable contract between the

200. Woloszynski, *supra* note 199.

201. Loizos, *supra* note 196.

202. See *infra* Section III.A. (discussing the fundamental misunderstandings of NFTs).

purchaser, seller, and the NFT marketplace.²⁰³ Some argue, consistent with the decentralized theme of blockchain technology, that regulators should refrain from interfering with the NFT market.²⁰⁴ After all, the value of the NFT is in the eyes of the beholder. That is not to say the NFT market should be completely free of regulation—there are clear, common-sense arguments that generally applicable laws concerning money laundering, copyright infringement, and other illegal activities should apply. However, these laws apply more generally outside the NFT market as well; as such, their application should be largely uncontroversial.

B. General Criminal Law

In theory, general criminal law *should* be sufficient to mitigate the risk that the NFT market is a harbor for illegal activities, specifically, wash trading and money laundering. After all, the United States has explicit existing criminal laws addressing exactly those specific areas. Despite the obvious detection and enforcement issues inherent with transactions on the blockchain, there are also significant regulatory capture issues, as recent regulation and guidance is only now responding to NFT's fungible counterpart, cryptocurrencies, and the risks they pose for criminal activities.

The Financial Crimes Enforcement Network (FinCEN), the government body responsible for combating money laundering under the Bank Secrecy Act (BSA),²⁰⁵ has yet to issue guidance specific to NFTs. However, FinCEN has published guidance generally surrounding virtual currencies.²⁰⁶ The Department of the

203. Sean M. Sullivan & Lance Koonce, *What You Don't Know About NFTs Could Hurt You: Non-Fungible Tokens and the Truth About Digital Asset Ownership*, DAVIS WRIGHT TREMAINE (Mar. 24, 2021), <https://www.dwt.com/insights/2021/03/what-are-non-fungible-tokens> [<https://perma.cc/C8BU-FGYK>].

204. Brian D. Feinstein & Kevin Werbach, *Does Regulation Chill Cryptocurrency Trading?*, REGUL. REV. (Aug. 31, 2020), <https://www.theregview.org/2020/08/31/feinstein-werbach-does-regulation-chill-cryptocurrency-trading/> [<https://perma.cc/9NXX-AJK5>] (“Cryptocurrency proponents argue that new regulation is often inappropriate for these novel assets secured by technical mechanisms. They further claim that regulation of this developing technology would stymie beneficial innovations.”).

205. *What We Do*, FINCEN, <https://www.fincen.gov/what-we-do> [<https://perma.cc/V6FG-7P4Q>].

206. Press Release, FinCEN, *New FinCEN Guidance Affirms Its Longstanding Regulatory Framework for Virtual Currencies and a New FinCEN Advisory Warns*

Treasury, however, released a study in February 2022 regarding the applicability of money laundering provisions to traditional artworks and antiquities.²⁰⁷ In the study, the relative lack of evidence and risk of money laundering in the market for traditional art and antiquities was contrasted with the distinct challenges of the NFT market where the potential of “self-laundering,” technological misunderstanding, and a borderless marketplace was ever-present.²⁰⁸ In turn, extending reporting obligations to online NFT marketplaces could be particularly apt because many NFT marketplaces, such as OpenSea, Rarible, and SuperRare, are susceptible to the aforementioned money laundering risks in addition to general risks, like “buyer secrecy, informal and self-regulated markets, non-transparent pricing, [and] high-value transactions.”²⁰⁹ Similarly, the Office of Foreign Assets Control (OFAC), which administers most U.S. sanctions programs,²¹⁰ has not provided guidance specific to NFTs. To its credit, “OFAC has pursued enforcement actions involving cryptocurrency transactions” (suggesting that it is only likely a matter of time before NFTs are pursued)²¹¹ and has clarified that sanctions apply to digital transactions just as they would to traditional physical transactions.²¹² OFAC issued an advisory in

of Threats Posed by Virtual Currency Misuse (May 9, 2019), <https://www.fincen.gov/news/news-releases/new-fincen-guidance-affirms-its-longstanding-regulatory-framework-virtual> [<https://perma.cc/BFF4-3MA3>].

207. See generally DEP’T OF THE TREASURY, STUDY OF THE FACILITATION OF MONEY LAUNDERING AND TERROR FINANCE THROUGH THE TRADE IN WORKS OF ART (Feb. 2022), <https://www.moneylaunderingnews.com/wp-content/uploads/sites/12/2022/02/Art-and-Money-Laundering-Study.pdf> [<https://perma.cc/7F2N-6EKN>].

208. See Diana Wierbicki & Georges Lederman, *US Treasury’s AML Report Weighs Against Increased Regulations in Art Market for Now*, WITHERSWORLDWIDE (Feb. 16, 2022), <https://www.withersworldwide.com/en-gb/insight/us-treasury-s-aml-report-weighs-against-increased-regulations-in-art-market-for-now> [<https://perma.cc/J6NZ-SQ2S>].

209. *Combating Illegal Antiquities Trade*, STANDARD CHARTERED BANK (Dec. 2018), https://av.sc.com/corp-en/others/Combating-Illegal-Antiquities-Trade_FINAL.pdf [<https://perma.cc/XS48-4X79>].

210. *Office of Foreign Assets Control – Sanctions Programs and Information*, DEP’T OF THE TREASURY, <https://home.treasury.gov/policy-issues/office-of-foreign-assets-control-sanctions-programs-and-information> [<https://perma.cc/T73C-2WFG>].

211. An P. Doan et al., *NFTs: Key U.S. Legal Considerations for an Emerging Asset Class*, JONES DAY (Apr. 2021), <https://www.jonesday.com/en/insights/2021/04/nfts-key-us-legal-considerations-for-an-emerging-asset-class> [<https://perma.cc/VFK5-5W58>].

212. *Id.*

October 2020, highlighting the sanction risks associated with dealing in high-value artwork.²¹³ With NFTs presenting similar issues (in addition to their high degree of anonymity), it is possible OFAC will treat NFTs as art for the purposes of enforcing sanctions in the future.²¹⁴

Three years ago, Congress passed the Anti-Money Laundering Act of 2020 (AMLA) to expand the definitions of a “money transmitting business” and a “financial institution” under the BSA.²¹⁵ The definitions now include businesses involved in the transmission of “value that substitutes for currency” and are arguably intended to increase the regulatory scope of the anti-money laundering laws to encompass cryptocurrencies.²¹⁶ In terms of regulatory capture under anti-money laundering laws designed to target cryptocurrencies, it remains to be seen whether NFTs will receive similar treatment. This question hinges on whether NFTs constitute “value that substitutes for currency,” which would then subject NFTs to the Bank Secrecy Act and other FinCEN regulations.²¹⁷

Since many NFTs function as digital representations of ownership in unique assets (a by-product of their non-fungibility) rather than value substitutes for currency, it seems many NFTs available on the market should not be subject to FinCEN’s oversight.²¹⁸ While cryptocurrencies “are clearly a ‘value that substitutes for currency,’ it is less likely NFTs would be deemed the same” because they inherently are not interchangeable,²¹⁹ but are instead digital assets themselves. At least for now, this trend places NFTs themselves outside of the regulatory capture

213. Levi et al., *supra* note 24.

214. Doan et al., *supra* note 211.

215. Carl A. Fornaris et al., *The Anti-Money Laundering Act of 2020: Congress Enacts the Most Sweeping AML Legislation Since Passage of the USA Patriot Act*, NAT’L L. REV. (Jan. 19, 2021), <https://www.natlawreview.com/article/anti-money-laundering-act-2020-congress-enacts-most-sweeping-aml-legislation-passage> [<https://perma.cc/YUY6-KAK3>].

216. Anti-Money Laundering Act of 2020, Pub. L. No. 116-283, H.R. 6395, 116th Cong. § 6101 et seq. (enacted Jan. 1, 2021) (codified at 31 U.S.C. § 5311); Levi et al., *supra* note 24.

217. Doan et al., *supra* note 211.

218. Katherine Kirkpatrick et al., *The Anti-Money Laundering Act and Crypto Collide: Non-Fungible Tokens*, KING & SPALDING 1, 3 (May 18, 2021), https://www.kslaw.com/attachments/000/008/786/original/NFTs_and_Anti-Money_Laundering.pdf?1621357633 [<https://perma.cc/5DGD-MB5K>].

219. *Id.*

of anti-money laundering laws. Certain businesses in the NFT market may implicate FinCEN regulations by virtue of transmitting “value” or currency substitutes and, therefore, constitute “money transmitting businesses.” However, NFT marketplaces (where the primary business model is the creation and sale of NFTs) are likely not implicated, because their non-fungible nature does not represent a substitute for currency. While NFT marketplaces may theoretically be used for cryptocurrency tumbling, an activity which both FinCEN and the courts have held to be “money transmitting,”²²⁰ NFT marketplaces are “unlikely to qualify as ‘money transmitting business’ because they merely (1) allow NFT purchasers and sellers to transact without an intermediary . . . and (2) do not directly handle or otherwise process the cryptocurrencies used to purchase NFTs.”²²¹ Instead, NFT marketplaces may “pose similar money-laundering risks as auction houses and art dealers involved in high-value transactions.”²²²

C. (*Intellectual*) Property Laws

In almost every NFT transaction, there is no transfer of ownership of the underlying asset itself nor any transfer of associated intellectual property rights; rather, the purchaser is typically granted a limited license that allows non-commercial use of the NFT.²²³ As a result of this non-transfer, the application of intellectual property laws, especially copyright laws, is

220. See FINCEN, FIN-2019-G001: APPLICATION OF FINCEN’S REGULATIONS TO CERTAIN BUSINESS MODELS INVOLVING CONVERTIBLE VIRTUAL CURRENCIES 21 (2019), <https://www.fincen.gov/sites/default/files/2019-05/FinCEN%20Guidance%20CVC%20FINAL%20508.pdf> [<https://perma.cc/ZV8B-LYWA>]; U.S. v. Harmon, 474 F. Supp. 3d 76, 109 (D.D.C. 2020); U.S. v. Harmon, 514 F. Supp. 3d 47, 65–66 (D.D.C. 2020); Harmon III, No. 19-CR-395 (BAH), 2021 WL 1518344, at *7 (D.D.C. Apr. 16, 2021).

