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Darren J. Sandler

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CITRUS GROVES IN THE CLOUD: IS CRYPTOCURRENCY CLOUD MINING A SECURITY?

Darren J. Sandler[†]

Cloud mining of blockchain cryptocurrency is a growing industry that has largely flown under the radar of regulators, who thus far tend to focus on initial coin offerings. Cloud mining is an economic arrangement whereby a person pays another person or entity to engage in cryptocurrency mining on their behalf and receives the transaction fees, cryptocurrency or a portion thereof that is generated from such mining efforts. This arrangement raises securities law concerns, as such arrangements can be viewed as “investment contracts” under federal securities laws. The implications are significant; cloud mining contracts deemed to be securities must be registered with the Securities and Exchange Commission or otherwise eligible for an exemption from registration (such as a private placement). Issuers and other participants involved in the sale of unregistered securities in violation of the Securities Act of 1933 may be subject to liabilities and other investor remedies under state and federal securities laws, including private rights of action and rescission. Moreover, the anti-fraud provisions of the Securities Exchange Act of 1934 can impose liability with respect to any purchase or sale of a security—registered or not.

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INTRODUCTION

Cloud mining of blockchain cryptocurrency is a growing industry that has largely flown under the radar of regulators, who thus far tend to focus on initial coin offerings (“ICOs”). From an enforcement standpoint, federal agencies such as the Securities and Exchange Commission (“SEC”), Commodity Futures Trading Commission (“CFTC”), Federal Trade Commission (“FTC”), and Financial Crimes Enforcement Network (“FinCEN”) have not taken much action in connection with blockchain cryptocurrency mining, a key aspect of blockchain and cryptocurrency technology. Four developments stand out, but more activity would provide greater clarity to legal practitioners, entrepreneurs, investors, and blockchain protocol users. In January 2014, FinCEN carved out certain situations of cryptocurrency mining from its definition of a money services business (“MSB”).¹ In March 2014, the Internal Revenue Service (“IRS”) issued a notice to clarify the tax treatment of cryptocurrencies, including those generated through mining.² In September 2014, the FTC brought a civil action against a cryptocurrency mining hardware and cloud mining company.³ In June 2017, the U.S. District Court for the District of Connecticut entered a final default judgment in a case brought by the SEC against two related cryptocurrency cloud mining companies.⁴

Cloud mining is an economic arrangement in which a person pays another person or entity to engage in cryptocurrency mining on their behalf and receives the transaction fees, cryptocurrency or a portion thereof that is generated from such mining efforts.⁵ This arrangement, which occurs in a variety of forms, raises securities law concerns, as such arrangements can potentially be viewed as “investment contracts” under federal securities laws.

Under the federal securities laws, an investment contract is: (1) an investment of money; (2) in a common enterprise; (3) with an expectation of profits; (4) derived solely from the efforts of others.⁶ The various circuit courts have diverged with respect to how to apply

1. Fin. Crimes Enforcement Network, Dept. of the Treasury, Guidance Letter on Application of FinCEN’s Regulations to Virtual Currency Mining Operations, FIN-2014-R001 (Jan. 30, 2014), http://bit.do/FinCEN_Guidanceletter_FIN2014R001. See *infra* Part II.A.

2. I.R.S. Virtual Currency Guidance, Notice 2014-21, 2014-16 I.R.B. 938.

3. Fed. Trade Comm’n v. BF Labs, Inc., No. 4:14-CV-00815-BCW, 2014 WL 7238080 (W.D. Mo. Dec. 12, 2014).

4. Homero Joshua Garza, GAW Miners, LLC, & ZenMiner, LLC, Litigation Release No. 23852, 2017 WL 2437886 (June 5, 2017) [hereinafter *Litigation Release No. 23852*].

5. Hari Krishnan et al., *Cryptocurrency Mining – Transition to Cloud*, 6 INT’L J. OF ADVANCED COMPUTER SCI. & APPLICATIONS 115 (2015).

6. Sec. & Exch. Comm’n v. W.J. Howey Co., 328 U.S. 293, 298-99 (1947).

the second prong of this analysis. The Supreme Court case that first articulated this test, *SEC v. W. J. Howey Co.* (hereinafter “*Howey*”),⁷ provides a direct lens through which to analyze whether certain cloud mining arrangements are investment contracts. In certain instances, cloud mining is a redux of the citrus groves discussed in *Howey*.

In Section I, this Article provides a background explanation of cryptocurrency mining and cloud mining, which is necessary for attorneys, scholars, and regulators to engage in this topic and for cloud mining companies to comply with federal securities laws. Section II surveys several U.S. regulatory agency responses to cryptocurrency mining. Section III discusses *Howey*, briefly surveys the circuit split with respect to its interpretation and analyzes cloud mining under *Howey*⁸ and the various circuit court approaches thereunder. Section III also discusses a 2017 SEC enforcement action involving cloud mining.⁹ The implications are significant; cloud mining contracts deemed to be securities must be registered with the SEC or otherwise eligible for an exemption from registration (such as a private placement). Issuers and other participants involved in the sale of unregistered securities in violation of the Securities Act of 1933 (“Securities Act”) may be subject to liabilities and other investor remedies under state and federal securities laws, including private rights of action and rescission. In addition, the anti-fraud provisions of the Securities Exchange Act of 1934 (“Exchange Act”) can impose liability with respect to any purchase or sale of such securities irrespective of whether such cloud mining securities are registered or offered through a private placement.¹⁰ This Article then concludes by offering best practices for structuring cryptocurrency cloud mining arrangements in a manner unlikely to be considered securities or conversely in a manner that complies with federal securities laws.

I. BACKGROUND

An understanding of blockchain cryptocurrency mining is necessary for attorneys, regulators, and scholars to engage in the rapidly growing cryptocurrency industry and advise cloud mining companies in connection with regulatory compliance considerations under federal and state securities laws. Blockchain is a form of

7. *Id.* at 298-99.

8. *Id.*

9. Sec. & Exch. Comm’n v. Homero Joshua Garza, No. 3:15-cv-01760 (D. Conn. Dec. 1, 2015). The final order was released in *Litigation Release No. 23852*, *supra* note 4. Garza later pled guilty to criminal charges in *United States v. Homero Joshua Garza*, No. 17-cr-00158 (D. Conn. July 20, 2017).

10. 15 U.S.C. § 78j(b) (2012); 17 C.F.R. § 240.10b-5 (2017).

distributed and replicated ledger or database that is cryptographically secured.¹¹ Blockchain protocols are specific sets of rules drafted in computer programming code.¹² The “blocks” in the blockchain are collections of transactions.¹³ The type of blockchain ledger discussed herein is distributed among computers across the world, has no central intermediary or point of failure, and is replicated on each computer that runs the software relating to the blockchain.¹⁴ There are variations of these themes among different blockchain protocols and their related cryptocurrency tokens.¹⁵ The data that the blockchain records and stores are represented by cryptographic hashes, rather than the actual information underlying it.¹⁶ Usually, maintenance of blockchains are decentralized and/or distributed. When used to support a decentralized payment system, for example, there is a need for volunteers to step in to serve the functions normally handled by central intermediaries and institutions such as banks or money services businesses.¹⁷

The distributed volunteers are known as “miners,” who build and manage the blockchain and receive new cryptocurrency and/or transaction fees as a reward for their efforts.¹⁸ For a typical blockchain protocol like that of Bitcoin, mining is a crucial “back office,” technical

11. See Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, BITCOIN.ORG, at 5 (Oct. 31, 2008), http://bit.do/Nakamoto_Bitcoin. Blockchain technology is a marriage of distributed systems computer science and cryptography. See ARVIND NARAYANAN ET AL., *BITCOIN AND CRYPTOCURRENCY TECHNOLOGIES: A COMPREHENSIVE INTRODUCTION* (2016); see also *The Great Chain of Being Sure about Things*, *ECONOMIST* (Oct. 31, 2015), http://bit.do/Economist_Great-chain.

12. See Nakamoto, *supra* note 11.

13. See Nakamoto, *supra* note 11, at 2.

14. Joshua Nussbaum, *Mapping the Blockchain Project Ecosystem*, TECHCRUNCH (Oct. 16, 2017), http://bit.do/Nussbaum_Mapping-the-Blockchain. See THE ETHEREUM NODES EXPLORER, NETWORK 1, <http://bit.do/Ethereum-Nodes> (last visited Apr. 5, 2018) (showing the global distribution of Ethereum nodes); BITNODES, <http://bit.do/Bitnodes> (last visited Apr. 5, 2018) (showing the global distribution of Bitcoin nodes).

15. *Id.*

16. Essentially, blockchains appear as unintelligible strings of numbers and letters and not a true record book or medieval-style accounting ledger that is sometimes used to describe a blockchain. See Ameer Rosic, *What Is Hashing? Under the Hood of Blockchain*, BLOCKGEEKS (Aug. 2017), http://bit.do/Rosic_Hashing.

17. Some blockchains are centralized and/or private. These are known as permissioned blockchains, whereas the blockchains discussed herein are generally “permissionless.” Because permissioned blockchains are centralized, they generally do not rely on mining or transaction fees to the same extent, if at all, that permissionless blockchains do. See Rob Marvin, *Blockchain: The Invisible Technology That's Changing the World*, PCMAG (Aug. 29, 2017, 1:38 PM), http://bit.do/Marvin_Blockchain; Andreas Antonopoulos, *Bitcoin Security Model: Trust By Computation*, RADAR (Feb. 20, 2014), http://bit.do/Antonopoulos_Bitcoin-security-model; *Hyperledger Architecture, Vol. 1*, HYPERLEDGER (Aug. 2017), <http://bit.do/Hyperledger>.

18. Nakamoto, *supra* note 11. See also Joseph Bonneau et al., *SoK: Research Perspectives and Challenges for Bitcoin and Cryptocurrencies*, 2015 IEEE SYMP. ON SECURITY & PRIVACY PROC. 104, 104-21.

function served by persons or collections of persons (known as pools) to validate transactions and reach a distributed consensus with respect to such transactions that are then grouped into blocks of transactions and added to the blockchain-ledger.¹⁹ Although ultimately managed by people, at a high level, the act of mining and transaction validation is just passively running software.²⁰ These computers are known as “nodes”; each is a connection point that can receive, create, store or send data along distributed network routes.²¹ The human element lies primarily in setting up the computer hardware and software and ensuring that the machines are connected to the network and kept at an optimal temperature. Miners are essential for decentralized blockchain protocols; unlike traditional payment and transfer systems, decentralized blockchain protocols have no central intermediary to process and validate transactions and manage the ledger.²²

An incentive is required to attract miners onto a blockchain protocol to serve such functions. The incentive is a reward of additional cryptocurrency and/or transaction fees, which are paid to the first miner to create the block (other miners verify the validity the block but do not receive any reward or transaction fees).²³ The generation of new cryptocurrency units as a reward also increases the supply of the relevant cryptocurrency, and the rate of increase usually decreases over time as mining increases (discussed more below). For certain methods of processing and validating blockchain transactions, the term “mining” or “miner” does not accurately describe the process because no new cryptocurrencies are generated or “mined”; the only reward in those cases are transaction fees. However, the term “mining” and “miner” tends to be used in less technical circles to describe (loosely)

19. See discussion of hashing power *infra* Part I.C. Mining pools exist to increase the hashing power, which translates to likelihood of creating blocks and mining rewards. See also Ittay Eyal, *The Miner's Dilemma*, 2015 IEEE SYMP. ON SECURITY & PRIVACY PROC. 89 (2015) (discussing technical rationale of pooled mining).

20. See *Running A Full Node*, BITCOINCORE (last visited Mar. 9, 2018), <http://bit.do/full-node>; see also ANDREAS M. ANTONOPOULOS, *MASTERING BITCOIN: UNLOCKING DIGITAL CRYPTOCURRENCIES* (2014) (providing a technical reference guide).

21. Nakamoto, *supra* note 11, at 2. See also Giuseppe DeCandia et al., *Dynamo: Amazon's Highly Available Key-value Store*, 2007 SYMP. ON OPERATING SYSTEMS PRINCIPLES 205, 209-10. Not all nodes must mine, however all nodes store the blockchain, which furthers its distributed immutability and security.

22. See Nakamoto, *supra* note 11, at 4. See also *Ethereum Whitepaper: A Next-Generation Smart Contract and Decentralized Application Platform*, ETHEREUM WIKI (last updated Apr. 13, 2018), <http://bit.do/Ethereum-Whitepaper>.

