

## Blockchain Law

# What's at stake in 'Proof of stake'?

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**Ethereum's effectuation of the "Merge" was a technological tour-de-force with significant environmental upsides in reducing energy consumption and perhaps facilitating continued future innovation in the blockchain space. But unsettled fundamental legal questions remain.**

The Ethereum blockchain in mid-September 2022 completed what was popularly dubbed the "Merge," in which the blockchain was converted from operating on a "proof of work" model to a "proof of stake" model. While there were notable technological, operational and environmental considerations associated with this transition, it also may have important legal implications as well. Questions have been raised about whether this transition to a "proof of stake" structure could affect whether tokens will be regarded as "securities" under the federal securities laws, and what the proper tax treatment should be for persons who earn tokens through "staking" rather than as "proof of work" miners.

### 'Proof of stake' vs. 'Proof of work'

The background underlying the "Merge" is that currently there are "two major types of models for blockchains—proof of work and proof of stake." Vicky Ge Huang and Caitlin Ostroff, "[What Is the Ethereum 'Merge'?](#)" Wall St. J. (Sept. 15, 2022). Each represents a different approach to "how cryptocurrency transactions are verified" in a crypto world that seeks to

eliminate the "financial gatekeepers" like banks which "verif[y] that one entity has enough money to make a payment to another." David Yaffe-Bellany, "[Crypto's Long-Awaited 'Merge' Reaches the Finish Line](#)," N.Y. Times (Sept. 15, 2022).

"In proof of work, a decentralized network of computers processes transactions and adds them to the blockchain by generating random numbers in hopes of finding the right combination to unlock formulas. The miners receive newly minted coins as rewards." Huang and Ostroff, *supra*; see generally R. Schwinger, "[No Longer Underground: Emerging Issues for Miners](#)," N.Y.L.J. (Jan. 24, 2022).

Bitcoin operates under a "proof of work" model. Until recently, the Ethereum blockchain did so as well.

On Sept. 15, 2022, in an exceedingly complex process that was years in the planning, Ethereum transitioned to operating on a "proof of stake" model. Under this model, "validators put their crypto holdings on the line to verify transactions. The 'staked' ether tokens act as collateral that can be destroyed or confiscated if the validators behave dishonestly." Huang and Ostroff, *supra*.

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“Unlike proof of work, the new framework does not involve an energy-guzzling computational race. Instead, participants deposit (or ‘stake’) a certain amount of their crypto savings in a pool, which enters them in a lottery. Every time a crypto transaction requires approval, a winner is selected to verify the exchange and receive a reward.” Yaffe-Bellany, *supra*.

Ethereum effectuated this change by merging the original “proof of work” Ethereum blockchain with a separate “proof of stake” blockchain it had created called the Beacon Chain. Sam Kessler, [“The Ethereum Merge Is Done, Opening a New Era for the Second-Biggest Blockchain,”](#) CoinDesk (Sept. 15, 2022).

Following the “Merge,” Ethereum is expected to use “99.9% or so less energy”—equivalent to as if Finland “suddenly shut off its power grid.” *Id.* The change also is expected to “make it easier to design future updates that minimize so-called gas fees—the costs of executing a transaction in Ether,” Yaffe-Bellany, *supra*, although others question how significant the effect is likely to be, particularly in the short term. See Sam Kessler, [“Ethereum Merge Explained: What Investors Should Know About the Shift to Proof-of-Stake,”](#) CoinDesk (Sept. 19, 2022).

This being said, some argue that the “proof of stake” model “carries its own centralization and security risks, making it possible for malicious actors to directly ‘buy’ control of the network” and that “proof of stake” systems are “less battle-tested” than the “proof of work” systems that have “proven resilient as the backbone of the two largest blockchain networks.” *Id.*; see also Sean Stein Smith, [“Proof Of Stake Is On The Rise – What Should Investors Know?”](#) Forbes Digital Assets (Oct. 4, 2022) (“there is a risk that PoS protocols could result in a more centralized landscape[.] ... Limited dispersion of power raises the possibility that a handful of actors could censor transactions, crowd out the power of newcomers or make the network less secure, damaging investor confidence”).