221. Kirkpatrick et al., *supra* note 218, at 4 (quoting FINCEN, *supra* note 211).

222. *Id.* at 3.

223. Jonathan Schmafelf, *Copyright Violations Could Crash the NFT Party*, FORTUNE (Aug. 4, 2021, 4:00 AM), <https://fortune.com/2021/08/04/nfts-copyright-violations-penalties-non-fungible-tokens-collectibles-nfttorney-jonathan-schmafelf/> [<https://perma.cc/U7HP-DX4M>]; see Starkweather et al., *supra* note 90 (“Traditional intellectual property rights in the associated asset may or may not be transferred with the NFT, and in many NFT marketplaces, conveyance of IP rights such as copyright is the exception rather than the rule”); *SuperRare Terms of Service*, SUPER RARE (Aug. 19, 2021), <https://www.notion.so/SuperRare-Terms-of-Service-075a82773af34aab99dde323f5aa044e> [<https://perma.cc/A5E3-RFW5>] (“Ownership

particularly important because parties may unknowingly (or knowingly) violate third-party intellectual property laws by minting and selling NFTs associated with a copyrighted work without the owner's consent.²²⁴ One potential indicator of how rampant this violation of intellectual property laws may be is that many NFT marketplaces seek to protect themselves from this very copyright infringement issue by requiring those minting NFTs to represent that they possess the appropriate rights and by disclaiming any liability to purchasers or having users contractually agree to indemnify them if the work is violative.²²⁵

Under Section 504 of the Copyright Act, any sale of an infringing work, even if unknowingly by an innocent actor, renders the seller liable for actual damages and/or statutory damages, ranging from USD \$750 to USD \$30,000 per infringement.²²⁶ If the infringement is found to be willful, damages can be up to USD \$150,000 per infringement.²²⁷ This potential peril is compounded by the fact that neither the blockchain nor the NFT marketplace—and seemingly no one except the copyright holder and the minter themselves—can ensure that an NFT is not a copy of a copyrighted work; this violates copyright law and, therefore, creates a risk of exposure for both the purchaser and

of a SuperRare [NFT] is similar to owning a piece of physical art. You own a cryptographic token representing the [a]rtist's creative [w]ork as a piece of property, but you do not own the creative [w]ork itself. . . [you] do not have any legal ownership, right, or title to any copyrights, trademarks, or other intellectual property rights to the underlying [a]rtwork, excepting the limited license granted by these [t]erms to [u]nderlying [a]rtwork.”).

224. Caleb L. Green, *An Introduction to Intellectual Property and Non-Fungible Tokens (NFTs)*, WASH. BUS. J. (May 5, 2021), <https://www.bizjournals.com/washington/news/2021/05/05/an-introduction-to-intellectual-property-and-non-f.html> [<https://perma.cc/7VYA-6S5H>].

225. Levi et al., *supra* note 24; see *Terms of Service*, OPENSEA (June 8, 2021), <https://opensea.io/tos> (“[Y]ou agree to indemnify, defend, and hold harmless OpenSea . . . from and against all actual or alleged third party claims, damages, awards, judgments, losses, liabilities . . . of every kind and nature whatsoever . . . including but not limited to . . . your violation of the rights of a third party . . .”); *Rarible Terms and Conditions*, RARIBLE (Oct. 10, 2020), <https://static.rarible.com/terms.pdf> [<https://perma.cc/WH57-UPD2>] (“Rarible [] has no responsibility for the [NFTs] created or traded by [u]sers Rarible [] does not investigate and cannot guarantee or warrant the authenticity, originality, uniqueness, marketability, legality or value of any [NFT] created or traded by Users on the Rarible Platform.”).

226. Copyright Act of 1976, 17 U.S.C. § 504(c)(1).

227. *Id.* at § 504(c)(2).

seller to substantial legal liability.²²⁸ The United States Copyright Office serves primarily as an “office of record,”²²⁹ with its primary responsibilities being the examination and registration of copyright claims, administration of licensing laws, and development of copyright regulations.²³⁰ In fact, the Copyright Office’s staff numbers amount to less than 450—an indicator of its limited capability as an enforcement authority.²³¹ In turn, copyright infringement enforcement is generally a civil matter, which the copyright owner must pursue in federal court.²³² In addition to private legal action, the Digital Millennium Copyright Act (DMCA) provides an avenue for a copyright owner to send takedown notices to services and individuals distributing their copyrighted works.²³³ Pursuing relief under the DMCA “entails the copyright owner sending a takedown notice to a service provider (ordinarily a website) requesting the removal of infringing material.”²³⁴ However, “even if a takedown notice meets all the legal requirements, the service provider still may refuse to take down the material,” even in the face of potential secondary liability.²³⁵ Notably, a DMCA takedown notice is by no means immediate: action can take anywhere from 24 hours to over six months and is subject to counter-notifications that no copyright is being infringed.²³⁶

Several high-profile cases have provided evidence of the potential for infringement of copyright laws and the private enforcement of them. For example, a 12-year-old programmer’s

228. Schmafelf, *supra* note 223.

229. *Stopping Copyright Infringement*, U.S. COPYRIGHT OFF. (Mar. 10, 2010), <https://web.archive.org/web/20220802091342/https://www.copyright.gov/help/faq/faq-infringement.html> [<https://perma.cc/5LWR-69SU>].

230. *Overview*, U.S. COPYRIGHT OFF., <https://www.copyright.gov/about/> [<https://perma.cc/FN5R-4NNA>].

231. *See id.*

232. *See* Copyright Act of 1976, 17 U.S.C. § 506 (describing that under certain circumstances, an infringement may also constitute a criminal misdemeanor or felony, which would be prosecuted by the U.S. Department of Justice).

233. Brian Jackson, *How to Issue a DMCA Takedown Notice (Or Handle Your Own)*, KINSTA (Sept. 16, 2022), <https://kinsta.com/blog/dmca-takedown-notice/> [<https://perma.cc/X2GL-B38T>].

234. *What Is the DMCA Notice and Takedown Process*, COPYRIGHT ALL., <https://copyrightalliance.org/faqs/what-is-dmca-takedown-notice-process/> [<https://perma.cc/FNU6-5A5U>].

235. *Id.*

236. Jackson, *supra* note 233.

Weird Whales NFT project, comprised of 3,350 computer-generated pixelated whales, sold for 0.0033 ETH (at the time, the equivalent of about USD \$66), with resales approaching 3 ETH (at the time, the equivalent of about USD \$6,000), before it was discovered that the pixelated whale had been copied from another project.²³⁷ Similarly, director Quentin Tarantino was sued for copyright and trademark violations by film studio Miramax after he announced plans to release NFTs based on his 1994 film, *Pulp Fiction*.²³⁸ Due to the largely civil and private nature of intellectual property law enforcement, any violations, including those with respect to NFTs, are generally left solely to the copyright holder. Furthermore, without awareness of the infringement by copyright holders themselves, violations of copyright may go completely unchecked and unregulated. While, in theory, intellectual property law is geared toward addressing any potential copyright infringement, its inherent detection and enforcement issues suggest that the NFT market may need additional regulation.

D. Capture Under Financial Market Regulation

In terms of regulating the NFT market specifically to address consumers' potential misunderstanding of NFT transactions, as well as their exposure to significant price volatility, there are at least three different avenues that could capture these risks: (1) commodity laws; (2) securities laws; and (3) digital asset and property laws. Each approach draws, for the most part, from existing financial market regulations, given the direct analogues between certain use cases of NFTs and already-existing financial instruments. Yet, the application of these laws to the NFT market with their inherent regulatory capture issues, in addition to the potential for regulatory oversight and failure to distinguish between NFT use cases, poses a suite of significant issues.

237. Schmalfeld, *supra* note 223.

238. Adi Robertson, *Miramax Sues Quentin Tarantino Over Pulp Fiction NFTs*, VERGE (Nov. 17, 2021, 11:49 AM), <https://www.theverge.com/2021/11/17/22787216/miramax-pulp-fiction-quentin-tarantino-nft-law-suit> [<https://perma.cc/4LD3-3M24>].