23. See Nakamoto, *supra* note 11, at 4. Transaction fees are market-based, determined by the collective influence of the miners. Transaction fees are generally not set by the blockchain protocol, but act as an additional incentive to ensure that a miner will decide to mine a specific transaction on the network.

all blockchain transaction processing functions, regardless of the algorithm used and its technicalities.²⁴

The two predominant methods for reaching consensus and mining or processing transactions of blockchain cryptocurrencies are “proof of work” and “proof of stake.” Proof of work and proof of stake are computational rules that govern how transactions are processed and validated. These algorithms require proofs that the miners or transaction processors have done something that is “difficult” to do.²⁵ These difficulties are in place in order to protect the integrity of the blockchain and deter bad actors from wrongly manipulating the blockchain.²⁶ Usually, transactions in blockchain cryptocurrency can only be processed according to one of these methods, but some protocols allow for both or a different method entirely.²⁷ Readers are encouraged to learn more about the differences, advantages, and disadvantages of each alternative mining method.²⁸

24. See, e.g., Ameer Rosic, *Proof of Work vs Proof of Stake: Basic Mining Guide*, BLOCKGEEKS (Feb. 1, 2017), http://bit.do/Rosic_Proof-of-work (referring to proof of stake as a form of mining). Vitalik Buterin, *What Proof of Stake Is and Why It Matters*, BITCOIN MAG. (Aug. 26, 2013, 11:37 AM), http://bit.do/Buterin_Proof-of-Stake (using the term mining in connection with proof of stake) [hereinafter *What Proof of Stake Is*]. The technical inaccuracy may have resulted from the fact that Ethereum, a well-known blockchain protocol that pioneered proof of stake, originally used a proof-of-work mining algorithm for transaction processing. See also Alyssa Hertig, *Ethereum's Big Switch: The New Roadmap to Proof-of-Stake*, COINDESK (last updated May 16, 2017, 4:27 PM), http://bit.do/Hertig_Ethereum-big-switch; Vitalik Buterin, *Proof of Stake FAQ*, ETHEREUM WIKI (last updated Mar. 24, 2018), http://bit.do/Buterin_Ethereum_Proof-of-stake-FAQ.

25. See Nakamoto, *supra* note 11; see also Buterin, *What Proof of Stake Is*, BITCOIN MAG., *supra* note 24.

26. See Nakamoto, *supra* note 11, at 1-4 (“Transactions that are computationally impractical to reverse would protect sellers from fraud To modify a past block, an attacker would have to redo the proof-of-work of the block and all blocks after it and then catch up with and surpass the work of the honest nodes [T]he probability of a slower attacker catching up diminishes exponentially as subsequent blocks are added If a greedy attacker is able to assemble more CPU power than all the honest nodes, he would have to choose between using it to defraud people by stealing back his payments or using it to generate new coins.”). See also Buterin, *Proof of Stake FAQ*, *supra* note 24 (“Proof of stake opens the door to a wider array of techniques that use game-theoretic mechanism design in order to better discourage centralized cartels from forming and, if they do form, from acting in ways that are harmful to the network (e.g., like selfish mining in proof of work). Reduced centralization risks, as economies of scale are much less of an issue. \$10 million of coins will get you exactly 10 times higher returns than \$1 million of coins, without any additional disproportionate gains because at the higher level you can afford better mass-production equipment. Ability to use economic penalties to make various forms of 51% attacks vastly more expensive to carry out than proof of work—to paraphrase Vlad Zamfir, ‘it’s as though your ASIC farm burned down if you participated in a 51% attack.’”).

27. See, e.g., Sunny King & Scott Nadal, *PPCoin: Peer-to-Peer Crypto-Currency with Proof-of-Stake*, PEERCOIN.NET (Aug. 19, 2012), http://bit.do/King_PPCoin.

28. There is no authoritative source to learn about this technology. In this regard, the author encourages readers to conduct their own investigations and include a variety of media forms, including video instruction and tutorial. See JAMESON LOPP, *Bitcoin Resources*, LOPP.NET

A. Proof of Work

Proof-of-work miners use advanced and relatively expensive computer hardware (known as application-specific integrated circuits or “ASICs”) to run software that expends effort (consumes energy) to solve cryptographic math puzzles to validate cryptocurrency transactions and enter those transactions into the distributed ledger.²⁹ The required proof is that the mathematical computation has been successfully performed.³⁰ Proof-of-work blockchain protocols are typically designed to make mining harder (i.e., require more energy consumption) as more persons mine the cryptocurrency and the reward size decreases per mined block over time.³¹ These blockchain protocols are designed this way to give the cryptocurrency a deflationary characteristic, ensuring either a *hard* fixed supply or a *theoretical* fixed supply, depending on the specific protocol, and to protect the network from abuse, as discussed in the next paragraph.³² In the case of Bitcoin, the protocol has a 50% mining reward reduction every 210,000 blocks, or approximately every four years. In the year 2012, one miner could receive 50 Bitcoins for mining a single block, but as of the date of this Article’s publication, the reward is 12.50 Bitcoins.³³ By 2140, the

http://bit.do/Lopp_Bitcoin-resources (last visited on Mar. 24, 2018), for a list of educational resources discussing Bitcoin, blockchain, and other cryptocurrency; see also SCANATE, *EthList: The Crowdsourced Ethereum Reading List*, http://bit.do/Scanate_Ethlist (last visited Mar. 24, 2018), for a list of educational resources discussing Ethereum, blockchain, and other cryptocurrency.

29. ASICs are application specific, meaning that the hardware is exceptionally effective for a very specific narrow purpose (in our case, mining) to the exclusion of others. This is in contrast to a traditional consumer desktop computer, which can perform functions that mining ASICs cannot, such as web browsing and word processing, but are generally not suitable for mining. See Chris Hoffman, *Cryptocurrency Miners Explained: Why You Really Don’t Want This Junk on Your PC*, HOW TO GEEK (Mar. 11, 2015), http://bit.do/Hoffman_Cryptocurrency-Miners.

30. See Nakamoto, *supra* note 11, at 3; see also Section I, *supra* (“These algorithms require proofs that the miners or transaction processors have done something that is ‘difficult’ to do.”).

31. See Nakamoto, *supra* note 11, at 3.

32. See Nakamoto, *supra* note 11, at 4 (“Once a predetermined number of coins have entered circulation, the incentive can transition entirely to transaction fees and be completely inflation free.”). Nakamoto posited a point at which the reward of new bitcoin generated would be so small that transaction fees would become the primary mining incentive. Bitcoin’s supply is a theoretical fixed supply—an asymptote that approaches 21 million bitcoins. However, because the satoshi—a one hundred millionth of a single bitcoin (0.00000001 BTC)—is currently the smallest unit of the bitcoin currency recorded on the blockchain, there may be a point where the reward for creating a new block is less than a satoshi and thus the equivalent of zero. This would render the supply of bitcoin a hard-fixed supply, unless a lesser unit of division is established and recorded on the blockchain. See also *Controlled Supply*, BITCOIN WIKI, http://bit.do/Bitcoin-Wiki_Controlled-supply (Mar. 1, 2018) (discussing the technical aspects of bitcoin supply generation algorithm); Rosic, *supra* note 24 (discussing protection of the blockchain).

33. See *Bitcoin Developer Guide*, BITCOIN.ORG (last visited Apr. 14, 2018), http://bit.do/Bitcoin_Developer-Guide; Melvin Draupnir, *What is the Bitcoin Mining Block*

theoretical fixed supply of 21 million Bitcoins will have been generated.³⁴ This decreasing-supply algorithm was chosen because it mimics the rate at which commodities like gold are mined.³⁵

Seeking to ensure that the blockchain network would not be (i) spammed by miners attempting to create empty blocks in order to increase their chances of earning the reward or (ii) attacked by miners seeking to gain control of the network and defraud the network (i.e., by altering the blockchain), a proof-of-work protocol includes a self-regulating concept known as “difficulty.”³⁶ In simple terms, the “difficulty” is the complexity of the cryptographic math problem that must be solved to create a block. The protocol is designed to increase the difficulty as the number of miners mining the cryptocurrency increases.³⁷ The increased difficulty translates into greater energy costs, which have increased significantly: the amount of energy consumed to mine a single transaction (less than a block) could power 30 U.S. households for one day or one household for 30 days.³⁸

B. Proof of Stake

Proof-of-stake protocols do not require expensive, power-hungry machines to create blocks and validate and verify transactions. All that is necessary is for the validator to store (stake) an amount of cryptocurrency in their digital wallet (software).³⁹ As opposed to proof-of-work mining, where the required proof is the successful mathematical computation, the required proof in a proof-of-stake protocol is the staked amount of cryptocurrency (i.e., the validator proves that they have met the staking requirement by “storing” the tokens in their digital wallet address and keeping such wallet online and connected to the network to automatically broadcast the wallet’s balance).⁴⁰ The larger the share of cryptocurrency staked by the node,

Reward?, BITCOIN MINING (May 6, 2016), http://bit.do/Draupnir_Bitcoin-mining-block-reward.

34. Nakamoto, *supra* note 11.

35. Nakamoto, *supra* note 11, at 4 (“The steady addition of a constant amount of new coins is analogous to gold miners expending resources to add gold to circulation.”).

36. See 2Miners Team, *Mining Difficulty and Network Hashrate Explained*, 2MINERS (last updated Aug. 31, 2017), http://bit.do/2miners_Mining-difficulty. If the network is spammed, the coin will depreciate and slow the network from finding true blocks of transactions; the transactions will remain in a backlog, further devaluing the currency.

37. Karl J. O’Dwyer & David Malone, *Bitcoin Mining and its Energy Footprint*, 25 IET IRISH SIGNALS & SYSTEMS CONF. PROC. 280, at 281-82 (2014) (discussing the technical aspects of difficulty and its environmental impact).

38. *Bitcoin Energy Consumption Index*, DIGICONOMIST, http://bit.do/Digiconomist_Bitcoin-energy-consumption (last visited Mar. 18, 2018).

39. *Proof of Stake FAQ*, *supra* note 24.

40. *Id.*

the greater is the node operator's opportunity to validate and create a block of transactions on the blockchain and receive the associated transaction fees.

There are several protocol variations used to determine which validator node is assigned the right to create the next block and thus receive the transaction fees attributed to it. Some proof-of-stake protocols employ a lottery system such that even small stakeholders can create blocks and earn transaction fees or even just to ensure general fairness of allocating the right to create the next block in the blockchain among holders of the same size.⁴¹ Other protocols randomize the allocation of block creation and validation rights based on the length of time that a given set of cryptocurrency has been staked. In these cases, an amount of cryptocurrency must be staked for a minimum number of days for a given node to be eligible to form a block, and once that set of cryptocurrency tokens has enabled the node to form a block, the counter resets. The cryptocurrency tokens must be staked again for the requisite length of time in order for the node to be able to form another block.⁴² Larger and older sets of staked tokens have a greater chance of forming the next block.

Irrespective of these variations, instead of mining with computational hardware of mining rigs, one simply uses their cryptocurrency tokens they hold and sends them to a special address to validate transactions, create blocks and earn transaction fees as a result. The advantages of this method over proof of work are clear, both from a cost and environmental perspective. As discussed above, proof-of-work mining is programmed to require more effort and thus greater energy consumption to create, validate and verify blocks of transactions as more miners join. There is no such negative externality in proof-of-stake protocols. Proof of stake is energy efficient compared to proof of work.

A subset of proof-of-stake protocols have implemented a feature known as a masternode. A masternode is a node (computer running software) that performs special functions that other nodes in the network do not. Like other proof-of-stake nodes, masternodes also require staking a certain amount of cryptocurrency, but this amount is usually significantly larger than that of other nodes, and there is an additional upfront cost of cryptocurrency that must be contributed to run a masternode. Masternodes facilitate instant transactions, private

41. Nxt Community, *Nxt Whitepaper, Revision 4*, NXT (July 12, 2014), http://bit.do/Nxt_White-paper (NXT is a protocol that uses a proof-of-stake lottery).

42. King et al., *supra* note 27.

transactions and decentralized governance voting.⁴³ Masternodes are a source of passive income for those that run them; they receive a portion of all block transaction fees, unlike other nodes, which only receive transaction fees from blocks they created. Some proof-of-work protocols include masternodes as well, but those masternodes still require staking of cryptocurrency tokens.⁴⁴

Malicious actors can write a script to vote fraudulently with respect to which transactions should be added to a block.⁴⁵ The policy behind proof-of-stake is that those who hold a stake in a network are incentivized to act in the network's interests and by requiring nodes to stake cryptocurrency in order to validate transactions and earn transaction fees, it becomes prohibitively expensive for a hostile takeover. Another benefit is that by locking up large amounts of the cryptocurrency in masternodes, the price can remain more stable as there is less circulating supply; a price crash is less likely.

C. *Why Cloud Mining?*

There are several barriers to entry into the proof-of-work mining economy: (i) there is a learning curve for operating and maximizing returns from an ASIC; and (ii) not everyone can afford (a) to buy, maintain, repair, or replace ASICs, or (b) to keep their computers running and connected to the network, either because such persons or entities need to use their computers for other purposes or because the energy costs are too high.⁴⁶ In addition, the technology used to mine develops rapidly as there is a competitive hash rate arms race to receive the mining rewards.⁴⁷ Hash Rate is the speed at which a computer is completing the proof-of-work cryptographic puzzles (guessing hashes that are each puzzles' solution) required to generate a block.⁴⁸

43. Colin Harper, *What are Masternodes? An Introduction and Guide*, COINCENTRAL (Dec. 19, 2017), http://bit.do/Harper_Masternodes.

44. William M. Peaster, *What are Masternodes? Complete Beginner's Guide*, BLOCKONOMI (Jan. 11, 2018), http://bit.do/Peaster_Masternodes.

45. See *supra* Part I.A regarding the need to protect the blockchain network and the concept of difficulty, which in the case of proof of stake is the analogue to the increase in tokens required to be staked to create blocks and validate transactions; see also Rosic, *supra* note 24.

46. Paul Gil, *A Beginner's Guide to Cryptocoin Mining*, LIFEWIRE (last updated Apr. 5, 2018), http://bit.do/Gil_Beginners-guide. Moreover, the energy cost and heat generated must be managed. Costs also include cooling mechanisms for the equipment, which generate significant levels of heat, and the need to keep up with a proverbial "arms race" in which the speed of developments in computing technology can make any equipment owned obsolete. See JAN LOEYS ET AL., J.P. MORGAN PERSPECTIVES, DECRYPTING CRYPTOCURRENCIES: TECHNOLOGY, APPLICATIONS AND CHALLENGES 59 (2018).

47. LOEYS ET AL., *supra* note 46, at 61.

48. *Some Bitcoin Words You Might Hear*, BITCOIN.ORG, http://bit.do/Bitcoin_Vocab (last visited Mar. 1, 2018).

Dedicating more computing (hashing) power to this effort solves the puzzles faster. In addition, ASICs must be kept at an optimal temperature.⁴⁹ On a macro level, cryptocurrency mining is somewhat centralized, or at least an oligopoly, despite the decentralized nature of the software. For example, just five mining pools control almost 75% of the total hash rate devoted to Bitcoin mining, a discouraging statistic for smaller miners.⁵⁰

There are also barriers to entry into proof-of-stake mining: cryptocurrency users may be unable to keep large amounts of their cryptocurrency locked up or their wallets connected to the network for extended periods of time, and even if they can, users may need to transfer tokens to pay for goods and services, which reduces their staking amount and the corresponding block transaction fees. In addition, because the larger stakes are able to process more transactions, smaller cryptocurrency holders are at a disadvantage.⁵¹

Regardless of the reason for not being able to mine directly, a solution exists: hire someone else to mine for you. This is the essence of “cloud mining.” The user receives the block rewards and/or transactions fees from mining or transaction validation without managing the hardware and node software.⁵² There are a variety of structures to accomplish this for proof-of-work mining protocols, such as (i) the customer sends their already owned ASIC to a cloud mining company or purchases a new ASIC from such cloud mining company and sends the ASIC to such company—the ASIC is managed, serviced, and operated by the cloud mining company and the customer receives the cryptocurrency and or/transaction fees generated by such ASIC;⁵³ (ii) the customer rents an ASIC (or a fraction of an ASIC) that is managed, serviced, and operated by someone else and receives the cryptocurrency and or/transaction fees (or a fraction thereof) generated

49. Joon Ian Wong, *Cryptocurrency Miners Turn to Exotic Cooling Systems as Competition Heats Up*, COINDESK (last updated Dec. 4, 2014, 5:08 PM), http://bit.do/Wong_Cryptocurrency-miners.

50. *Hashrate Distribution: An Estimation of Hashrate Distribution amongst the Largest Mining Pools*, BLOCKCHAIN (last visited Apr. 11, 2018), http://bit.do/blockchain_Hashrate

51. See Buterin, *Proof of Stake FAQ*, *supra* note 24.

52. DAVID LEE & KUO CHUEN, HANDBOOK OF DIGITAL CURRENCY: BITCOIN, INNOVATION, FINANCIAL INSTRUMENTS, AND BIG DATA 47-56 (2015); *see also* Krishnan et al., *supra* note 5.

53. *See, e.g., Frequently Asked Questions*, BITCOIN MINER HOSTING SOLUTIONS, http://bit.do/Bitcoin-Miner-Hosting_FAQ (last visited Mar. 18, 2018) (proof-of-work cloud mining in which customers own the ASICs, receive the proceeds of its mining rewards and/or transaction fees; customers are also given virtual private network (VPN) access to their own ASICs); *Turnkey Mining*, MINING COLOCATION, <http://bit.do/Turnkey-mining> (last visited Mar. 18, 2018) (proof-of-work cloud mining in which customers own the ASICs, receive the proceeds of its mining rewards and/or transaction fees).

by such ASIC; (iii) the customer buys the right to receive the cryptocurrency and/or transaction fees mined from a fixed hash rate (i.e., rents the hashing power); (iv) the customer buys the right to receive the cryptocurrency and/or transaction fees mined from a fixed amount of energy (i.e., rents the energy) (without specifying the ASIC used or hashing power); or (v) less transparent arrangements where the customer purchases interests that entitle such purchaser to a share of the cryptocurrency mining reward and/or transaction fees that a cloud mining venture generates (the customer does not rent or own any ASICs, in whole or in part, and the customer does not pay for the output attributable to a given hashrate or unit of energy).⁵⁴ For proof-of-stake cloud mining, relatively small amounts of cryptocurrency received from each customer are pooled together. By aggregating several small shares of cryptocurrency into a pool, the chance to mine is higher than if it is done separately for each share, and the profit is divided among all pool members *pro rata* in accordance with their individual contribution of cryptocurrency.⁵⁵ The persons or entities that operate

54. See BITCOIN MINER HOSTING SOLUTIONS, *supra* note 53; MINING COLOCATION, *supra* note 53. See also, e.g., HASHFLARE, http://bit.do/HashFlare_co (last visited Mar. 18, 2018) (No transparency into hardware used. Customers purchase the rights to the proceeds attributable to a fixed hashrate. Miners are connected to pools. All mined cryptocurrency is distributed among all customers of HashFlare depending on their share of hashrate in the whole system.); Pricing, GENESIS MINING, http://bit.do/Genesis-Mining_Pricing (last visited Mar. 18, 2018) (No transparency into hardware used. Customers purchase the rights to the proceeds attributable to a fixed hashrate.); *How it Works*, HASHING24, http://bit.do/Hashing24_howitworks (last visited Mar. 10, 2018) (No transparency into hardware used. Customers purchase the rights to the proceeds attributable to a fixed hashrate and are considered to be renting the miners.); *PACMIC V5 Contract*, HASHNEST, http://bit.do/HashNest_Contract (last visited Mar. 10, 2018) (Full transparency into ASIC model used, but HashNest retains ownership. Customers purchase the rights to the proceeds attributable to a fixed hashrate.); *Token Offer Document*, HYDROMINER, http://bit.do/Hydrominer_ICO (Oct. 17, 2017) (Limited transparency into hardware used, but the company claims in the offering document that it intends to disclose this information in the future. Customers pay for a unit of energy. The Company claims that it will periodically update and replace the hardware used.); *Sales & Hashrate Hosting Contracts*, HASHNEST, http://bit.do/HashNest_Sales (last visited Mar. 18, 2018) (Depending on the amount of hashing power purchased by customers, customers either share the output of a specified ASIC (for smaller purchasers) or own an ASIC and may request its physical delivery or continue to have the ASIC managed by HashNest's cloud mining service. The ownership arrangement is for customers holding enough hashing power to constitute an entire machine of the associated type (e.g., 12500 GH/s of Antminer S7), who are eligible to convert that amount of GH/s into the used unit of the associated type.); *Whitepaper on Initial Coin Offering*, ICE ROCK MINING, <http://bit.do/IceRockMining> (last updated Feb. 2, 2018) (Proof-of-work cloud mining in which the customers purchase interests that entitle such purchaser to a share of the cryptocurrency mining reward and/or transaction fees that a cloud mining venture generates—the customer does not rent or own any ASICs, in whole or in part, and the customer does not pay for the output attributable to a given hashrate or unit of energy.).

55. *Overview of Cloud PoW and PoS Mining*, ATBCOIN, http://bit.do/Atbcoin_Overview (last updated Aug. 7, 2017) (“Since not everyone can keep their wallet in the network for 24 hours, this problem is quickly resolved with the help of pools of depositors accepting various

the cloud mining business receive either a fixed or variable fee for their mining management services and to cover expenses.⁵⁶ If cloud mining could be rationalized in one phrase, it would be “economies of scale.”

Not all companies engaged in this line of business refer to themselves as cloud mining operations. While there are a handful of large cloud mining companies that can be found by searching such terms on the internet, there are several operations that offer remote mining arrangements that are not found on cloud mining marketplaces or sites.⁵⁷ Some of these lesser known remote mining arrangements raise capital through initial coin offerings. Whether sold through an ICO, website or on an online marketplace, cloud mining businesses almost always engage in general solicitation to the public at large. Investors should look beyond mere nomenclature when doing their due diligence.

II. REGULATORY AGENCY AWARENESS

Although not directly homing in on cloud mining, several U.S. federal regulatory agencies have engaged with the topic of cryptocurrency mining as early as in 2014. This section surveys some key responses from FinCEN, the IRS, and the FTC.

A. *FinCEN*

The U.S. Bank Secrecy Act of 1970, as amended, (“BSA”) was passed to detect and prevent money laundering. The BSA and its implementing regulations require MSBs to register with FinCEN by filing a Registration of Money Services Business (“RMSB”) and renewing the registration every two years.⁵⁸ Operation of an MSB

cryptocurrency or, in other words, using cloud-based PoS mining. The terms of this kind of mining also became attractive for those miners who have a small share, since when connecting small shares into the pool, the chance to mine is higher than separately and the profit is divided among all pool members in proportion to their shares.”). *See, e.g., Cloud Staking*, STEAK CLOUD, http://bit.do/SteakCloud_Cloud-staking (last visited Apr. 11, 2018) (“Now anyone can stake [proof-of-stake] coins without the need to run a wallet on a computer 24/7. Pooled minting also offers bigger [proof-of-stake] mining rewards.”); *see also About Us*, STAKEMINERS, http://bit.do/StakeMiners_About (last visited Mar. 8, 2018) (“As our staking pool is quite large, over 100 BTC worth of various Altcoins. Each week the new altcoins we receive become your earnings which are then payed [sic] out to you based on the percentage of Stakeminers you own. If you own 5% of Stakeminers, then you will receive 5% of the weeks earnings. The cycle is simple: the more coins we hold, the more coins we can stake, the more coins we stake, the more earning generated each week, and the more payout you will receive.”).

56. *See infra* note 132 (citing examples of cloud mining company fee types and structures).

57. Some of these alternative names are “colocation,” “cloud hosting,” or “hosted mining.” *See Hosted Mining Knowledge Center*, HOSTED MINING, http://bit.do/StakeMiners_howitworks (last visited Mar. 13, 2018).

58. *See* 31 U.S.C. § 5330 (2012) (“Registration of money transmitting businesses”); 31

without the appropriate registration also violates federal criminal law.⁵⁹ This requirement is separate from U.S. state licensing requirements.

Certain issuers and exchangers of cryptocurrencies have been required to register with FinCEN as MSBs. On March 18, 2013, FinCEN published guidance (the “Guidance”) announcing that it would make no distinction between transmitters of government (or “fiat”) currency (such transmitters, a type of MSB) and transmitters of Bitcoin, which it now famously referred to as a “decentralized convertible virtual currency,” rather than by name itself.⁶⁰ FinCEN’s regulations define the term “money transmitter” as a person that provides money transmission services, or any other person engaged in the transfer of funds. The term “money transmission services” means “the acceptance of currency, funds, or other value that substitutes for currency from one person *and* the transmission of currency, funds, or other value that substitutes for currency to another location or person by any means.”⁶¹

According to the Guidance, “virtual currency” is a medium of exchange that operates like a currency in some environments, but does not have all of the attributes of real currency. In particular, virtual currency does not have legal tender status in any jurisdiction. The Guidance addresses “*convertible* virtual currency.” This type of virtual currency either has an equivalent value in real currency, or acts as a substitute for real currency.⁶²

The Guidance states that *exchangers* and *administrators* of virtual currencies are money transmitters under FinCEN’s regulations, and therefore are required to register with FinCEN as an MSB, unless they fall within an exemption from the definition under the BSA.⁶³ An

C.F.R. § 1022.380 (2011) (“Registration of money services businesses”).

59. See 31 C.F.R. § 1022.210(d) (2011) (Once registered, a money services business is subject to certain provisions of the Bank Secrecy Act, e.g., an MSB is required to develop, implement, and maintain AML and KYC policies and procedures and file suspicious activity reports (“SARs”)); see also FinCEN Interpretive Release 2004-1, Anti-Money Laundering Program Requirements for Money Service Businesses With Respect to Foreign Agents or Foreign Counterparties, 69 Fed. Reg. 74,439, 74,441 (Dec. 14, 2004) (to be codified at 31 C.F.R. § 103). MSBs must also comply with the Funds Transfer Rule, 31 C.F.R. § 1010.410(e), and Funds Travel Rule, 31 C.F.R. § 1010.410(f), which require collection and recordkeeping of certain information about the transmitting party. MSBs are also subject to examination by FinCEN, the CFPB, or the IRS.