E. Securities Laws

While securities laws may “provide a crude mechanism for . . . regulation,”²³⁹ applying these laws to non-financial assets, particularly art, is by no means a novel concept.²⁴⁰ Upon first observation, securities laws appear to be an appropriate regulatory regime for NFTs because they address some major concerns of the NFT market, notably its price volatility and the fundamental misunderstanding of NFT transactions. Should NFTs be classified as securities, securities laws would require offerings of NFTs to be registered (unless they qualify for an exemption).²⁴¹ NFT sellers would likely be deemed issuers (and hence, also subject to registration);²⁴² and NFT marketplaces would likely be deemed as securities exchanges or broker-dealers (again, subject to registration).²⁴³ Further, remedies would be available to pur-

239. Letter from Vincent Molinari, CEO & Pres., Sustainable Holdings, to Vanessa Countryman, Sec’y, SEC (Apr. 12, 2021), <https://www.sec.gov/rules/petitions/2021/petn4-771.pdf> [<https://perma.cc/5ZBM-BFJ9>].

240. See Maureen Holm, *The Art Investment Contract: Application of Securities Law to Art Purchases*, 9 FORDHAM URB. L.J. 385, 386 (1981) (arguing that art transactions could constitute “investment contracts” and be subject to securities laws, ultimately benefiting art investors through preventive and remedial regulations); see also Brian Frye, *SEC No-Action Letter Request*, 54 CREIGHTON L. REV. 537, 547–49 (2021) (arguing that the purchase of a certificate of ownership of a work of conceptual art should be a security in part, because anyone can reproduce a work of conceptual art and attribute it to the artist without the artist’s permission). *But see* Peter J. Karol, *Permissive Certificates: Collectors of Art as Collectors of Permissions*, 94 WASH. L. REV. 1175, 1175 (2019) (arguing that conceptual art certificates convey a property interest).

241. Securities Act of 1933, 15 U.S.C. § 77e(d) (2012) (“Unless a registration statement is in effect as to a security, it shall be unlawful for *any person*, directly or indirectly . . . to carry or cause to be carried through the mails or in interstate commerce, by any means or instruments of transportation, any such security for the purpose of sale or for delivery after sale.”) (emphasis added) (listing a number of instances where the “provisions of Section 77e . . . shall not apply to . . .”).

242. 15 U.S.C. § 77b (2012) (“The term ‘issuer’ means every person who issues or proposes to issue any security; except . . .”).

243. *Id.* (“The term ‘dealer’ means any person who engages either for all or part of his time, directly or indirectly, as agent, broker, or principal, in the business of offering, buying, selling, or otherwise dealing or trading in securities issued by another person.”); see *Securities or Not? The NFT Market and Potential SEC Regulation*, LOWEY DANNENBERG (Aug. 11, 2021), <https://lowey.com/blog/securities-or-not-the-nft-market-and-potential-sec-regulation/> [<https://perma.cc/S2PP-MWMU>] (“[A]ny exchange listing a security for purchase and sale by counterparties would theoretically be required to register with the SEC.”); see also *NFTs and Securities Law: How to Create and Sell Compliant Non-Fungible Tokens*, TARTER KRINSKY &

chasers, should there be any false and misleading misstatements and omissions in disclosure documents.²⁴⁴ Overall, the purpose of securities law is disclosure: to reduce and, if possible, eliminate the information asymmetry between a promoter and an investor to ensure informed investment decisions.²⁴⁵

The obvious question here is whether an NFT constitutes a security or not. Section 2(a)(1) of the Securities Act contains an exceptionally long list of financial instruments that constitute a “security,” including—most importantly for the securities analysis for NFTs—an “investment contract.”²⁴⁶ The definition of security is intentionally long; Congress is said to have done so to regulate investments in “whatever form they are made and by whatever name they are called.”²⁴⁷ In this sense, digital assets, even though they may be “simply code,” can nevertheless consti-

DROGIN (Mar. 30, 2021), <https://www.tarterkrinsky.com/publications/nfts-and-securities-laws—how-to-create-and-sell-compliant-non-fungible-tokens> [https://perma.cc/L7LE-2QYA] (“If an NFT exchange is making a market in an NFT that is deemed to be a security that NFT exchange platform could be deemed to be illegally operating an unregistered securities exchange and subject to sanctions by the SEC.”).

244. 15 U.S.C. § 77k (1998) (“In case any part of the registration statement . . . contained an untrue statement of a material fact or omitted to state a material fact required to be stated . . . to make the statements therein not misleading, any person acquiring such security . . . may, either at law or in equity, in any court of competent jurisdiction, sue.”).

245. See Paul G. Mahoney, *The Economics of Securities Regulation*, FINREG BLOG (Oct. 14, 2021), <https://sites.law.duke.edu/thefinregblog/2021/10/14/the-economics-of-securities-regulation/> [https://perma.cc/G28D-ZYXS] (“Mandatory disclosure is the dominant technique of securities regulation. The primary theoretical justifications for mandatory disclosure turn on information asymmetry and agency problems.”).

246. 15 U.S.C. § 77b (“The term ‘security’ means any note, stock, treasury stock, security future, security-based swap, bond, debenture, evidence of indebtedness, certificate of interest or participation in any profit-sharing agreement, collateral-trust certificate, preorganization certificate or subscription, transferable share, *investment contract*, voting-trust certificate, certificate of deposit for a security, fractional undivided interest in oil, gas, or other mineral rights, any put, call, straddle, option, or privilege on any security, certificate of deposit, or group or index of securities (including any interest therein or based on the value thereof), or any put, call, straddle, option, or privilege entered into on a national securities exchange relating to foreign currency, or, in general, any interest or instrument commonly known as a ‘security’, or any certificate of interest or participation in, temporary or interim certificate for, receipt for, guarantee of, or warrant or right to subscribe to or purchase, any of the foregoing.”) (emphasis added).

247. *Reves v. Ernst & Young*, 494 U.S. 56, 61 (1990).

tute a security, particularly given the expansive definition of “investment contract.”²⁴⁸ In the landmark United States Supreme Court decision, *SEC v. W. J. Howey Co.*, the Court broadly interpreted the definition of an “investment contract” in holding that real estate contracts for orange groves could constitute “securities” because an investment contract included a “contract, transaction, or scheme whereby a person invests his money in a common enterprise and is led to expect profits solely from the efforts of the promoter or a third party.”²⁴⁹ The Court noted that the definition was “flexible rather than . . . static . . . [and] capable of adaptation to meet the countless and variable schemes devised by those who seek the use of the money of others on the promise of profits.”²⁵⁰ Further, the Court set forth four elements, the satisfaction of which would render any investment an “investment contract” and, consequently, a “security”: (1) a monetary investment; (2) in a “common enterprise”; (3) with a reasonable expectation of profits; (4) to be derived from the entrepreneurial or managerial efforts of others.²⁵¹ Each of these elements is construed broadly, with a focus on the “substance” and “economic realities” of the transaction, rather than its form or name.²⁵² As a basic example, an “investment of money” does not necessarily require “money” in a strict sense; instead, any monetary consideration suffices.²⁵³ While any securities analysis of NFTs under the *Howey* framework will naturally be contentious, the SEC has released some initial guidance on the application of *Howey* to digital assets, in part as a reaction to a dramatic increase in initial coin offerings, which may provide

248. William Hinman, *Digital Asset Transactions: When Howey Met Gary (Plastic)*, SEC (June 14, 2018), <https://www.sec.gov/news/speech/speech-hinman-061418> [<https://perma.cc/JJ4L-BY3X>].

249. *SEC v. W.J. Howey Co.*, 328 U.S. 293, 298–99 (1946).

250. *Id.* at 299.

251. *Id.* at 301.

252. *Tcherepnin v. Knight*, 389 U.S. 332, 336 (1967); *United Hous. Found., Inc. v. Forman*, 421 U.S. 837, 849 (1975).

253. See SEC, Release No. 81207, Report of Investigation Pursuant to Section 21(A) of the Securities Exchange Act of 1934: The DAO (2017) (“[T]he investment of ‘money’ need not take the form of cash” and “in spite of *Howey*’s reference to an ‘investment of money,’ it is well established that cash is not the only form of contribution or investment that will create an investment contract.”).

some insight into how the *Howey* framework may be interpreted with regard to NFTs.²⁵⁴

Concerning *Howey*'s first element—an investment of money—the question is whether purchasers of NFTs are seeking an investment or are purchasing for consumption. In *United Housing Foundation, Inc. v. Forman*, the U.S. Supreme Court found that a scheme to sell apartments was not a security because the purchase of housing was primarily for consumption.²⁵⁵ In turn, if consumers purchase their NFTs as a service or product, it would cease to be an “investment” under *Forman*. While an NFT is essentially a digital certificate of authentication, (meaning a purchaser “consumes” the NFT’s utility) today’s NFT market appears much more expansive than this inherent use, given both the significant prices and the variety of assets and services that NFTs appear to reference.

Facially, each NFT is a unique, one-of-a-kind digital asset and, therefore, there seems to be no “common enterprise” involved in an NFT’s purchase or sale. However, a “common enterprise” has been interpreted to include both “horizontal commonality” amongst peer investors, in addition to the more traditional “vertical commonality” between investor and promoter.²⁵⁶ The SEC’s FinHub has explained that digital assets are, in fact, “investments [involving] 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.”²⁵⁷ As such, one could imagine why the analysis of a collectible NFT, like *CryptoPunks*, of which there are 10,000, would result in a conclusion of a common enterprise; yet, the same may not be said for a piece of Beeple’s artwork, which is a completely unique digital artwork. One particularly relevant consideration is how retention of an NFT by its creator may constitute a common enterprise between NFT creators and NFT purchasers. In such a situation, the NFT

254. *Framework for “Investment Contract” Analysis of Digital Assets*, SEC, <https://www.sec.gov/corpfin/framework-investment-contract-analysis-digital-assets> [<https://perma.cc/4BQK-SGZE>].

255. *United Hous. Found., Inc.*, 421 U.S. at 858.

256. *SEC v. Koscot Interplanetary, Inc.*, 497 F.2d 473, 478 (5th Cir. 1974) (“The critical factor is not the similitude or coincidence of investor input, but rather the uniformity of impact of the promoter’s decisions.”); *SEC v. Glenn W. Turner Enters., Inc.*, 474 F.2d 476, 482 n.7 (9th Cir. 1973) (“A common enterprise is one in which the fortunes of the investor are interwoven with and dependent upon the efforts and success of those seeking the investment or of third parties.”).

257. SEC, *supra* note 253.

sellers have a vested interest in the NFT's market value—the definition of common enterprise. *CryptoPunks* and the creator Larva Labs present this precise issue—Larva Labs' team “reserved one thousand NFTs for themselves ahead of the[ir] public launch in 2017.”²⁵⁸ Therefore, while each individual *CryptoPunk* may be unique and non-fungible, the *CryptoPunk* project may resemble a common enterprise.

Like the analysis of whether there is an “investment,” a financial asset purchased primarily for personal consumption rather than passive investment will necessarily lead to a lesser “expectation of profits” and, in turn, a lesser likelihood that there is an investment contract—ultimately, a security. In its Digital Asset Framework, the SEC noted: “price appreciation resulting solely from external market forces . . . impacting the supply and demand for an underlying asset generally is not considered ‘profit’ under the *Howey* test.”²⁵⁹ Instead, the expectation of profits must be derived from the efforts of others.²⁶⁰ The U.S. Supreme Court has acknowledged that an asset purchased for consumption only is likely not a security.²⁶¹ However, the same cannot necessarily be said where the purchase is for a dual purpose: both for consumption *and* the expectation of profits. In such a case, it may be fairly stated that there is an expectation of profits but potentially only on an individual case-by-case basis, where that expectation outweighs any consumptive value. For certain royalty-based NFTs, their very creation reveals a purpose of an expectation of profits “the smart contracts underlying these NFTs allow an issuer to automatically receive, through the blockchain, a percentage of every subsequent sale.”²⁶² Notably, multiple NFT projects currently offer revenue distributions to holders through governance rights, seemingly from the profits of future sales of NFTs.²⁶³ An NFT

258. Will Gottsegen, *Some NFTs Are Probably Illegal. Does the SEC Care?*, COINDESK (Oct. 20, 2021, 12:57 PM), <https://www.coindesk.com/policy/2021/10/20/some-nfts-are-probably-illegal-does-the-sec-care/> [<https://perma.cc/MA5Q-E78S>].

259. SEC, *supra* note 253.

260. SEC v. W.J. Howey Co., 328 U.S. 293, 301 (1946).

261. United Hous. Found., Inc. v. Forman, 421 U.S. 837, 858 (1975).

262. Lee & Bernard, *supra* note 41.

263. Morris, *supra* note 179 (explaining that the NFT projects, Buzzeed Bears and Lazy Lions, both attach governance rights to ownership, including the right to redistribute profits from future sales).

seller may also generate an expectation of profits by marketing the NFT with a promise of price appreciation, profit, dividends, or the facilitation of a secondary market for resale. Through those actions alone, an asset that otherwise is not a security may be transformed into one.²⁶⁴

The final *Howey* investment contract element, “efforts of others,” includes almost any circumstance in which the promoter creates or supports the market for the investment.²⁶⁵ Under case law and SEC interpretations, these efforts must be in the future rather than the past.²⁶⁶ If no forthcoming expected third-party efforts are required to realize an asset’s investment potential, the asset is no more a security than a painting hung in an art gallery. The sale of an NFT, on its face, will generally not require the “efforts of others,” as an NFT’s value may be based on market forces unrelated to any third-party efforts aimed at increasing its value. However, “an NFT release could implicate securities laws if proceeds are used to develop the seller’s platform or business and the purchaser expects future returns based on these efforts.”²⁶⁷ Likewise, artists could make efforts to facilitate a secondary market for the resale of their NFTs to capitalize on the NFT’s commission structure. In these scenarios, these NFTs could be seen as securities because the purchaser may be viewed as relying on the creators’ efforts to create a public market.²⁶⁸

Two additional observations should be made here regarding the regulatory capture of NFTs under securities laws. First, many NFTs involve an underlying asset that is not itself minted or coded into the blockchain; rather, they contain a link to a separate page hosting the asset.²⁶⁹ In these instances, there is a clear “effort from others” who appear to be solely responsible for hosting the underlying reference asset and allowing the purchaser to access the actual digital art being “sold.” The second observation concerns fractional-NFTs (f-NFTS), or semi-fungible tokens that represent fractional interests in an NFT. Inherently,

264. See *Gary Plastic Packaging Corp. v. Merrill Lynch, Pierce, Fenner & Smith, Inc.*, 756 F.2d 230 (2d Cir. 1985) (deciding that an investment was a security because part of its value depended on the efforts of the promoter to generate demand).

265. *Id.*

266. *Id.*

267. Lee & Bernard, *supra* note 41.

268. *Id.*

269. Fath et al., *supra* note 26.

the process of fractionalizing an NFT is designed to increase the liquidity of an NFT and generate a secondary market.²⁷⁰ Therefore, the argument here bears resemblance to the liquidity argument made prior. Fractionalizing other assets has already been established to create a security, even in the realm of physical art.²⁷¹ The breadth of the investment contract definition means that, regardless of the underlying NFT's classification, it does not necessarily follow that fractional interests of that very same NFT receive the same classification.²⁷² With reference to the *Howey* elements: while an NFT may be analogized to physical art in terms of its consumptive value, the same may not be able to be said of an f-NFT—the owners of which only possess a small fraction of the underlying piece of art. In this sense, there is more likely to be a conclusion that the purchase of an f-NFT constitutes an investment of money with an expectation of profits, simply due to the difficulty in finding “consumption” or utility in a fractional NFT.

F. *Commodity Laws*

NFTs, like cryptocurrencies, could also be captured under existing commodities laws, placing them under the purview of the Commodity Futures Trading Commission (CFTC). The CFTC regulates the United States' commodities markets and

270. Jinia Shawdager, *What Are Fractionalized NFTs?*, CRYPTOVANTAGE (Sept. 22, 2022), <https://www.cryptovantage.com/non-fungible-tokens/what-are-fractionalized-nfts/> [<https://perma.cc/78MU-GWX4>].

271. Morris, *supra* note 179; see *Terms of Use*, MASTERWORKS.IO (Aug. 2022), <https://www.masterworks.io/about/terms-of-use> [<https://perma.cc/G2D8-99UA>] (“The securities offered on or through the Platform have not been registered under the Securities Act of 1933, in reliance on the exemptive provisions of Section 4(a)(2) of the Securities Act and Rule 506 of Regulation D promulgated thereunder, and/or Regulation A.”).

272. Samuel Haig, *SEC's 'Crypto Mom' Warns Selling Fractionalized NFTs Could Break the Law*, COINTELEGRAPH (Mar. 26, 2021), <https://cointelegraph.com/news/sec-s-crypto-mom-warns-selling-fractionalized-nfts-could-break-the-law> [<https://perma.cc/JU7J-GYH7>] (“[T]he whole concept of an NFT is supposed to be non-fungible—meaning that in general, it's less likely to be a security . . . people are being very creative in the type of NFTs they are putting out there . . . you better be careful that you're not creating something that's an investment product—that is a security.”).

intermediaries,²⁷³ with the “aim of protecting consumers . . . from fraud, manipulation, and abusive practices.”²⁷⁴ The key definitional challenge to the applicability of commodities laws is simple: whether an NFT falls under the definition of a “commodity” under the Commodity Exchange Act (CEA). Should NFTs be deemed “commodities,” the CFTC, through commodities laws, could impose requirements that prohibit deceptive or manipulative trading practices and could “mandate trading only [occur] on registered derivative exchanges.”²⁷⁵ Likewise, falling under the purview of the CFTC may subject stakeholders to “enhanced reporting requirements.”²⁷⁶ Even if an NFT is treated as a commodity, it does not mean the NFT itself is regulated by the CFTC—the CFTC would only regulate the futures market, and potentially the spot market, for NFTs.²⁷⁷ It is entirely possible that the SEC would impose securities regulations on certain aspects of the NFT market in addition to any commodities laws the CFTC chose to impose.²⁷⁸ Finally, classification of an NFT as a commodity (subject to commodities laws) does not exclude other classifications. For example, an NFT could be classified as both a commodity and a security, subjecting it also to securities laws and SEC regulations.²⁷⁹ The CFTC has already taken the position, confirmed by many

273. David Borsack & Cole Schotz, *Cryptocurrencies and the Commodity Futures Trading Commission*, JD SUPRA (Aug. 10, 2021), <https://www.jdsupra.com/legal-news/cryptocurrencies-and-the-commodity-2167827/> [<https://perma.cc/NH3H-YCES>].

274. Lee Reiners, *Regulating Cryptocurrency as a Commodity*, COURSERA, <https://www.coursera.org/lecture/fintechlawandpolicy/regulating-cryptocurrency-as-a-commodity-tagCc> [<https://perma.cc/RJ3L-2WRF>].