60. Fin. Crimes Enforcement Network, Dept. of the Treasury, Guidance Letter on Application of FinCEN’s Regulations to Persons Administering, Exchanging, or Using Virtual Currencies, FIN-2013-G001 (Mar. 18, 2013), http://bit.do/FinCEN_Guidanceletter [hereinafter *FIN-2013-G001 Letter*].

61. 31 C.F.R. § 1010.100(ff)(5)(i)(A)-(B).

62. *FIN-2013-G001 Letter*, *supra* note 60, at 1.

63. 31 C.F.R. § 1010.100(ff)(5)(ii).

exchanger is defined as a person or entity “engaged as a business in the exchange of virtual currency for real currency, funds, or other virtual currency.” An *administrator* of virtual currency is defined as a person or entity “engaged as a business in issuing (putting into circulation) a virtual currency, and who has the authority to redeem (to withdraw from circulation) such virtual currency.”⁶⁴

The Guidance further states that an *administrator* or *exchanger* that (1) accepts and transmits a convertible virtual currency or (2) buys or sells convertible virtual currency for any reason is a money transmitter under FinCEN’s regulations, unless a limitation to or exemption from the definition applies to the person.⁶⁵ Finally, the Guidance states “a person that creates units of convertible virtual currency and sells those units to another person for real currency or its equivalent is engaged in transmission to another location and is a money transmitter.”⁶⁶

FinCEN updated its guidance on January 30, 2014 to exclude “miners” from the registration, reporting, and recordkeeping regulations for MSBs.⁶⁷ This is the case whether the user mining and using the Bitcoin is an individual or a corporation, and whether the user is purchasing goods or services for the user’s own use, paying debts previously incurred in the ordinary course of business, or (in the case of a corporate user) making distributions to shareholders. FinCEN wrote that:

To the extent that a user mines Bitcoin and uses the Bitcoin solely for the user’s own purposes and not for the benefit of another, the user is *not* an MSB under FinCEN’s regulations, because these activities involve neither “acceptance” nor “transmission” of the convertible virtual currency and are not the transmission of funds within the meaning of the Rule.⁶⁸

A miner’s conversion of Bitcoin into a real currency or another convertible virtual currency, therefore, does not in and of itself make the miner a money transmitter so long as the miner is undertaking the transaction solely for the miner’s own purposes and not as a business service performed for the benefit of another.⁶⁹ Cloud mining companies, therefore, may be considered money transmitters required to register as MSBs because they accept and transmit cryptocurrency

64. *FIN-2013-G001 Letter*, *supra* note 60, at 2.

65. *Id.* at 3.

66. *Id.* at 5.

67. *Id.* at 3.

68. *Id.* (emphasis added).

69. *Id.*

on behalf of others and are compensated in connection with such services.⁷⁰

B. IRS

On March 25, 2014 the IRS issued Notice IR-2014-36, providing answers to frequently asked questions on cryptocurrency, such as Bitcoin.⁷¹ These FAQs provide basic information on the U.S. federal tax implications of transactions in, or transactions that use, cryptocurrency. The notice provides that cryptocurrency is treated as property (not currency) for U.S. federal tax purposes.⁷² General tax principles that apply to property transactions apply to transactions using cryptocurrency. If the fair market value of property received in exchange for cryptocurrency exceeds the taxpayer's adjusted basis of the cryptocurrency, the taxpayer has taxable gain. The taxpayer has a loss if the fair market value of the property received is less than the adjusted basis of the cryptocurrency.⁷³ In certain cases, such losses are deductible. The character of gain or loss (whether capital gains/losses or short-term gains/losses) from the sale or exchange of cryptocurrency depends on whether the cryptocurrency is a capital asset in the hands of the taxpayer.⁷⁴

The IRS also provided clarity with respect to miners. For instance, a taxpayer who mines cryptocurrency realizes gross income upon receipt of the cryptocurrency resulting from those activities.⁷⁵ The fair market value of the cryptocurrency as of the date of receipt is includible in gross income. If a taxpayer's "mining" of cryptocurrency constitutes a trade or business, and the "mining" activity is not undertaken by the taxpayer as an employee, the net earnings from self-employment (generally, gross income derived from carrying on a trade or business less allowable deductions) resulting from those activities constitute self-employment income and are subject to the self-employment tax.⁷⁶

70. See discussion *supra* Part I.C and accompanying notes.

71. I.R.S. Virtual Currency Guidance, *supra* note 2.

72. *Id.* at 938.

73. *Id.* at 939.

74. *Id.* ("A taxpayer generally realizes capital gain or loss on the sale or exchange of virtual currency that is a capital asset in the hands of the taxpayer. For example, stocks, bonds, and other investment property are generally capital assets. A taxpayer generally realizes ordinary gain or loss on the sale or exchange of virtual currency that is not a capital asset in the hands of the taxpayer. Inventory and other property held mainly for sale to customers in a trade or business are examples of property that is not a capital asset."). See I.R.S. Pub. 544, Cat. No. 15074K, for more information about capital assets and the character of gain or loss.

75. I.R.S. Virtual Currency Guidance, *supra* note 2, at 939.

76. *Id.*

C. FTC

On September 15, 2014, the FTC brought a civil action under the Federal Trade Commission Act (“FTC Act”) against Butterfly Labs, a Wyoming corporation with Kansas and Missouri offices.⁷⁷ The FTC Act prohibits “unfair or deceptive acts or practices in or affecting commerce” and authorizes the FTC to enforce those prohibitions.⁷⁸ The FTC charged Butterfly Labs with engaging in deceptive practices in violation of Section 5(a) of the FTC Act.⁷⁹ The complaint alleged that Butterfly misled consumers who prepaid for Bitcoin mining machines and cloud mining services that the company sold on the Facebook, Twitter and elsewhere on the Internet. According to the allegations, mining hardware and services that Butterfly sold from its website and through Facebook and Twitter were either not delivered as promised or, if delivered, arrived damaged or failed to produce Bitcoins profitably, as advertised.⁸⁰ Without hearing from the Butterfly, the court, on September 18, 2014, issued a temporary order freezing Butterfly’s assets, appointing a receiver, and granting the FTC immediate access to the company’s premises and records. According to the complaint, buyers of these mining machines were misled by assertions that the machines would solve the cryptographic math puzzles involved in mining Bitcoin and that buyers of the Butterfly mining machines or services would receive Bitcoin as rewards for solving these puzzles at a rate to make up for the cost of the initial outlay and, in short order, show a profit.⁸¹

In approximately December 2013, Butterfly Labs began offering cloud mining services, at an average upfront cost of approximately \$10/GH for 12 months, whereby Butterfly Labs supposedly would use and manage the mining machines purchased by customers to generate Bitcoins for such customers. Butterfly Labs stated that the service would allow consumers to “harness the power of the latest Bitcoin mining technology” without any “technical knowledge” and that Butterfly Labs “would begin generating Bitcoins for consumers who paid for these services in the ‘March 2014 time frame.’”⁸² Butterfly Labs failed to do so. As of August 2014, the defendants had not

77. Complaint for Permanent Injunction and Other Equitable Relief at 1-2, *FTC v. BF Labs, Inc.*, No. 4:14-cv-0815 (W.D. Mo. Sept. 15, 2014).

78. 15 U.S.C. § 45(a)(1)-(2) (2012).

79. *Id.* at § 45(a).

80. Complaint for Permanent Injunction and Other Equitable Relief at 3-6, *BF Labs, Inc.*, No. 4:14-cv-0815.

81. *See id.* at 6.

82. *Id.* at 9.

generated any Bitcoins for consumers who had purchased the mining services, often at a cost of thousands of dollars per consumer.⁸³

According to the FTC, consumers could not produce Bitcoins, the company was unjustly enriched, and the court's intervention was required to stop a continuing substantial injury to consumers.⁸⁴ The court found that the FTC had offered sufficient evidence for the court to conclude that Butterfly had likely violated and would continue to violate the FTC Act.⁸⁵ The court granting a temporary restraining order further concluded that consumers would likely suffer "immediate and continuing harm" unless the court stopped the Butterfly operation.⁸⁶ In February 2016, Butterfly Labs' Sonny Vleisides and Darla Drake agreed to settle with the FTC.⁸⁷ The settlement orders include partially suspended monetary judgments, the settlements also include monetary judgments that are partially suspended due to the defendants' inability to pay.⁸⁸ Against Butterfly Labs and Vleisides, the judgment is \$38,615,161, which will be suspended upon Butterfly Labs' payment of \$15,000, and Vleisides' payment of \$4,000. Against Drake, the judgment is \$135,878, which will be suspended once she surrenders the cash value of all Bitcoins she obtained using company machines.⁸⁹

III. CERTAIN SECURITIES CONSIDERATIONS

Certain cloud mining models, particularly the less transparent versions, are susceptible to being deemed investment contracts that are securities under the Securities Act.⁹⁰ Cloud mining is the new the citrus grove from the seminal *Howey* case.⁹¹ While the various circuit courts have expounded upon the standard used in *Howey* and developed their

83. *Id.*

84. *Id.* at 10.

85. Ex Parte Order at 1-2, *BF Labs Inc.*, No. 4:14-cv-00815 (W.D. Mo. filed Sept. 18, 2014).

86. *Id.* at 2.

87. Proposed Stipulated Final Order For Permanent Injunction & Monetary Judgment as to Defendants BF Labs Inc. and Sonny Yleisides, *BF Labs, Inc.*, No. 4:14-cv-00815 (W.D. Mo. Sept. 15, 2014); Proposed Stipulated Final Order for Permanent Injunction & Monetary Judgment as to Defendant Darla Drake, *BF Labs, Inc.*, No. 4:14-cv-00815.

88. Press Release, FTC, Operators of Bitcoin Mining Operation Butterfly Labs Agree to Settle FTC Charges They Deceived Consumers (Feb. 18, 2016) (on file with author).

89. *Id.*

90. *Cf.* 15 U.S.C. § 77a (1993); 15 U.S.C. § 77b(1) (1993) (Transparency in the context of cloud mining is in regard to how investor funds are used and how profits are generated and distributed.).

91. *Sec. & Exch. Comm'n v. W.J. Howey Co.*, 328 U.S. 293 (1946).

own chains of precedent,⁹² the original case itself is plainly applicable to cloud mining.

A. *The Howey Case*

In *Howey*, the Supreme Court interpreted what would constitute an “investment contract” under Section 2(a)(1) of the Securities Act.⁹³ Specifically, the Court considered “whether, under the circumstances, the land sales contract, the warranty deed and the service contract together constitute an ‘investment contract.’”⁹⁴

Each customer was offered both a land sales contract (for a uniform purchase price per acre or fraction thereof) and a service contract, after having been told that it was not feasible to invest in a grove unless service arrangements were made, and the superiority of Howey-in-the-Hills Service, Inc. was stressed for this purpose.⁹⁵ The price per contract varied in amount only in accordance with the number of years the particular plot had been planted with citrus trees.⁹⁶ At this point, the facts of the case became determinative in the securities analysis:

These land tracts are not separately fenced, and the sole indication of several ownership is found in small land marks intelligible only through a plat book record... Without the consent of the company, the landowner or purchaser has no right of entry to market the crop and thus, there is ordinarily no right to specific fruit. The company is accountable only for an allocation of the net profits based upon a check made at the time of picking.⁹⁷

The Supreme Court used a legal standard that has become known as the Howey Test.⁹⁸ Under this test, a contract constitutes an investment contract that meets the definition of security if there is (i) an investment of money; (ii) in a common enterprise; (iii) with an expectation of profits; (iv) derived solely from the efforts of others (e.g., a promoter or third party), “regardless of whether the shares in the enterprise are evidenced by formal certificates or by nominal interest in the physical assets used by the enterprise.”⁹⁹

92. See *infra* Part III.B.1 and accompanying notes 110-29.

93. *Howey*, 328 U.S. at 298; see also 15 U.S.C. § 77b(1).

94. *Howey*, 328 U.S. at 297.

95. *Id.* at 295.

96. *Id.*

97. *Id.* at 295-96.

98. *Id.* at 298-301.