275. Lawrence G. Walters & Bobby Desmond, *NFTs and the Legal Issues Surrounding Crypto Art*, WALTERS L. GROUP, <https://www.firstamendment.com/adult-nft-legal-issues/> [<https://perma.cc/7VTL-E7MN>].

276. Borsack & Schotz, *supra* note 273.

277. See Abe Chernin et al., *The CFTC’s Approach to Virtual Currencies*, 12 NAT’L L. REV. (2020), <https://www.natlawreview.com/article/cftc-s-approach-to-virtual-currencies> [<https://perma.cc/FBK7-SW32>] (discussing developing regulation approaches to virtual currencies as commodities).

278. See Reiners, *supra* note 274.

279. *Id.*; see *CFTC v. McDonnell*, 287 F. Supp. 3d 213, 228 (E.D.N.Y. 2018) (“The jurisdictional authority of CFTC . . . does not preclude other agencies from exercising their regulatory power when virtual currencies function differently than derivative commodities.”).

courts,²⁸⁰ that cryptocurrencies are properly defined as commodities for the purposes of the Commodity Exchange Act of 1936.²⁸¹ Applying a similar approach to NFTs may be appropriate,²⁸² considering the extensive enforcement actions brought by the CFTC when cryptocurrency enterprises run afoul of regulatory requirements.²⁸³ The CFTC treats cryptocurrencies as “exempt commodities,” placing them in the same category as metals and energies.²⁸⁴ While the CFTC’s regulatory oversight authority over exempt commodity spot markets is limited, it nevertheless “maintains general anti-fraud and manipulation enforcement authority” but does not impose the more stringent registration and licensing requirements.²⁸⁵

Section 1a(9) of the Commodity Exchange Act (CEA) defines a commodity to include several specific items as well as “all goods and articles, and all services, rights, and interests in

280. *See, e.g., McDonnell*, 287 F. Supp. at 228 (“Virtual currencies can be regulated by CFTC as a commodity.”); *CFTC v. Reynolds*, No. 1-19-cv-05631-MKV, 2021 WL 796683, at *5 (S.D.N.Y. Mar. 2, 2021) (“Virtual currencies such as Bitcoin are encompassed in the definition of ‘commodity’ under Section 1a(9) of the Act, 7 U.S.C. § 1a(9) (2018).”).

281. Kevin Helms, *SEC Has No Authority Over Pure Commodities Like Crypto Assets*, *Says CFTC Commissioner*, BITCOIN.COM (Aug. 4, 2021), <https://news.bitcoin.com/sec-no-authority-over-pure-commodities-crypto-assets-cftc-commissioner/> [<https://perma.cc/W7MN-RM3J>] (“[P]ure commodities, including crypto assets, fall under the jurisdiction of [the CFTC].”).

282. *See* Andrew James Lom & Rachael Browndorf, *Anatomy of an NFT*, NORTON ROSE FULBRIGHT (Apr. 2021), <https://www.nortonrosefulbright.com/en-us/knowledge/publications/5995f99d/anatomy-of-an-nft> [<https://perma.cc/9DB8-YTTL>].

283. *See* Press Release, Commodity Futures Trading Comm’n, CFTC Charges Company and Its Principal in \$147 Million Fraudulent Bitcoin Trading Scheme (June 18, 2019), <https://www.cftc.gov/PressRoom/PressReleases/7938-19> [<https://perma.cc/HVV9-93DA>]; *see also* Press Release, Commodity Futures Trading Comm’n, CFTC Orders Former Virtual Currency Trader to Pay More than \$1.1 Million for Fraudulent Bitcoin and Litecoin Scheme (Nov. 9, 2018), <https://www.cftc.gov/PressRoom/PressReleases/7839-18> [<https://perma.cc/6KSG-QH7J>] (discussing criminal charges for fraudulent Bitcoin scheme); *see also* Press Release, Commodity Futures Trading Comm’n, CFTC Charges Two Defendants with Fraudulent Solicitation, Impersonation of a CFTC Investigator, and Forging CFTC Documents, All in Attempt to Steal Bitcoin (Sept. 28, 2018), <https://www.cftc.gov/PressRoom/PressReleases/7813-18> [<https://perma.cc/FX7Z-5CPV>] (emphasizing CFTC’s practice to “take swift action against” fraudulent behavior and “misconduct”).

284. Reiners, *supra* note 274.

285. *Id.*; *see An Introduction to Virtual Currency*, CFTC, https://www.cftc.gov/sites/default/files/idc/groups/public/%40customerprotection/documents/file/oceo_aivc0218.pdf [<https://perma.cc/PX6R-R89W>].

which contracts for future delivery are presently or in the future dealt in.”²⁸⁶ While the CEA does not independently define “goods” or “articles,” they are inherently expansive.²⁸⁷ Numerous courts have held that virtual currencies are commodities and, thus, can be regulated by the CFTC because they are “goods’ exchanged in a market for uniform quality and value.”²⁸⁸ These “goods” “fall well-within the common definition of ‘commodity,’ as well as the Commodity Exchange Act’s definition of ‘commodity.’”²⁸⁹ This seemingly expansive definition of commodity likely includes NFTs which, as digital assets, could be classified as goods and certainly could be contracted for future delivery. If anything, the analysis for NFTs as a commodity is simpler than that of cryptocurrencies because NFTs fundamentally represent a digital asset (or good), while cryptocurrencies function as money—meaning they may not have the inherent use value necessary to classify them as a commodity.²⁹⁰

In turn, Section 6c of the Commodity Exchange Act makes it unlawful to violate CFTC regulations that prohibit deceptive and manipulative devices in connection with any “contract of sale . . . of any commodity in interstate commerce.”²⁹¹ CFTC Regulation 180.1 “prohibits fraud, deception, and manipulation in the manner that Section 6c contemplates.”²⁹² With respect to their application of NFTs, these prohibitions would apply most explicitly to sellers of NFTs and NFT marketplaces from misleading consumers. For example, selling counterfeit NFTs that include works which the seller has no rights to but purports to own; even more crudely, the individual could sell NFTs that

286. Lom & Browndorf, *supra* note 282; Commodity Exchange Act, 7 U.S.C. § 1a(9) (2010).

287. Mark Rasmussen & Joshua Sterling, *NFTs: Key Legal Considerations*, FUTURES INDUS. ASS’N 11 (2021), https://www.fia.org/sites/default/files/2021-06/FIA_NFTs%20Webinar%20Presentation%20%28June%202021%29.pdf [<https://perma.cc/GK3S-L7WE>].

288. Cheryl L. Issac, et al., *CFTC and SEC Perspectives on Cryptocurrency and Digital Assets – Volume I: A Jurisdictional Overview*, K&L GATES (May 6, 2022), <https://www.klgates.com/CFTC-and-SEC-Perspectives-on-Cryptocurrency-and-Digital-Assets-Volume-I-A-Jurisdictional-Overview-5-6-2022>.

289. *CFTC v. McDonnell*, No. 1:18-cv-00361-JBW-RLM, slip op. at 24 (E.D.N.Y. Mar. 6, 2018).

290. Mitchell Prentis, Note, *Digital Metal: Regulating Bitcoin as a Commodity*, 66 CASE W. RESV. L. REV. 609, 620, 629 (2015).

291. 7 U.S.C. § 6c.

292. Rasmussen & Sterling, *supra* note 287, at 12.

refer to assets that do not exist. Finally, if NFTs are not deemed an “exempt commodity,” stakeholders that pursue activities involving certain intermediary functions would be required to register with the CFTC—most notably, “commodity pool operator[s]” (which “combine[] investor contributions to trade on . . . commodity markets”) and “commodity trading advisor[s],” namely “an individual or entity that gives investment advice for commodity and futures markets.”²⁹³ While it does not appear any stakeholders perform these intermediary functions in the current NFT market, one could imagine an individual presenting themselves as an NFT expert and providing purchase recommendations that could amount to investment advice. Such an individual would qualify as a commodity trading advisor and would be subject to registration requirements.

In the scenario that an NFT is offered on a margined or leveraged basis, it would no longer qualify as a spot transaction. Instead, Section 2(c)(2)(D) of the Commodity Exchange Act treats such retail commodity transactions “as if” they were future contracts, subjecting them to additional requirements, such as “on-exchange trading and broker registration,”²⁹⁴ unless the “actual delivery” of the commodity is still affected within 28 days.²⁹⁵ The CFTC’s interpretation of “actual delivery” in the context of digital assets highlights two primary elements: (1) the customer’s “ability to take possession and control of the entire commodity and use it freely in commerce within 28 days” from the date of the transaction; and (2) that neither the offeror nor seller maintains any right, interest or control over any of the commodity purchased after 28 days from the date of the transaction.²⁹⁶ For NFTs, the first element would clearly be satisfied if a purchased NFT is transferred to the purchaser’s blockchain address, thereby providing sole possession and control. Likewise, the second element would likely also be met in cases where this transfer on the blockchain address has occurred because once the Blockchain transaction has been processed, it is both immutable and irreversible—meaning only a physical contract

293. Borsack & Schotz, *supra* note 273.

294. Press Release, Commodity Futures Trading Comm’n, CFTC Issues Financial Interpretive Guidance on Actual Delivery of Digital Assets (Mar. 24, 2020) (quoting 7 U.S.C. § 2(c)(2)(D)), <https://www.cftc.gov/PressRoom/PressReleases/8139-20> [<https://perma.cc/F68P-K2FT>].

295. Rasmussen & Sterling, *supra* note 287, at 12.

296. Doan et al., *supra* note 211; Borsack & Schotz, *supra* note 273.

that provided continuing liens or interests would be necessary for any rights to exist.²⁹⁷ Ultimately, even where NFTs are traded on a margined or leveraged basis, commodity spot transaction laws may nevertheless apply because delivery can be simply effected on the blockchain within 28 days.

G. Digital Asset Laws

In response to an increasingly mature cryptocurrency market, U.S. Representative Don Beyer introduced a comprehensive digital asset bill to Congress in July 2021: the Digital Asset Market Structure and Investor Protection Act, which “would bring digital assets under the same regulatory purview as traditional financial assets.”²⁹⁸ The bill “aims to provide ‘legal and regulatory certainty for digital assets,’ enhanced protection for retail investors,” and more stringent reporting requirements.²⁹⁹ As part of this goal, the bill proposes amendments to several existing financial regulations.³⁰⁰ In particular, the bill would add “digital assets and digital asset securities to the statutory definition of ‘monetary instruments’ under the Bank Secrecy Act (BSA),” thus codifying the regulatory requirements for digital assets to compel compliance with anti-money laundering reporting.³⁰¹ The bill distinguishes “digital assets” and “digital asset securities” by certain attributes, such as right to equity, profits, interest, dividend payments or voting rights,³⁰² and issuance through an initial coin offering.³⁰³ Additionally, if issuers become concerned that their tokens do not have the requisite

297. Borsack & Schotz, *supra* note 273.

298. Digital Asset Market Structure and Investor Protection Act of 2021, H.R. 4741, 117th Cong. (2021); Tom Lydon, *Congressman Seeks Beefed Up Crypto Regulations*, VETTAFI (July 31, 2021), <https://www.etftrends.com/crypto-channel/congressman-seeks-beefed-up-crypto-regulations/> [<https://perma.cc/L6XU-4Z4E>].

299. Lydon, *supra* note 298 (quoting Press Release, Don Beyer, Representative, House of Representatives, Beyer Introduces New Legislation to Regulate Digital Assets (July 28, 2021), <https://beyer.house.gov/news/documentsingle.aspx?DocumentID=5307> [<https://perma.cc/RV7K-FW6U>]).

300. Wesley Thyse, *New US Crypto Regulation Far More Invasive Than We Thought*, DECENTRALIZED LEGAL SYS. (Sept. 18, 2021), <https://decentralizedlegal-system.com/us-crypto-currency-regulation/> [<https://perma.cc/XD62-BYBM>].

301. Lydon, *supra* note 298.

302. H.R. 4741, *supra* note 298; *New Regulation Proposed for Cryptocurrencies*, MAGSTONE L. (Sept. 3, 2021), <http://www.magstonelaw.com/new-regulation-proposed-for-cryptocurrencies.html> [<https://perma.cc/PXS9-XCGR>].

303. H.R. 4741, *supra* note 298; MAGSTONE L., *supra* note 302.

digital asset security attributes, they “have an option to file a de-securitization certification to have their tokens regulated as commodities.”³⁰⁴ Naturally, digital asset securities would be under the purview of the SEC, while digital assets would be under the purview of the CFTC.³⁰⁵ It is unclear (1) how much mainstream support the bill has and (2) its possible timeline for passage and implementation, in light of the now fifty Congressional bills and resolutions that seek to impact the regulation of digital assets.³⁰⁶ Nevertheless, its effects on NFTs are worth analyzing here, especially in view of the bill’s unique categorical approach.³⁰⁷

The Digital Asset Market Structure and Investor Protection Act would define a digital asset as a “digital asset security” if it provides the holder with any of the following:

[e]quity or debt interest in the issuer[; t]he right to profits, interest, or dividend payments from the issuer[; v]oting rights in the major corporate actions of the issuer (which shall not include new block creations, hard forks, or protocol changes related to the digital asset)[; and l]iquidation rights in the event of the issuer’s liquidation.³⁰⁸

The bill proposes a catch-all definition for a “digital asset” that includes all “asset[s] created electronically or digitally through software code [that] has a transaction history that is recorded on a distributed digital ledger or [other] ‘digital data structure in which consensus is achieved through a mathematically verifiable process.’”³⁰⁹ This catch-all definition of “digital

304. MAGSTONE L., *supra* note 302.

305. Nikhilesh De, *New Crypto Bill in US Congress Is the Most Comprehensive Yet*, COINDESK (Aug. 2, 2021, 7:34 AM), <https://www.coindesk.com/policy/2021/08/02/new-crypto-bill-in-us-congress-is-the-most-comprehensive-yet/> [<https://perma.cc/MS7C-PAMK>]; Deric Behar et al., *New US Digital Assets Bill Casts Wide Net*, JD SUPRA (Sept. 13, 2021), <https://www.jdsupra.com/legal-news/new-us-digital-assets-bill-casts-wide-5957884/> [<https://perma.cc/F96C-YVEH>].

306. Jason Brett, *Congress Has Introduced 50 Digital Asset Bills Impacting Regulation, Blockchain, and CBDC Policy*, FORBES (May 19, 2022, 11:59 PM), <https://www.forbes.com/sites/jasonbrett/2022/05/19/congress-has-introduced-50-digital-asset-bills-impacting-regulation-blockchain-and-cbdc-policy/?sh=2fca16644e3f> [<https://perma.cc/D2LS-V77H>].

307. De, *supra* note 305.

308. Behar et al., *supra* note 305.

309. *Id.* (quoting H.R. 4741 § 201(b)(52), *supra* note 298).

assets” is sufficiently broad to capture every single NFT, resulting in a uniform treatment under commodity laws despite their myriad use cases and presentation of unique risks. By doing so, the expansion of securities laws and commodities laws would apply broadly across all NFTs. However, the bill fails to distinguish between fungible blockchain tokens and non-fungible tokens, despite this distinction being a central factor in determining the appropriate use cases for both types of tokens. Instead, the bill treats security and equity-like attributes as the dividing line between essentially a two-category approach between all blockchain-based tokens. Ignoring both the distinction between fungible and non-fungible tokens and the myriad use cases for non-fungible tokens oversimplifies the crypto asset market and it fails to recognize the promise of NFTs. This article advocates for a more discerning approach: further dividing the “digital asset” category into subparts and recognizing the heterogeneity of the use cases of NFTs and the different combinations of risks they present.

IV. A CATEGORICAL SOLUTION?

The current theme of questions posed by regulatory capture of NFTs under existing laws, by and large, is that they result in answers caveated with “it depends.” The prospect of deciding whether an NFT is a security, a commodity, both, or something else altogether, is a daunting task. While the Digital Asset Market Structure and Investor Protection Act, if passed, will achieve a division between digital asset securities and digital assets at the very least, it nevertheless ignores the myriad use cases of NFTs and, instead, focuses on capturing cryptocurrencies under existing securities laws.³¹⁰ A categorical approach reduces regulatory opacity by making it simpler for all stakeholders in the NFT market not only to understand where they sit on the line dividing illegal and legal activity, but also to comprehend the potential consequences of their involvement in the NFT market.

It is critical to emphasize that copyright laws, criminal laws surrounding money-laundering and wash trading, and intellectual property laws regarding copyright infringement are generally applicable, regardless of the category that NFTs fall within. However, the variety of use cases for NFTs justifies applying

310. See Thyse, *supra* note 300.

separate and distinct laws to each use case, at least in a categorical sense, as opposed to painting all NFTs with a blanket and broad-stroke definition of “digital asset.” Further, future use cases of NFTs are likely to be incredibly varied, making a blanket approach even more overly reductionist. A categorical approach attempts to recognize the diverse use cases for NFTs in today’s markets and provides a foundation upon which future use cases can be analyzed.

A. *Digital Certificates of Provenance*

The first category of NFTs warranting a distinct regulatory approach is “digital certificates of provenance.” NFTs that function as digital certificates of provenance make up a significant percentage of today’s market, given the primary use of NFTs in market centers around digital art.³¹¹ The use of blockchain technology in this particular use case, unsurprisingly, stems from traditional artwork and its physical certificate of provenance, authenticity, and ownership. By relying on blockchain technology, the use of an NFT as a digital certificate of provenance reduces the certificate’s susceptibility to fraud and tampering. The defining feature of this category is that some level of ownership or intellectual property rights of the underlying reference asset, whether digital or physical, must also be transferred to the NFT’s purchaser, whether it be via a separate contract, license, or other means. Without a simultaneous conveyance of the underlying asset, the purchase of the NFT in and of itself serves of little, if any, utility to the purchaser. Such a scenario would be akin to possessing a certificate of authenticity to an item one does not own. While the use of NFTs as digital certificates of authenticity clearly presents obvious advantages, they also raise at least one significant risk explored previously in Part II.