99. *Id.* at 298-99, 301 (“If that test be satisfied, it is immaterial whether the enterprise is speculative or non-speculative, or whether there is a sale of property with or without intrinsic

Focusing on the remote relationship and limited role, if any, that the purchasers had in the economic arrangement, the Court concluded and held that W. J. Howey Co. and Howey-in-the-Hills Service, Inc. offered something other than a farm or orchard coupled with management services:

They are offering an opportunity to contribute money and to share in the profits of a large citrus fruit enterprise managed and partly owned by respondents. They are offering this opportunity to persons who reside in distant localities and who lack the equipment and experience requisite to the cultivation, harvesting, and marketing of the citrus products. Such persons have no desire to occupy the land, or to develop it themselves; they are attracted solely by the prospects of a return on their investment.¹⁰⁰

Furthermore, the Supreme Court emphasized the collective characteristic of the enterprise; it was only feasible/profitable to cultivate the land on a large scale rather than on a tract by tract basis.¹⁰¹ As noted above, the land tracts were narrow strips that were one tree wide:

[I]ndividual development of the plots of land that are offered and sold would seldom be economically feasible, due to their small size. Such tracts gain utility as citrus groves only when cultivated and developed as component parts of a larger area. A common enterprise managed by respondents or third parties with adequate personnel and equipment is therefore essential if the investors are to achieve their paramount aim of a return on their investments.¹⁰²

Finally, the Supreme Court concluded that the arrangements whereby the investors' interests are made manifest involve investment contracts, regardless of the legal terminology in which such contracts are clothed.¹⁰³ With respect to certain cloud mining and initial coin offerings, this statement means that the SEC and courts will find investment contracts notwithstanding the technological novelty and nomenclature—it is a substance over form, fact-specific analysis.

value.”).

100. *Id.* at 299-300.

101. *Id.* at 300.

102. *Id.*

103. *Id.*

B. Application to Cloud Mining

Cloud mining arrangements can be viewed as a high-tech version of the *Howey* case land sales contract and service contract. In addition to the economic reality, cloud mining arrangements share the same concerns that the Supreme Court homed in on—namely, economic inducements, remote position of the purchaser, insufficient demarcation of the property of and resulting payment to the purchaser, limited investor role leading to reliance on the management and control of the promoter/seller/manager, and implied economies of scale.¹⁰⁴

Those who engage in cloud mining generally are seeking the cryptocurrency and transaction fees generated therefrom. The customers contribute money and rely on the expertise of the cloud mining company to manage, operate, repair, and replace the mining equipment. Whether customers are told that they receive rights to specific hardware, energy, hashing power, or simply a *pro rata* share of the cryptocurrency and/or transaction fees generated from mining depends on the specific cloud mining service.¹⁰⁵ As discussed in Section I above, economies of scale (and thus pooling of funds and correlation of returns among the various investors) is a defining characteristic of both proof-of-work and proof-of-stake mining on their own and in a cloud mining arrangement.¹⁰⁶ For these reasons, the characteristics of cloud mining are easily transposed into the *Howey* case itself, without much need for the case law that followed over the next few decades.

Nonetheless, it is straightforward to analyze cloud mining under the *Howey* Test and the circuit court cases that expounded it. *Howey* defines an “investment contract” as:

[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 . . . regardless of whether the shares in the enterprise are evidenced by formal certificates or by nominal interest in the physical assets used by the enterprise.¹⁰⁷

Circuit courts have construed this definition as a multi prong test: (i) an investment of money; (ii) in a common enterprise; (iii) with the

104. *Id.* at 299-300.

105. See Buterin, *Proof of Stake FAQ*, *supra* note 24; LEE & CHUEN, *supra* note 52; BITCOIN MINER HOSTING SOLUTIONS, *supra* note 53 (citing specific examples of cloud mining companies).

106. See *supra* Section I. Like the citrus groves in *Howey*, it would “seldom be economically feasible” to mine cryptocurrency as an individual. *Howey*, 328 U.S. at 300.

107. *Howey*, 328 U.S. at 293.

expectation of profits; (iv) derived solely from the efforts of others (e.g., a promoter or third party).¹⁰⁸ The discussion will exclude the first element, “an investment of money,” as it is typically not a disputed element in a case and is generally understood to include any form of consideration, including cryptocurrency itself.¹⁰⁹

1. Common Enterprise

There is some disarray among the various circuit courts as to the ascertainment of whether a common enterprise exists.¹¹⁰ The circuits are split among three approaches: (i) horizontal commonality; (ii) narrow (or strict) vertical commonality and (iii) broad vertical commonality.¹¹¹ In *S.E.C. v. Edwards*, 540 U.S. 389 (2004), the Supreme Court reaffirmed the *Howey* analysis but declined to conclusively resolve the circuit split.¹¹²

Horizontal Commonality

Horizontal commonality is satisfied when there is a pooling of investor funds or assets such that the returns are correlated; the investors share in the risks and losses of the venture *pro rata*.¹¹³ The D.C., First, Second, Third, Fourth, Sixth, and Seventh Circuits use horizontal commonality.¹¹⁴ Commentators note that while the First,

108. THOMAS LEE HAZEN, *THE LAW OF SECURITIES REGULATION* 41-47 (6th ed. 2009). See cases cited *infra* notes 110-67.

109. See *Int'l Bhd. of Teamsters v. Daniel*, 439 U.S. 551, 560 n.12 (1979); *Sec. & Exch. Comm'n v. SG Ltd.*, 265 F.3d 42, 46 (1st Cir. 2001); *Hector v. Wiens*, 533 F.2d 429, 432-33 (9th Cir. 1976); *United States v. Faiella*, 39 F. Supp. 3d 544, 545 (2014) (“Bitcoin clearly qualifies as ‘money’...”); *Sec. & Exch. Comm'n v. Shavers*, Civ. No. 4:13-CV-416, 2013 WL 4028182, at *2 (2013) (stating that paying in bitcoin satisfies the “investment of money” prong of the *Howey* Test).

110. *SG Ltd.*, 265 F.3d at 49 (“Courts are in some disarray as to the legal rules associated with the ascertainment of a common enterprise Many courts require a showing of horizontal commonality Other courts have modeled the concept of a common enterprise around fact patterns in which an investor’s fortunes are tied to the promoter’s success rather than to the fortunes of his or her fellow investors. This doctrine, known as vertical commonality, has two variants[:]. . . [b]road vertical commonality . . . [and] . . . narrow vertical commonality.”) (internal citations omitted). See also FRANCIS C. AMENDOLA ET AL. 69 AM. JUR. 2D SEC. REG.—FED. § 38-41 (2018); Ryan Borneman, *Why the Common Enterprise Test Lacks a Common Definition: A Look Into the Supreme Court's Decision of SEC v. Edwards*, 5 U.C. DAVIS BUS. L.J. 16 (2005); See *infra* Gordon note 115.

111. See AMENDOLA ET AL., *supra* note 110; see also Borneman, *supra* note 110.

112. See *Sec. & Exch. Comm'n v. Edwards*, 540 U.S. 389 (2004).

113. See *Sec. & Exch. Comm'n v. Banner Fund Int'l et al.*, 211 F.3d 602, 614 (D.C. Cir. 2000); *SG Ltd.*, 265 F.3d, at 49; *Revak v. Realty Corp.*, 18 F.3d 81, 87 (2d Cir. 1994); *Salcer v. Merrill Lynch, Pierce, Fenner and Smith Inc.*, 682 F.2d 459, 460 (3d Cir. 1982); *Teague v. Bakker*, 35 F.3d 978, 986 (4th Cir. 1994); *Newmyer v. Philatelic Leasing, Ltd.*, 888 F.2d 385, 394 (6th Cir. 1989); *Wals v. Fox Hills Dev. Corp.*, 24 F.3d 1016, 1019 (7th Cir. 1994).

114. See cases cited *supra* note 113.

Fourth, and D.C. Circuits accept horizontal commonality, these courts have not ruled one way or another on vertical commonality.¹¹⁵

Proof-of-stake cloud mining, by definition, involves the pooling of investor funds or assets such that investors share in the cryptocurrency mined in accordance with the stake of cryptocurrency such investors contributed.¹¹⁶ Economies of scale is the underlying thesis that propels the use of proof-of-stake cloud mining.¹¹⁷ Like in *Howey*, wherein the citrus groves were generally not demarcated from one another and were cultivated as a whole because each strip only would “gain utility as citrus groves only when cultivated and developed as component parts of a larger area,”¹¹⁸ the cryptocurrency contributed by each investor is pooled into a single wallet node to allow for greater proof-of-stake mining capability.¹¹⁹ And just as W. J. Howey Co. was accountable only for an allocation of the net profits based upon a check made at the time of picking, cryptocurrency mined and transaction fees earned are distributed to the investors *pro rata* at specified periods.¹²⁰

Whether there is horizontal commonality present in proof-of-work cloud mining arrangements depends on the facts and circumstances. Certain proof-of-work cloud-mining arrangements clearly assign users to a piece of hardware that is used to mine on each user’s behalf, without pooling, and the user pays the mining company a fee for maintenance and operation services.¹²¹ These arrangements are more like renting or purchasing specific, individual computer hardware. Each user’s profits and losses are generally independent of other users’ and should not be seen as horizontal commonality (it is worth noting that different ASIC models and setups can generate different mining rewards than other ASIC models and setups). However, if multiple users shared one or more ASICs or if separately

115. See James D. Gordon III, *Defining a Common Enterprise in Investment Contracts*, 72 OHIO ST. L.J. 59, 66-70 (reviewing circuit court cases).

116. See, e.g., STEAKCLOUD, *supra* note 55; STAKEMINERS, *supra* note 55.

117. STAKEMINERS, *supra* note 55 (“The more coins we stake as a group the more you earn on a weekly basis. Each week we calculate what every member earned on their account, and a payment in BTC is then distributed to each participant.”).

118. *Howey*, 328 U.S. at 300.

119. As discussed in Section I.B *supra*, the larger the share of coins held by the user, the greater is their opportunity to mine.

120. *Howey*, 328 U.S. at 298-301. See LEE & CHUEN, *supra* note 52, at 60.

121. See, e.g., HASHNEST, http://bit.do/HashNet_AntminerS9 (last visited Apr. 11, 2018) (Depending on the amount of hashing power purchased by customers, customers either share the output of a specified ASIC (for smaller purchasers) or own an ASIC and may request its physical delivery or continue to have the ASIC managed by HashNest’s cloud mining service. The ownership arrangement is for customers holding enough hashing power to constitute an entire machine of the associated type (e.g., 12500 GH/s of Antminer S7), who are eligible to convert that amount of GH/s into the used unit of the associated type.).

owned ASICs are still pooled together to increase their collective hashing power and likelihood of earning the mining rewards and/or transaction fees, horizontal commonality is likely to be satisfied, because the investors' assets are pooled together and their returns directly correlated.

Other arrangements are less transparent—users are not assigned a specific piece of hardware but are simply allocated cryptocurrency at specified periods *pro rata*.¹²² There are also some arrangements where users purchase the cryptocurrency generated from either a specific unit of the ASIC's computing (hashing) power or a specific unit of energy used to power an ASIC.¹²³ Such arrangements also tend to be less transparent due to the hashing power and energy yield diminishing returns under proof-of-work protocols and different returns contingent on the specific ASIC used (cloud mining companies may use a variety of different ASIC models).¹²⁴ These realities should be properly disclosed to set investor expectations.¹²⁵ Without true adherence to the business model and proper demarcation and assignment of a specific ASIC to a specific investor, hashing power- and energy-based cloud mining arrangements are at risk of collapsing into a simple *pro rata* allocation, rather than a true tracking of hashing power- or energy-based yields. Moreover, cloud mining companies sometimes boast about high “uptimes.” Doing so may provide further evidence of pooling in less transparent cloud mining models, if the failure of one machine—even if temporary—would be compensated for with the proceeds attributable to other machines. Further customer diligence is

122. See *supra* note 54 and accompanying text (citing specific examples); see also LEE & CHUEN, *supra* note 52, at 57-61.

123. *Id.*

124. LEE & CHUEN, *supra* note 52, at 58 (“With the consistent increase in the difficulty metric, the value of the hashrate that a user buys in a contract decreases over time. In some cases, such contracts turn out to be profitable, but for the majority, it ends up as a costly lesson.”); see also HYDROMINER, *supra* note 54, at 23 (“The choice to exchange the H2Os for electricity rather than a particular hash rate was made deliberately. An exchange for hash rates seems obvious at first, however a certain hash rate today may have little value in a few months from now. Looking at the past performance of various mining operations, it turns out that due to an increase of the mining difficulty over time, locking in a hash rate in this Initial Token Offering would be an economic disadvantage for Participants. . . . The Developer will continue to replace old parts of the mining hardware with new technology.”). Hydrominer customers pay for a unit of electricity; the company claims that it will periodically update and replace the hardware used.

125. There are risks associated with the Hydrominer model. Holding a unit of energy constant while failing to update the mining hardware as technology advances will yield diminishing and possibly negative returns as the mining difficulty increases. See *Mining Hardware Comparison*, BITCOIN WIKI (last visited Mar. 1, 2018), http://bit.do/Bitcoin-Wiki_Mining-HW-Comparison; *Non-specialized Hardware Comparison*, BITCOIN WIKI (last visited Mar. 1, 2018), http://bit.do/Bitcoin-Wiki_Non-specialized-HW.

warranted with respect to this possibility in connection with the common enterprise determination.