The first risk is that any misunderstanding of the NFT transaction becomes critical for the buyer and the seller, especially with respect to digital certificates of provenance that reference underlying physical assets. An NFT transaction in this case would amount to the equivalent of purchasing a paper certificate of authenticity without any rights in the referenced

311. *NFTs Are Not Just for Digital Art—and Their Popularity Is Growing*, ECONOMIST (Oct. 22, 2021), <https://www.economist.com/graphic-detail/2021/10/22/nfts-are-not-just-for-digital-art-and-their-popularity-is-growing> [<https://perma.cc/E4WC-8DFD>].

work.³¹² The link between an NFT's certification of provenance must be "perfected" (or at least some assurance must be provided) to ensure the NFT indeed refers to the specific alleged underlying physical asset. Even for NFTs that reference digital assets, this risk is still present—any misunderstanding about whether the digital certificate of authenticity is being conveyed along with, or without, the underlying digital asset is critical to the NFT's value.³¹³ Therefore, in relation to this specific category of NFTs, mitigating any potential for misunderstanding becomes paramount to the value exchanged for the NFT. The second risk, price volatility, is less of a concern for purchasers and sellers of digital share certificates, as the primary driver of an NFT's price and value is the ability to verify authenticity, provenance, and ownership,³¹⁴ rather than pure profits as a result of ownership of the NFT. That is, whether the market value of the NFT itself has significantly increased or decreased after purchase is of less importance than gaining the ability to verify authenticity, provenance, and ownership, and in turn, add value to the underlying and referenced asset.

Of note, the prices of NFTs used in this capacity today are significant. However, this could be interpreted as a product of the fundamental misunderstanding of what the NFT represents, rather than the fundamental value of users being able to verify authenticity and provenance. At least in theory, the price of an NFT (used as a digital certificate of authenticity), may be tied to the value of the referenced asset, but only insofar as it is a product of the difference in value between two identical assets: one that is validated by a certificate of provenance, and the other that is not. Given the subjective nature of certain referenced assets, particularly digital and physical art and much of the creative work industry, it is possible that the current significant value of these NFTs does present some rational basis. Here, given that the primary risk of digital certificates of provenance is the misunderstanding of NFT transactions, the most apt regulatory approach may still be generally applicable laws. As NFTs are adopted the misunderstanding of NFTs may subside,

312. See discussion *supra* Section III.A (discussing a common misunderstanding of NFT transactions).

313. See Dilip Kumar Patairy, *How Do You Assess the Value of an NFT*, COINTELEGRAPH (Mar. 12, 2022), <https://cointelegraph.com/news/how-do-you-assess-the-value-of-an-nft> [<https://perma.cc/66LR-B7W7>].

314. See discussion *supra* Section III.B (discussing the price volatility of NFTs).

as purchasers increasingly seek to ensure they receive heightened protections and assurances about the underlying reference asset. The purchase and sale of digital certificates of provenance may resemble that of speculative investments (explored later), particularly when the exact ownership or intellectual property rights transferred are minimal and the prices paid are exorbitantly high. If this scenario were to present itself as the norm, then a more robust regulatory approach resembling financial market regulation may be necessary.

B. *Pure Consumables*

The next distinct category of NFTs is those that are purchased completely for consumption, so-called “pure consumables.” Pure consumables differ from the first category of NFTs (digital certificates of provenance) because their value derives from the consumptive value of the NFT as a digital asset, rather than from reference to a separate physical or digital asset.³¹⁵ In other words, the consumptive value of these NFTs derives not only from their utility as a digital record of provenance, ownership, and authenticity, but from the actual conveyance of the digital asset (conveyed within the NFT itself). This fundamental difference produces differences in the underlying risks that this category of NFTs poses and, therefore, necessitates a distinct regulatory approach.

To use a high-profile example: the profile-picture-based NFT project, *CryptoPunks*, falls within this category. Each of the 10,000 *CryptoPunks* is randomly generated from a list of dozens of attributes, ultimately creating a unique avatar.³¹⁶ The value of a *CryptoPunk* NFT is somewhat a mystery—there are claims of its value based on its scarcity, its collectability, and, perhaps, its use as a profile picture for social media.³¹⁷ An important distinctive feature of *CryptoPunks* is that they are stored on the

315. See discussion *infra* Section V.A (discussing the defining feature of the digital certificates of provenance category).

316. Andrew Hayward, *What Are CryptoPunks? The Ethereum NFT Sensation*, DECRYPT (Feb. 7, 2022), <https://decrypt.co/resources/what-are-cryptopunks-ethereum-nft-avatars> [<https://perma.cc/BK7S-6BDP>].

317. Kanya Pandey, *Why Are Cryptopunks So Expensive*, JUMPSTART (Sept. 15, 2021), <https://www.jumpstartmag.com/why-are-cryptopunks-so-expensive/> [<https://perma.cc/H99V-9K25>].

NFT itself, that is, they are stored “on-chain.”³¹⁸ In turn, a purchaser of a *CryptoPunk* NFT is not only purchasing the ability to verify the provenance, authenticity, and ownership of the underlying asset but is, also, purchasing the underlying asset itself.³¹⁹ This difference may, at least partially, justify the exorbitant price tags for *CryptoPunks* because the purchaser is paying for both the underlying asset in addition to a digital certificate of provenance—both of which are stored immutably on blockchain technology. As blockchain technology improves, one would expect a greater amount of digital assets to be capable of being stored “on-chain” and “perfect” the link between the NFT and the underlying asset.

Pure consumables and digital certificates of provenance both pose a similar mitigated risk of price volatility. In both instances, the primary, if not complete, value of the NFT is derived by the user in relation to some level of consumption or utility. Therefore, like digital certificates of provenance, whether the market value of pure consumable NFTs rises or decreases is less important to an owner than the ability to “consume” the NFT and the underlying asset, for whatever purpose they may serve. These two categories differ, however, with respect to the presentation of risks as it pertains to the misunderstanding of NFT transactions. With respect to digital certificates of provenance, an off-chain asset is referenced, and the conveyance of ownership or intellectual property rights in the underlying reference asset, or lack thereof, can generate the potential for confusion and misunderstanding.³²⁰ However, with respect to pure consumable NFTs, this risk is notably less prevalent—the purchaser of the NFT is buying the NFT for the consumption of the NFT, both as a method of proving authenticity, provenance, or ownership *and* for the consumption of the underlying asset,

318. Snowfro & Oxdeafbeef, *On-Chain Cryptopunks*, LARVA LABS, <https://www.larvalabs.com/blog/2021-8-18-18-0/on-chain-cryptopunks> [<https://perma.cc/36TM-QUKB>].

319. A contrary argument could also be made that CryptoPunks are speculative investment on the basis that an identical 24x24 pixel image could be freely obtained through Google Images and achieve the same utility as that of the digital original. In turn, because the utility derived from the CryptoPunk could be more or less replicated for free, the purchase price of the CryptoPunk could be justified only by either the ability for the owner to prove authenticity, ownership, and provenance, or on the other hand, pure speculation on the future value of the underlying asset.

320. See discussion *supra* Section III.A (discussing a common misunderstanding of NFT transactions).

whose simultaneous conveyance is guaranteed. Thus, given the relative lack of risks with regard to the misunderstanding of NFT transactions and price volatility, there does not appear to be a need for explicit regulation of pure consumable NFTs. This is not to say that these NFTs should be completely free from regulation—the residual risks of general criminal activity should be addressed through the application of generally-applicable laws.

C. *Speculative Investments*

The third category of NFTs can be labeled as “speculative investments.” Similar to the first category, digital certificates of provenance, speculative investment NFTs reference an underlying asset. However, unlike digital certificates of provenance, there is no actual transfer of ownership nor intellectual property rights to the said asset. This difference is critical because, without the simultaneous conveyance of the underlying asset, the purchase of the NFT in and of itself serves little, if any, utility to the purchaser. Instead, the purchase must be viewed strictly as a speculative investment in the perceived value of the NFT itself. This non-transfer of underlying assets is most pertinent and widespread with the emergence of NFT marketplaces, meaning a significant portion of the NFT market may, in fact, be engaging in the trade of speculative investments. An exploration into the terms and conditions of notable NFT marketplaces is particularly revealing. OpenSea, the market’s most popular NFT marketplace, specifically notes it “cannot effect or otherwise control the transfer of title or right in any NFTs or underlying or associated content or items.”³²¹ Another popular NFT marketplace, Nifty Gateway, similarly emphasizes that the responsibility of any transfer in an underlying asset lies strictly with purchasers and sellers.³²² In this sense, without additional

321. *Terms of Service*, OPENSEA (Aug. 2, 2022), <https://opensea.io/tos> [<https://perma.cc/H3Y2-NZA2>] (“NFTs exist only by virtue of the ownership record maintained in the associated blockchain . . . [a]ny transfers or sales occur on the associated blockchain (e.g., Ethereum). OpenSea and/or any other OpenSea party cannot affect or otherwise control the transfer of title or right in any NFTs or underlying or associated content or items.”).

322. *Nifty Gateway Terms of Use*, NIFTY GATEWAY (Sept. 23, 2021), <https://niftygateway.com/termsfuse> [<https://perma.cc/9VQV-WKP9>] (“Nifty Creators may choose to provide certain rights to holders of their [NFTs], which may include, but

verification by the purchaser with the seller regarding the transfer of ownership or intellectual property rights of the NFT, a significant number of purchases through NFT marketplaces may be simply purchases of NFTs themselves, without any conveyance of the underlying asset. In doing so, purchasers appear to be engaging primarily in speculative investing, with the intention of selling the NFT in a future secondary market for profit, given there is no utility derived from the provenance or authenticity the NFT may provide without any conveyance of the underlying asset.

Given the significant prices and general price volatility NFTs display, there is certainly an opportunity for a high-risk, high-reward investment.³²³ Adding to the price risk of NFTs for buyers is the ever-present regulatory opacity that surrounds them. It is foreseeable that landmark legislation declaring all NFTs as securities would have a substantial depreciative effect on the general prices of all NFTs, with stakeholders falling under the purview of the SEC's enforcement of securities laws in one fell swoop.³²⁴ In this sense, the primary risk that speculative investment NFTs face is their price volatility. All else being equal, investors would likely be less concerned about the exact ownership, property, or licensing rights they are owed through the NFT but, rather, would welcome assurances of some level of price predictability and an active secondary market, providing the opportunity for future liquidation. It might even be accurate to state that investors lack any care as to the accompanying ownership and licensing rights of any contract of sale and are exclusively focused on the financial aspects of the NFT market. Consequently, the risk of any significant misunderstanding of the NFT transaction bearing on the value of speculative investment NFTs is less prevalent because investors are not purchasing NFTs for the utility as a digital certificate of authenticity or their consumptive value, but to justify their purchase prices by future potential growth in value.

is not limited to, physical items, special access, or other exclusive content (collectively, "Additional Items"). Any Additional Items will be provided directly to you from the Nifty Creator; Nifty Gateway has no involvement in such transactions and is not a party to such transactions.").

323. See discussion *supra* Section III.B (noting the price volatility of NFTs during 2021).

324. See discussion *supra* Section III.B.i (explaining the possible implications of securities laws with respect to NFTs).

Considering the primary risk of speculative investment NFTs is price volatility, a natural inclination may be to conclude that securities laws are the most appropriate regulatory approach, particularly considering the first two elements of the *Howey* test are exactly that—an investment of money with the expectation of profit.³²⁵ However, this conclusion may be premature. Securities regulation features a theme of mandatory disclosure in its effort to combat significant information asymmetries between the (usually retail) buyer and the (usually institutional) seller.³²⁶ The same information asymmetry is not ever-present for the sale of speculative investment NFTs—often the seller or owner of the NFT is also an individual rather than an institution and shares the same level of information and understanding as the buyer. In such a scenario, additional disclosures may not result in any greater understanding between the parties. Further, the entire investment in the NFT itself is directly before both the buyer and the seller. Accordingly, concerns of an overvalued share representing a poorly performing company or similar issues where the true market value of the investment is subject to proprietary information (which securities laws are designed to address) are not present. The buyer can view exactly what the NFT is, its transactional history, the underlying code, and, if fractionalized, the number of fractions and their transaction history. Any further disclosures regarding the lack of ownership and intellectual property rights will likely fall on deaf ears. Instead, the more appropriate regulatory resolution may be commodities laws, which provide similar protections but focus on market transparency from a different angle. Applying commodities laws would prohibit deceptive and manipulative devices in connection with any “contract of sale of any commodity in interstate commerce,”³²⁷ dissuading sellers of NFTs and NFT marketplaces from misleading consumers. This application also may be appropriate given the main issue with NFTs being purchased and sold as speculative investments is

325. See *SEC v. W.J. Howey Co.*, 328 U.S. 293, 301 (1946).

326. Paul G. Mahoney, *The Economics of Securities Regulation*, FINREG BLOG (Oct. 14, 2021), <https://sites.duke.edu/thefinregblog/2021/10/14/the-economics-of-securities-regulation/> [<https://perma.cc/73HN-PRGQ>] (“Mandatory disclosure is the dominant technique of securities regulation. The primary theoretical justifications for mandatory disclosure turn on information asymmetry and agency problems.”).

327. See discussion *supra* Section III.B.ii (explaining the possible implications of commodities laws with respect to NFTs).

whether there has been a complete conveyance of the NFT on the underlying blockchain or not.

D. Digital Shares

The final distinct category of NFTs that warrants discussion is that of “digital shares,” digital representations of more traditional financial assets that happen to be transplanted onto blockchain technology. This category can be split into two sub-categories: (1) NFTs that are sold clearly with share-like features, such as governance rights, and (2) NFTs that are projects where a common enterprise exists between the creators and the purchasers, creating a security-like relationship. Some of the most pertinent examples of digital share NFTs are the original “Doge Meme” NFT (and its fractionalized NFTs)³²⁸ with clear governance rights, and *Lazy Lions*, which not only provide its owners with governance rights but also the right to profits from future sales.³²⁹ This category arguably also includes all fractionalized NFTs, given the defining feature of an NFT, its non-fungibility, is no longer present, and the remaining purpose of the purchase of an f-NFT is financial gain. Unlike the speculative-investment category of NFTs, however, there is a conveyance or transfer of an underlying asset, whether it be a digital share certificate or contractual rights to future profits. In turn, the purchase of the NFT itself is not a speculative investment: the NFT performs a similar, if not identical, function to a digital certificate of provenance because it allows the user to authenticate or verify the ownership and provenance of the underlying financial asset. In this sense, this category of NFTs could be interpreted as a sub-category of digital certificates of provenance, with the exact nature of the underlying asset being critical. In conveyances of “digital share” NFTs, the purchase of the NFT appears to perform a facilitatory role of the more important conveyance—

328. See Taylor Locke, *The Original ‘Doge’ Meme Sold as an NFT for \$4 Million—Now You Can Own a Piece of It for Less Than \$1*, CNBC (Sept. 1, 2021, 9:32 AM), <https://www.cnbc.com/2021/09/01/fans-can-buy-a-fraction-of-original-doge-meme-nft-owned-by-pleasrdao.html> [<https://perma.cc/2SGJ-ALUW>].

329. Morris, *supra* note 179 (explaining that *Lazy Lions* NFTs attach governance rights to ownership, including the right to redistribute profits from future sales); see *Terms of Sale for Lazy Lions*, LAZY LIONS NFT, <https://bcm.media/terms-of-sale-lazy-lions/> [<https://perma.cc/WZ4Q-FW3F>] (“In consideration for the rights granted to each User under this Agreement, Lazy Lions shall be entitled to receive a [r]oyalty of 5% of the value of each Qualifying Transaction.”).

the conveyance of the underlying financial asset, which ultimately is the speculative investment rather than the NFT itself. This distinction suggests the appropriate regulatory approach to such transactions may be simply to resort to existing financial regulation, as the transaction itself does not differ significantly from existing non-NFT-based financial asset purchases. The role played by the NFT in such a transaction is secondary, purportedly to ensure the purchaser is, in fact, receiving the financial asset they are attempting to purchase.

Given the underlying asset to these NFTs resembles that of a security, applying securities laws for this category appears to be the most appropriate and straightforward approach. Analyzing the pertinent risks of this category of NFTs reveals a similar story. The dangers of misunderstanding the NFT transaction are prevalent here because the NFT itself is no longer the investment but, rather, the investment is a fraction of the NFT, or the investment is the financial asset that the NFT references. In both cases, there is an additional layer of complexity. Unlike speculative investment NFTs, however, owners of these NFTs would, in fact, be concerned about the ownership rights they are entitled to in the underlying asset, as the underlying security is critical to their purchase. That said, like speculative investment NFTs, the risk of price volatility exists, and investors, all else being equal, would likely welcome assurances of some level of price predictability and an active secondary market.

CONCLUSION

With NFTs poised to revolutionize almost every creative industry and change the way consumers interact with digital works and pieces, a sound regulatory approach is key to their mainstream adoption. By their nature, NFTs can be linked to a variety of different assets and represent either numerous rights and obligations or none at all, posing a difficult classification challenge. By illustrating how existing laws and regulations may not fully capture the dangers of NFTs and the potential flaws in new digital asset laws, this article has proposed a categorical risk-based approach to regulating NFTs by reducing the current (and likely future) use cases of NFTs to their constituent categories, suggesting the most appropriate regulatory approach to each.

The first category, digital certificates of provenance, stems from traditional artwork and their physical certificate counterpart, allowing a user to verify an underlying asset's authenticity and provenance. The price of an NFT used in this way is directly tied to the value of the underlying asset. Thus, this category clearly presents the risk of a fundamental misunderstanding of the NFT transaction. In turn, the most apt regulatory approach may be generally applicable laws, given the uniform use of the NFT combined with the diverse nature of the underlying asset. The second category, pure consumables, derive their value from their consumptive value, rather than from reference to an underlying asset. As the value of the NFT does not derive primarily from a digital record of provenance and authenticity, there is a relatively insignificant risk with respect to the misunderstanding of NFT transactions and price volatility affecting transactions of pure consumable NFTs. In turn, like digital certificates of provenance, this category can be best addressed through the application of generally applicable laws. The third category, speculative investments, reference an underlying asset but do not involve any transfer of ownership rights to said asset. The most significant risk of these NFTs is price volatility. Investors are likely less concerned about the exact ownership, property, or licensing rights they are owed through the NFT but, rather, are concerned about an active secondary market and the potential price appreciation. As such, the appropriate regulation may be commodities laws, which would prohibit deceptive and manipulative tactics deployed by sellers of NFTs and NFT marketplaces designed to mislead consumers. The final category, digital shares, present essentially digital representations of traditional financial assets that happen to be transplanted onto blockchain technology. As these NFTs often bear share-like features, such as governance rights, profit sharing, and a common enterprise, applying securities laws for this category is the most appropriate and straightforward approach.

This exploration into the numerous categories reveals an important consideration—the underlying asset's nature, if one is indeed being conveyed, is often the key to determining the appropriate approach to regulating the NFT. However, where there is no conveyance of any rights to the underlying referenced asset whatsoever, the purchase of an NFT largely resembles that of a speculative investment.