Vertical Commonality

The two types of vertical commonality are broad vertical commonality and narrow (or strict) vertical commonality. Broad vertical commonality will be found when there is a promotor that the investor relies upon to earn a profit.¹²⁶ The existence of this vertical promotor-investor relationship will generally suffice. On the other hand, narrow vertical commonality requires that the returns of the investor and promoter be correlated: they rise and fall together because the promoter has a financial stake in the investment at issue.¹²⁷ The Fifth, Tenth, and Eleventh Circuits use broad vertical commonality.¹²⁸ The Ninth Circuit recognizes narrow vertical commonality.¹²⁹

Broad vertical commonality is likely satisfied in all cloud mining arrangements, regardless of whether proof of stake or proof of work is the underlying mining protocol, because there is an investor-promoter relationship. Users are almost exclusively reliant on the cloud mining management company to generate profits. In the case of proof-of-work mining, the cloud mining company (i.e., the promoter) sets up, controls, operates, maintains, and repairs the ASIC hardware and runs the nodes to mine.¹³⁰ In the case of proof-of-stake mining, the cloud mining company (i.e., the promoter) creates the pooled wallet, hosts it in a virtual machine and keeps the nodes running.¹³¹

Narrow vertical commonality in cloud mining depends on the business model and fee arrangements of the cloud mining management company; some only charge a flat (not a percentage) management/service fee, while other companies mine alongside their customers or receive a percentage commission of the mining rewards

126. Sec. & Exch. Comm'n v. ETS Payphones, Inc., 300 F.3d 1281, 1284 (11th Cir. 2002) ("Broad vertical commonality . . . only requires a movant to show that the investors are dependent upon the expertise or efforts of the investment promoter for their returns.").

127. Sec. & Exch. Comm'n v. SG Ltd., 265 F.3d 42, 49 (1st Cir. 2001) (requiring that the investors' fortunes be "interwoven with and dependent upon the efforts and success of those seeking the investment or of third parties.").

128. Sec. & Exch. Comm'n v. ETS Payphones, Inc., 408 F.3d 727, 732 (11th Cir. 2005); Long v. Shultz Cattle Co., 881 F.2d 129, 140-41 (5th Cir. 1989); McGill v. American Land & Exploration Co., 776 F.2d 923, 924-25 (10th Cir. 1985); Miller v. Central Chinchilla Group, Inc., 494 F.2d 414, 418 (8th Cir. 1974).

129. Sec. & Exch. Comm'n v. Eurobond Exchange, Ltd., 13 F.3d 1334, 1339 (9th Cir. 1994); *SG Ltd.*, 265 F.3d at 49.

130. See sources cited *supra* note 54. See also James E. Smith & Ravi Nair, *The Architecture of Virtual Machines*, 38 *COMPUTER* 32, 32-38 (2005), for a discussion of virtual machines.

131. See CHUEN, *supra* note 52; see also Smith & Nair, *supra* note 130.

and transaction fees earned through mining or staking.¹³² Cloud mining companies that mine alongside their customers or receive a percentage commission of the mining rewards and transaction fees earned are likely to satisfy narrow vertical commonality because the profits of the investor and the promoter (i.e., the cloud mining company) are correlated; they rise and fall together.¹³³ For the same reason, if a cloud mining company contributes its own cryptocurrency holdings to the pooled wallet in a proof-of-stake, narrow vertical commonality is almost certainly satisfied.¹³⁴

2. Expectation of Profits Solely Derived from the Efforts of Others

Although generally phrased as separate prongs, the “expectation of profits” and “derived solely from the efforts of others” (i.e., efforts of the promoter/cloud mining company) prongs tend to be analyzed together.¹³⁵ In “expectation of profits”, profit refers to the type of return

132. Management fees or maintenance costs typically include any, or all, of the following: electricity cost, cooling, maintenance work, and hosting services. *See, e.g., Fees*, STEAK CLOUD, http://bit.do/Steak-Cloud_Fees (last visited Mar. 10, 2018) (proof-of-stake cloud mining deducting a maintenance cost that is a percentage of customer staking profits); STAKEMINERS, *supra* note 55 (Proof-of-stake cloud mining with no maintenance fee charged, but there is a 2% fee charged on the total amount being withdrawn by a customer. The cloud mining company also stakes its own funds alongside customers.); *PACMIC V5 Contract*, *supra* note 54 (proof-of-work cloud mining in which customers do not pay any maintenance fees or electricity costs); ICE ROCK MINING, *supra* note 54 (proof-of-work cloud mining in which the cloud mining company charges a percentage maintenance fee while also allocating ten percent of customer profits to the cloud mining company’s management team); *Terms and Conditions*, HASHING24, http://bit.do/Hashing24_terms (last updated Apr. 2, 2018) (Proof-of-work cloud mining company service fee includes the cost of a one-time allocation of ordered hashing power, but customers will also pay a fixed daily maintenance fee per unit of hashing power purchased by the customer for the equipment maintenance and its power supply.). *See* GENESIS MINING, *supra* note 54 and *see also Pricing*, HASHFLARE, http://bit.do/HashFlare_Pricing (last visited Mar. 10, 2018), for proof-of-work cloud-mining companies charging a fixed daily maintenance fee per unit of hashing power purchased by the customer—for some cryptocurrencies, there is no fee. *Sales & Hashrate Hosting Contracts*, *supra* note 54 (proof-of-work cloud mining company charging a fixed daily maintenance fee per unit of hashing power purchased by the customer). For a proof-of-work cloud mining company charging users for electricity costs and a fixed hosting fee per ASIC, *see* BITCOIN MINER HOSTING SOLUTIONS, *supra* note 53; MINING COLOCATION, *supra* note 53 (there is no commission or profit taken from the cloud-mining management company).

133. *See* sources cited *supra* notes 129 and 132.

134. For proof-of-stake examples, *see* STEAK CLOUD, *supra* note 132; STAKEMINERS, *supra* note 55.

135. *See, e.g.,* Sec. & Exch. Comm’n v. Edwards, 540 U.S. 389 (2004); *Robinson v. Glynn*, 349 F.3d 166, 170 (4th Cir. 2003); *Warfield v. Alaniz*, 569 F.3d 1015, 1020 (9th Cir. 2009); *McGill v. American Land & Exploration Co.*, 776 F.2d 923 (10th Cir. 1985). *See also* Jonathan Rohr & Aaron Wright, *Blockchain-Based Token Sales, Initial Coin Offerings, and the Democratization of Public Capital Markets* 44 (Cardozo L. Sch. Leg. Stud. Research Paper No. 527, Mar. 24, 2018) (treating “expectation of profits” and “solely from the efforts of others” as one prong); Jeffrey Alberts & Bertrand Fry, *Is Bitcoin a Security?*, 21 B.U. J. SCI. & TECH. L. 1

or income an investor *seeks* or expects on their investment (not the profits of the cloud mining company/issuer itself) and may include, for example, dividends, other periodic payments, or the increased value of the investment, whether fixed or variable.¹³⁶ In determining investor expectations, courts consider the marketing language used by the promoter.¹³⁷ This prong is likely satisfied in many cloud mining examples, as the cloud mining companies—both on their own websites, other cryptocurrency websites, and social media—emphasize the returns on investment, and customers who participate in cloud mining are generally motivated by the expected returns of cryptocurrency and transaction fees generated from the mining activities.¹³⁸ Furthermore, just as (i) W.J. Howey Co. told customers that it was not feasible to invest in a citrus grove unless service arrangements were made, and (ii) the superiority of Howey-in-the-Hills Service, Inc. was stressed for this purpose, cloud mining companies generally discuss on their websites why cloud mining is economically and logistically superior to direct, individual mining.¹³⁹

(2015) (treating “expectation of profits” and “solely from the efforts of others” as one prong). *But see* J. Scott Colesanti, *Trotting Out the White Horse: How the S.E.C. can Handle Bitcoin’s Threat to American Investors*, 65 SYRACUSE L. REV. 1, 34-36 (2015) (treating “expectation of profits” and “solely from the efforts of others” as two separate prongs).

136. *Edwards*, 540 U.S. at 390 (“The profits this Court was speaking of in *Howey* are profits—in the sense of the income or return—that investors seek on their investment, not the profits of the scheme in which they invest, and may include, for example, dividends, other periodic payments, or the increased value of the investment. There is no reason to distinguish between promises of fixed returns and promises of variable returns for purposes of the test, so understood.”).

137. *See id.* at 390 (“[T]he investing public is attracted by representations of investment income.”); *Sec. & Exch. Comm’n v. W.J. Howey Co.*, 328 U.S. 293, 296 (1946) (“[The investors] are attracted by the expectation of substantial profits. It was represented, for example, that profits during the 1943-1944 season mounted to 20% and that even greater profits might be expected during the 1944-1945 season”); Colesanti, *supra* note 135, at 34-35 (“In short, the ‘expectation of profits’ element is often readily proven by the Promoter’s wistful statements or advertising of successful commercial activities.”).

138. *See, e.g., What Genesis Mining Offers*, GENESIS MINING, http://bit.do/Genesis-Mining_Offer (last visited Mar. 10, 2018) (“No matter which package you choose, you are renting the latest technology, which guarantees maximum performance for as long as possible.”); HASHFLARE, *supra* note 54 (“With cloud mining . . . you start making money immediately on a daily basis.”); ICE ROCK MINING, *supra* note 54 (“With Ice Rock, investors become our partners and share in the realization of profits, while assuring themselves a stable and passive income. Because of our efficiencies, we are able to operate on lower costs and thereby pass those savings on to our investors. With today’s hashrates, our ROI to investors is over 200% per year, and could increase if the price of bitcoin appreciates.”); STAKEMINERS, *supra* note 55 (promising “consistent earnings stream each week”).

139. *See, e.g., Isn’t Buying The Hardware Cheaper?*, GENESIS MINING, http://bit.do/Genesis-Mining_CS (last visited Apr. 11, 2018) (“On the first glance one might think that buying miner X is slightly cheaper than hosted mining. However, there are a number of ‘hidden’ costs related to purchasing and maintaining a miner that change the economics significantly”); HASHFLARE, *supra* note 54 (“With cloud mining you can make money and

However, the existence of an expected return or profit does not on its own mean that the cloud mining contract is an investment contract that constitutes a security. Rather, it is the passive nature of how the return is generated, as determined by the “efforts of others” analysis, that—assuming the other prongs are satisfied—establishes whether the instrument is an investment contract that would be considered a security.¹⁴⁰ With respect to cloud mining contracts, this would be the passively derived cryptocurrency generated from the mining efforts of the cloud mining service company, i.e., from the efforts of others. Courts generally hold that “solely” should *not* be literally interpreted to mean “only,” and should instead be read flexibly as “primary,” “significant,” or “substantial” efforts of others.¹⁴¹

In the case of cloud mining, the customers have virtually no control over the investment and generating returns; they rely substantially (or even solely) on the efforts of the cloud mining company.¹⁴² In the case of proof-of-stake mining, customers contribute cryptocurrency to a pooled wallet node that is set up and operated by the cloud mining company; with no effort on the part of the customer, the wallet passively generates income in the form of mining rewards of newly generated cryptocurrency/transaction fees earned.¹⁴³ In the case of proof-of-work cloud mining, the cloud mining company houses, operates and services the ASICs that solve the equations necessary to

earn cryptocurrencies without major investment or hassle from direct involvement with hardware or software because we keep everything extremely convenient so you start making money immediately on a daily basis.”); *Why use Hashing24?*, HASHING24, http://bit.do/Hashing24_why (last visited Mar. 10, 2018) (“With Hashing24, you do not need to worry about equipment, maintenance, power outages, or even bad weather. We handle everything for you so you can focus on mining. . . . We strive to provide you with the best prices for electricity and hardware maintenance. All Hashing24 clients receive rates equivalent to what the largest mining players pay for electricity and maintenance.”).

140. *Howey*, 328 U.S. at 300-01.

141. *See, e.g.*, *Sec. & Exch. Comm’n v. Merchant Capital, LLC*, 483 F.3d 747, 754-55 (11th Cir. 2007); *Robinson v. Glynn*, 349 F.3d 166, 170 (4th Cir. 2003); *Sec. & Exch. Comm’n v. SG Ltd.*, 265 F.3d 42, 55 (1st Cir. 2001); *U.S. Sec. & Exch. Comm’n v. Infinity Group Co.*, 212 F.3d 180, 187 (3d Cir. 2000); *Sec. & Exch. Comm’n v. Life Partners, Inc.*, 87 F.3d 536, 545 (D.C. Cir. 1996); *Hocking v. Dubois*, 885 F.2d 1449, 1460-62 (9th Cir. 1989); *Sec. & Exch. Comm’n v. Koscot Interplanetary, Inc.*, 497 F.2d 473, 480-81 (5th Cir. 1974); *Miller v. Central Chinchilla Group, Inc.*, 494 F.2d 414, 417-18 (8th Cir. 1974); *Sec. & Exch. Comm’n v. Glenn W. Turner Enters.*, 474 F.2d 476, 482-83 (9th Cir. 1973); *Lino v. City Investing Co.*, 487 F.2d 689, 692 (3d Cir. 1973). *See also* ARNOLD S. JACOBS, *DISCLOSURE & REMEDIES UNDER THE SECURITIES LAWS* § 9:69 (vol. 5B, 2017) (citing various cases and discussing standards applied by lower courts in the “efforts of others” prong); *but see Hirsch v. duPont*, 396 F. Supp. 1214, 1218-20 (S.D.N.Y. 1975), *aff’d*, 553 F.2d 750 (2d Cir. 1977) (suggesting that solely should be interpreted literally as only).

142. *See supra* note 139 and accompanying text (various cloud mining companies effectively handling the entire operation, with the customer as a purely passive participant).

143. *Proof of Stake FAQ*, *supra* note 24.

mine and generate cryptocurrency profits.¹⁴⁴ Thus, the “efforts of others” prong is easily satisfied in the typical cloud mining fact pattern under both proof of stake and proof of work.¹⁴⁵

In summary, the determination of whether or not a cloud mining contract will be considered an investment contract security should depend on the interplay of three main criteria: (i) whether the cloud mining company engages in proof-of-work mining; (ii) whether one is in a jurisdiction that requires the horizontal commonality test; and (iii) if so, whether the cloud mining customer is assigned exclusive rights to specific ASIC machinery; the customer does not share or pool such ASIC or its rewards and transaction fees with other investors. For example, if (i)-(iii) are true, then the cloud mining arrangement may not be treated as a security, because investor funds or assets are not pooled, and their profits are not correlated with one another since each ASIC can be viewed as a separate vehicle that may or may not succeed in finding the next block to receive the associated cryptocurrency reward and/or transaction fees. However, proof-of-work cloud-mining contracts that pool ASICs, even if separately owned, are likely to be considered securities. Regulators should consider whether optional pooling and the ability of the customer to choose which specific pool to point their ASIC to would provide enough randomization and control such that horizontal commonality would not be satisfied due to a reduced level of correlation among customer fortunes, because each pool is technically competing with all other pools.

In addition, a proof-of-stake cloud-mining company that only receives a fixed (as opposed to a percentage) management or service fee that is not tied to the profits of the customer should not be considered a security in jurisdictions that require *strict vertical* commonality, because the fortunes of the investor and the promoter are not tied together. In contrast, proof-of-stake mining almost always will be considered a security, clearly satisfying all prongs of the Howey Test, in all jurisdictions that follow the *broad* vertical commonality standard for the “common enterprise” prong of the Howey Test, because those jurisdictions merely look for an investor-promoter relationship and some level of dependence; this fact is evident in all specific proof-of-stake cloud mining arrangements surveyed, as well as

144. See discussion *supra* Part I.B; see also sources cited *supra* note 24.

145. However, there is one wrinkle for regulators to consider: are situations in which the customer retains the ability to control (usually through a VPN) the ASIC hardware enough to negate the “efforts of others prong.” This possibility is unlikely, as discussed above, the substantial role of the promoter is generally sufficient and nominal rights, particularly if never exercised, are unlikely to change the outcome of the analysis. See sources cited *supra* note 141.

in the general concept of proof-of-stake cloud mining.¹⁴⁶ And irrespective of whether a proof-of-work or proof-of-stake algorithm is used, if a cloud mining company mines or stakes alongside its customers in a mining pool, the arrangement is likely to be considered an investment contract that would be a security in jurisdictions that use the narrow vertical commonality standard.

In short and as discussed above, the “expectation of profits” and “derived solely from the efforts of others” prongs are likely satisfied in most cases, thus the prong on which the analysis turns is likely the “common enterprise.”

C. Recent SEC Enforcement Action

To date, there has only been one enforcement action relating to cloud mining. On June 2, 2017, the U.S. District Court for the District of Connecticut entered a final default judgment in a case brought by the SEC against two Connecticut-based companies, GAW Miners, LLC (“GAW Miners”) and ZenMiner, LLC (d/b/a ZenCloud) (“ZenMiner”), along with their principal, Homero Joshua Garza (“Garza” and together with GAW Miners and ZenMiner, the “Defendants”), alleging that GAW Miners and ZenMiner purported to offer securities to investors in their cryptocurrency mining operation.¹⁴⁷

Beginning in 2014, the Defendants sold shares in the returns from their (supposed) mining operations, via investment contracts that they named “Hashlets.”¹⁴⁸ Hashlet contracts were “a divisible and assignable allocation of hashing power from GAW-owned and hosted mining hardware,” entitling their purchasers to a share of the profits from Defendants’ purported “hashing power,” or the computing power (measured in megahash per second), that GAW Miners and/or ZenMiner would supposedly earn by mining blockchain cryptocurrencies using the computers that were maintained in their data centers.¹⁴⁹ Hashlets were purported to earn a return based on the number of cryptocurrency units generated when the pools to which their computing power was directed succeeded in processing and confirming cryptocurrency transactions.¹⁵⁰ Unlike Cloud Hosted Mining customers, an older business model employed by GAW

146. See sources cited *supra* notes 5, 52, and 55.

147. Homero Joshua Garza, GAW Miners, LLC, & ZenMiner, LLC, Litigation Release No. 23885, No. 3:15-cv-01760 (D. Conn. Dec. 1, 2015).

148. Complaint at 2, Sec. & Exch. Comm’n v. Homero Joshua Garza, No. 3:15-cv-01760 (D. Conn. Dec. 1, 2015).

149. A “unit” of a Hashlet was a measurement of its hashing power, or the number of calculations it could perform per second.

150. *Id.*

Miners, Hashlet customers were not buying computer hardware.¹⁵¹ Hashlet customers had no right to receive any piece of computer hardware at the expiration of their Hashlet contract.¹⁵² Instead, Hashlet customers were buying the rights to profit from a portion of the computing power owned by GAW Miners and/or ZenMiner.¹⁵³

The district court and the SEC noted that the arrangement was essentially a Ponzi scheme.¹⁵⁴ GAW Miners and ZenMiner sold far more Hashlets worth of computing power than they actually had in their computing centers.¹⁵⁵ There was no computer equipment to back up the vast majority of Hashlets that the Defendants sold. Because the Defendants sold far more computing power than they owned and dedicated to cryptocurrency mining, they owed investors a daily return that was larger than any actual return they were making on their limited mining operations.¹⁵⁶ Investors were simply paid back gradually over time, as “returns,” the money that they, and others, had invested.¹⁵⁷ As a result, some investors’ funds were used to make payments to other investors, which investors later began to notice as they were not receiving payouts at expected intervals.¹⁵⁸ Several investors experienced in blockchain technology and cryptocurrency mining began to suspect fraud.¹⁵⁹ By November 2014, Hashlets became unprofitable.¹⁶⁰ That is, the Hashlets’ daily maintenance fees exceeded their purported mining payouts.¹⁶¹ By January 2015, Hashlets were obsolete.¹⁶² GAW Miners announced the termination of its purported Hashlet mining operations at the end of January 2015, stating that

151. *Id.* at 9-10. In the early stages of the business, customers were entitled to request that the computer equipment they had purportedly purchased be sent to them. However, even this arrangement was fraudulent since the company did not purchase enough mining equipment to fulfill all customer delivery requests. As the SEC noted, “Most customers paid for a phantom piece of equipment that neither GAW Miners nor ZenMiner owned. Neither GAW Miners nor ZenMiner was directing customers’ computing power to any pools at all, much less the ones customers believed they were choosing.” *Id.* at 10.

152. *Id.* at 11.

153. *Id.*

154. *Id.* at 17.

155. *Id.* at 3.

156. *Id.*

157. *Id.*

158. *Id.* at 3 (also based on private discussions with individuals that invested). BITCOINTALK, <http://bit.do/BitcoinTalk> (last visited Mar. 10, 2018) (discussion on Bitcoin community forum in November 2014 amongst early investors suspecting fraud).

159. The blockchain cryptocurrency expertise of the person commenting is signaled by the rating such person has in the forum. Members are given a merit score as well. See BITCOINTALK, <http://bit.do/BitcoinTalk1> (last visited Mar. 10, 2018).

160. Complaint at 16, *Homero Joshua Garza*, No. 3:15-cv-01760.

161. *Id.*

162. *Id.*

“GAW and ZenCloud mining operations have been indefinitely put on hold, effective immediately.”¹⁶³

In addition to the fraudulent nature of the business operations, there were also violations with respect to the marketing of the investment contracts:

- Defendants misleadingly claimed that Hashlets would always be profitable and never obsolete, when they had no reasonable basis to support those claims.¹⁶⁴
- Defendants misleadingly claimed that Hashlets were engaged in mining for virtual currency through pools available in ZenCloud, when they knew that few Hashlets were supported by actual mining activity.¹⁶⁵
- Defendants misleadingly claimed that ZenPool engaged in mining, when they knew that it never did.¹⁶⁶
- Defendants claimed to assign investor funds to specific mining pools selected by the investors. This representation was false. ZenCloud confirmed that GAW Miners did not establish accounts with those pools and did not direct any of its computing power towards those pools.¹⁶⁷

The District Court for the District of Connecticut found that Hashlets constitute investment contracts and were thus considered “securities” under Section 2(a)(1) of the Securities Act.¹⁶⁸ No registration statement was filed with respect to the Hashlets sold by the Defendants, and no exemption from registration was available for these securities.¹⁶⁹ As a result, the Defendants had violated Section 5 of the Securities Act.¹⁷⁰

The final judgment against GAW Miners and ZenMiner permanently enjoined each of them from violating Sections 5 and 17(a) of the Securities Act and Section 10(b) of the Securities Exchange Act

163. *Id.*

164. *Id.* at 15 (Garza also claimed on numerous occasions, including in a Hashtalk.org post in August 2014, words to the effect that “there will never be a time a Hashlet cost[s] more to run than you make, and they will always make money.”).

165. *Id.*

166. *Id.*

167. *Id.* at 17-18.

168. Securities Act of 1933 § 2(a)(1), 15 U.S.C. § 77b(1) (2015); *Litigation Release No. 23852*.

169. *Litigation Release No. 23852*.

170. Securities Act of 1933 § 5, 15 U.S.C. §§ 77e(a), (c) (2015); *Litigation Release No. 23852*.

of 1934 and Rule 10b-5 thereunder.¹⁷¹ In addition, each were ordered to pay, jointly and severally, \$10,384,099 in disgorgement and prejudgment interest.¹⁷² The final judgment also required each entity to pay a civil penalty of \$1,000,000.¹⁷³ Both GAW Miners and ZenMiner have ceased their former business operations.¹⁷⁴

D. Cloud Mining Company Conducts a Private Placement

On February 25, 2016, one cloud mining company, Genesis Mining, filed a Form D in connection with the offering of interests in a private fund dedicated to cloud mining cryptocurrency.¹⁷⁵ A pooled investment fund model is worth consideration for cloud mining companies, particularly those that are already pooling investor assets in any of the variety of ways discussed in Part III.B. Genesis Mining's offering of fund interests in this case was conducted pursuant to Rule 506(c) of the Securities Act.¹⁷⁶ Rule 506(c) allows for "general solicitation" if the issuer takes reasonable steps to verify that the purchasers are accredited investors.¹⁷⁷ This means that public offerings on the internet, social media, and elsewhere in the public domain can continue to be made to non-accredited investors, but only accredited investors may purchase such securities.¹⁷⁸

The SEC published additional guidance explaining Rule 506(c),¹⁷⁹ characterizing Rule 506(c) as setting forth a flexible, principles-based method of verification which requires an objective determination by the issuer (or those acting on its behalf) as to whether the steps taken are "reasonable" in the context of the particular facts and circumstances of each purchaser and transaction.¹⁸⁰ Among the

171. Securities Act of 1933 § 5, 15 U.S.C. § 77e(a), (c); Securities Act of 1933 § 17(a), 15 U.S.C. § 77q(a); Securities Exchange Act of 1934 § 10(b), 15 U.S.C. § 78j(b) (2012); 17 C.F.R. § 240.10b-5; *Litigation Release No. 23852*.

172. *Litigation Release No. 23852*.

173. *Id.*

174. *Id.*

175. United States Securities & Exchange Commission, Form D – Notice of Exempt Offering of Securities, filed by Genesis Mining (Feb. 25, 2016), http://bit.do/SEC_FormD; see also Kyle Torpey, *Genesis Mining Files With SEC for Bitcoin Mining Fund*, BITCOIN MAG. (Mar. 8, 2016, 9:17 AM), http://bit.do/Torpey_Genesis-Mining-Files.

176. 17 C.F.R. § 230.506 (2013).

177. *Id.*

178. *Id.*

179. U.S. SEC. & EXCH. COMM'N, ELIMINATING THE PROHIBITION AGAINST GENERAL SOLICITATION AND GENERAL ADVERTISING IN RULE 506 AND RULE 144A OFFERINGS: A SMALL ENTITY COMPLIANCE GUIDE (last updated Sept 20, 2013), http://bit.do/SEC_Eliminating-the-Prohibition.

180. *Id.*

factors that an issuer should consider under this principles-based method are:

- the nature of the purchaser and the type of accredited investor that the purchaser claims to be;¹⁸¹
- the amount and type of information that the issuer has about the purchaser;¹⁸² and
- the nature of the offering, such as the manner in which the purchaser was solicited to participate in the offering, and the terms of the offering, such as a minimum investment amount.¹⁸³

Rule 506(c) also includes a non-exclusive list of verification methods that issuers may use, but are not required to use, when seeking greater certainty that they satisfy the verification requirement with respect to natural person purchasers. This non-exclusive list of verification methods consists of:

- verification based on income, by reviewing copies of any Internal Revenue Service form that reports income, such as Form W-2, Form 1099, Schedule K-1 of Form 1065, and a filed Form 1040;¹⁸⁴
- verification on net worth, by reviewing specific types of documentation dated within the prior three months, such as bank statements, brokerage statements, certificates of deposit, tax assessments and a credit report from at least one of the nationwide consumer reporting agencies, and obtaining a written representation from the investor;¹⁸⁵
- a written confirmation from a registered broker-dealer, an SEC-registered investment adviser, a licensed attorney or a certified public accountant stating that such person or entity has taken reasonable steps to verify that the purchaser is an accredited investor within the last three months and has determined that such purchaser is an accredited investor; and
- a method for verifying the accredited investor status of persons who had invested in the issuer's Rule 506(b) offering as an accredited investor before September 23, 2013 and remain investors of the issuer.¹⁸⁶

181. 17 C.F.R. § 230.506.

182. *Id.*

183. *Id.*

184. *Id.*

185. *Id.*

186. *Id.*

In addition to conducting a private placement, a cloud mining company or fund seeking to comply with U.S. federal securities laws must consider the investor limits to avoid public filing requirements under Section 12(g) of the Exchange Act: (i) Any U.S. issuer (i.e., a cloud mining fund) that has more than \$10 million in total assets and a class of equity securities, like common stock, that is held of record by either (1) 2,000 or more persons or (2) 500 or more persons who are not accredited investors; or (ii) any non-U.S. issuer (non-U.S. cloud mining fund) that has over \$10 million in total assets and a class of equity securities, like common stock, that is held of record by either (1) 2,000 or greater worldwide or (2) 500 persons who are not accredited investors or greater worldwide; and the number of its U.S. resident holders is 300 or greater, must comply with public disclosure, reporting, and other obligations as a public company under the Exchange Act.¹⁸⁷ The requirements include an obligation to file periodic reports on Form 10-K and Form 10-Q and current reports on Form 8-K.¹⁸⁸

In addition, although beyond the scope of this Article, private funds that invest in securities rely on exemptions from registration as an “investment company” under Section 3(c)(1) or Section 3(c)(7) of the Investment Company Act of 1940 (“Investment Company Act”).¹⁸⁹ This issue is particularly relevant if a cloud mining fund were to invest in securities, such as mining of blockchain tokens that are securities or purchasing interests in other cloud mining companies. As amended, the Investment Company Act defines an “investment company” as an issuer that “holds itself out as being engaged primarily or proposes to engage primarily, in the business of investing, reinvesting or trading in securities.” Entities generally seek an exemption from registration as an investment company under the Investment Company Act to avoid registration requirements, such as ongoing disclosure, disinterested directors, minimum capital requirements, and prohibitions on affiliated transactions and trading activities, such as short sales and derivatives

187. Securities Exchange Act of 1934 § 12(g); 17 C.F.R. § 240.12g-1 (2016); 17 C.F.R. § 240.12g3-2 (2008); 15 U.S.C. § 78l(g)(1) (2016). This brief summary of the Exchange Act reporting considerations is purposefully abbreviated and omits a large number of rules and exceptions because a full analysis of the Exchange Act is beyond the scope of this article. For a more fulsome discussion with respect to non-U.S. funds, see U.S. SEC. & EXCH. COMM’N, ACCESSING THE U.S. CAPITAL MARKETS – A BRIEF OVERVIEW FOR FOREIGN PRIVATE ISSUERS (last modified Dec. 4, 2017), http://bit.do/SEC_Foreign-private-issuers. With respect to U.S. funds, see U.S. SEC. & EXCH. COMM’N, EXCHANGE ACT REPORTING AND REGISTRATION (last modified Nov. 29, 2017), http://bit.do/SEC_Exchange-act-reporting.

188. 15 U.S.C. § 781 (2016).

189. Investment Company Act of 1940 §§ 3(c)(1), 3(c)(7), 15 U.S.C. § 80a-3 (2010).

trading.¹⁹⁰ In order to be exempt from registering as an investment company under these exemptions, the fund must: (1) not make, or propose to make, a public offering of its securities; and (2) either (a) limit the fund to no more than 100 investors (the 3(c)(1) exemption), or (b) limit the fund to “qualified purchasers” (the 3(c)(7) exemption).¹⁹¹

A person or entity that manages a private fund may have to register as an investment adviser under the Investment Advisers Act of 1940 (“Advisers Act”). The Advisers Act defines an “investment adviser” as any person who, for compensation, engages in the business of advising others as to the value of securities or as to the advisability of investing in, purchasing, or selling securities or who, for compensation and as part of a regular business, issues or promulgates analyses or reports concerning securities.¹⁹² Most private equity, hedge, and real estate fund persons or entities advising private funds (i.e., funds relying on exemptions from registration as an “investment company” under Section 3(c)(1) or Section 3(c)(7) of the Investment Company Act) with assets under management of \$150 million or more “in the U.S.” must register as an investment adviser with the SEC.¹⁹³

190. U.S. Securities Laws Overview: Making Sense of “Accredited Investors,” “Qualified Purchasers,” and “Qualified Clients”, MORGAN, LEWIS & BLOCKIUS LLP (2015), http://bit.do/ML_Securities-law-overview.

191. U.S. SEC. & EXCH. COMM’N, INVESTMENT COMPANY REGISTRATION AND REGULATION PACKAGE (last modified Feb. 19, 2013), http://bit.do/SEC_Investment-co-registration. The term “public offering,” as used in Section 3(c)(1) and Section 3(c)(7) of the Investment Company Act, has the same meaning that it has in Section 4(2) of the Securities Act. For a discussion of the private offering exemption, see U.S. SEC. & EXCH. COMM’N, FINAL RULE: NONPUBLIC OFFERING EXEMPTION, Release No. 33-4552 (Nov. 6, 1962), http://bit.do/SEC_Final-Rule-Non-public-offering. See also U.S. SEC. & EXCH. COMM’N, SEC INTERPRETATION: USE OF ELECTRONIC MEDIA, Release No. 33-7856 (Apr. 28, 2000), http://bit.do/SEC_Interpretation-Use-of-Electronic; U.S. SEC. & EXCH. COMM’N, INTERPRETATION: RE: USE OF INTERNET WEB SITES TO OFFER SECURITIES, SOLICIT SECURITIES TRANSACTIONS, OR ADVERTISE INVESTMENT SERVICES OFFSHORE, Release No. 33-7516 (Mar. 23, 1998), http://bit.do/SEC_Interpretation-Use-of-Internet-Web-Sites.

192. Investment Advisers Act of 1940 § 202(a)(11), 15 U.S.C. § 80b-2(a)(11). See U.S. SEC. & EXCH. COMM’N, REGULATION OF INVESTMENT ADVISERS (Mar. 2013), http://bit.do/SEC_Regulation-of-Investment-Advisers, for a deeper discussion of what constitutes “investment advice.”

193. A lower \$100 million assets under management threshold applies if the person or entity advises other products such as managed accounts or employee securities companies. Managers with assets under management less than the \$100 million or \$150 million threshold, as applicable (or, for managers having their principal office and place of business in the state of New York, less than \$25 million) are subject to state regulation. Section 203A(a)(1) of the Investment Advisers Act of 1940 prohibits any adviser from registering with the SEC that is regulated or is required to be regulated in the state in which it maintains its principal office and place of business, § 203A(a)(1), 15 U.S.C. § 80b-3 (2015). The SEC interprets this provision to mean that the prohibition applies only to an adviser that maintains its principal office and place of business in a state that has enacted an investment adviser statute. U.S. SEC. & EXCH. COMM’N, RULES

This Advisers Act registration concern could be relevant if a cloud mining fund were to invest in securities, such as mining of blockchain tokens that are securities or purchasing interests in other cloud mining companies.

CONCLUSION

Notwithstanding the nascent technology, cloud mining can be analyzed using the longstanding securities law frameworks.

When a customer is assigned specific, exclusive rights to the cryptocurrency rewards generated from a specific ASIC, proof-of-work cloud-mining contracts should not be treated as a security in jurisdictions that require horizontal commonality. This type of cloud mining can be accomplished whether the customer owns the ASIC or rents such hardware. Customers sharing an ASIC or pooling separately owned ASICs would satisfy horizontal commonality and likely render each contract an investment contract security. In addition, a proof-of-stake cloud-mining contract in which the company only receives a fixed management or service fee that is not tied to the profits of the customer should not be considered a security in jurisdictions that requires strict vertical commonality. In contrast, proof-of-stake cloud mining arrangements will almost always be considered a security, clearly satisfying all prongs of the Howey Test in jurisdictions that follow the broad vertical commonality. Cloud mining companies should also consider whether their mining or staking activities that occur alongside or with their customers might deem their cloud mining arrangements as securities.

Proof-of-work cloud-mining companies should avoid less transparent models, such as contracts for energy or hash power rights that do not specify the ASIC model used, because energy and hash power yield different returns over time and depending on the specific model of ASIC.¹⁹⁴ If two different investors pay the same for a unit of energy or hash power, but each investor is assigned a different ASIC model, different yields will result.¹⁹⁵ A specific ASIC would have to be assigned and disclosed to the investor to accurately communicate their expected returns. Alternatively, the investors should pay a different amount for an equivalent unit of energy or hash power, depending on the model used.

IMPLEMENTING AMENDMENTS TO THE INVESTMENT ADVISERS ACT OF 1940, Release No. IA-1633 (May 15, 1997), http://bit.do/SEC_IA-1633.

194. See sources cited *supra* note 125.

195. *Id.*

Cloud mining companies should disclose that mining tends to yield diminishing returns over time unless technological adjustments are made. Thus, even if a cloud mining company assigns a specific ASIC to a specific user, the company must disclose that returns are expected to diminish over time and that the ASIC may become obsolete due to technological advancements and increasing mining difficulty. A cloud mining company must also disclose to investors whether the company reserves the right to deviate from the desired mining arrangement and setup selected by the investor.

Cloud mining companies should consider this analysis when determining in which U.S. states they will be offering their services, and whether to register their investment contracts as securities with the SEC or offer such investment contracts pursuant to private placement exemptions from registration. A private fund structure may be worth exploring.

The implications of whether a cloud mining arrangement is a security are far-reaching. Issuers and other participants involved in the sale of unregistered securities or that engage in fraud in violation of the Securities Act may be subject to liabilities and other investor remedies under state and federal securities laws, including private rights of action and rescission.¹⁹⁶

In the federal context, rescission offers have been made with consideration of the Securities Act, Section 12 right of rescission of a buyer in a fraudulent transaction (e.g., seller making a materially misleading statement in the offering materials, including on a webpage) and/or one involving a technical violation (e.g., seller offering unregistered securities outside of a private placement or other exemption from registration). Importantly, regardless of whether a rescission offer is made, rescission cannot be used to eliminate all liability. The federal securities laws expressly prohibit “any condition, stipulation, or provision binding any person . . . to waive compliance” with securities laws, including any rules of self-regulatory organizations.¹⁹⁷ Thus, cloud mining companies cannot prospectively

196. Most states have statutes that provide a detailed rescission offer process to cure securities laws violations (also known as “blue sky” laws), and generally, offerees who reject a rescission offer lose the right of action to a refund. *See* UNIFORM SECURITIES ACT OF 1956 § 410(e); *see also* Michelle Rowe, *Rescission Offers Under Federal and State Securities Law*, 12 J. CORP. L. 383 (1987); STUART R. COHN, *SECURITIES COUNSELING FOR SMALL AND EMERGING COMPANIES* § 18:2 (2016-17 ed.). Moreover, the anti-fraud provisions of the Exchange Act can impose liability with respect to any purchase or sale of a security—registered or not. 15 U.S.C. § 78j(b); 17 C.F.R. § 240.10b-5.

197. 15 U.S.C. § 77n; 15 U.S.C. § 78cc(a). For more on this topic, see Darren J. Sandler, *Rescission In The Age Of Cryptocurrency*, LAW360 (Sept. 25, 2017, 10:48 AM), http://bit.do/Sandler_Rescission-Age-Cryptocurrency.

contract out of compliance with securities laws in their contracts with customers.

The remedy of rescission is further complicated by the fact that cloud mining offerings generally accept only other cryptocurrencies as consideration—typically, Bitcoin, Bitcoin Cash, Ethereum, Litecoin, and other cryptocurrencies. This wrinkle presents a unique question complicated by the volatility of Bitcoin: must the issuer return the number of Bitcoins received at the time of purchase or the dollar/Bitcoin exchange rate at the time of purchase? Ultimately, this may be an issue to be decided by regulators or the courts.¹⁹⁸

198. Sandler, *supra* note 197.