## Does it matter legally which model is used?

“Ethereum is arguably the most crucial platform in the crypto industry, a layer of software infrastructure that forms the basis of thousands of applications handling more than \$50 billion in customer funds.” Yaffe-Bellany, *supra*. But whatever the financial, technological or environmental implications of the “Merge,” does it really matter from any legal standpoint that Ethereum is now a “proof of stake” blockchain, whereas Bitcoin remains a “proof of work” blockchain? Possibly so. Two areas have been identified where Ethereum’s transition to the “proof of stake” model may have significant legal implications, although both of these issues remain hotly debated.

## Applicability of federal securities law

For years, the blockchain and cryptocurrency worlds have been convulsed by the recurrent issue of whether some, many, most or all cryptocurrencies and other blockchain tokens fit within the definition of “securities” under U.S. federal securities laws. Part of this has been policy arguments about which outcome would be better from standpoints such as encouraging innovation, avoiding offshoring of financial activity and protecting investors from fraud and bad actors. But there also has been a technical legal focus to this debate under the federal securities laws.

The securities law question that continues to be debated is whether the issuance of tokens or the tokens themselves can be deemed to constitute an “investment contract” under the Supreme Court’s test for identifying a “security” in *SEC v. W.J. Howey Co.*, 328 U.S. 293 (1946), and its progeny. See, e.g., R. Schwinger, [“A ‘Telegram’ to SAFTs: ‘Beware!’](#) *N.Y.L.J.* (May 22, 2020); R. Schwinger, [“Changing Securities Laws and Regulations for the Digital Token Age,”](#) *N.Y.L.J.* (March 18, 2019); R. Schwinger, [“SEC Takes Aim at Digital Tokens and Smart Contracts,”](#) *N.Y.L.J.* (Jan. 22, 2019). Under the Supreme Court’s *Howey* test, an “investment contract” is considered a “security” if it involves (1) an investment of money; (2) in a common enterprise; (3) with the expectation of profit; (4) solely from the efforts of another.

No sooner had Ethereum completed the “Merge” than SEC chairman Gary Gensler made remarks to reporters asserting that using a “proof of stake” model in a blockchain supported a finding under the *Howey* analysis that the blockchain’s tokens should be regarded as being securities. He stated to reporters: “From the coin’s perspective ... that’s another indicia that under the *Howey* test, the investing public is anticipating profits based on the efforts of others.” [Paul Kiernan and Vicky Ge Huang, “Ether’s New ‘Staking’ Model Could Draw SEC Attention,”](#) Wall St. J. (Sept. 15, 2022). Despite the timing of his remarks, Chairman Gensler cautioned that he was not referring to any specific cryptocurrency, Ethereum or otherwise. See *id.*

Chairman Gensler also stated that if an intermediary such as a crypto exchange were to offer staking services to its customers, that “looks very similar—with some changes of labeling—to lending.” *Id.* His reference to “lending” appeared to hearken to the SEC’s position that firms offering crypto-lending products need to register with the SEC, which this past February culminated in an SEC enforcement action proceeding against BlockFi Lending LLC that was resolved with a \$100 million settlement. See SEC Press Rel. 2022-26, [“BlockFi Agrees To Pay \\$100 Million in Penalties and Pursue Registration of its Crypto Lending Product”](#) (Feb. 14, 2022); see also R. Schwinger, [“The Regulators Rear Their Heads,”](#) N.Y.L.J. (Sept. 27, 2021) (discussing state-level securities enforcement activity directed against BlockFi based on its lending activity).

While many in the industry quickly rose to dispute Chairman Gensler’s suggestions, there have been others who have taken the position that a blockchain based on staking is more likely to meet the *Howey* test criteria than one based on “proof of work” mining. For example, in July 2022, while Ethereum was working toward the Merge, Georgetown Law School Professor Adam Levitin argued in an [extended series of tweets](#) (from a now-deleted but still archived Twitter account) that “after the Merge, there’s will be a strong case that Ether will be a security” because “[t]he token in any proof of stake system is likely to be a security.” Adam Levitin, Twitter, July 23-24, 2022 (as archived).

Explaining his reasoning, Prof. Levitin stated:

*“Howey* speaks of an investment of ‘money,’ but that has always been interpreted just to mean an investment of value. Putting up a stake readily satisfies this element.

The common enterprise element is also readily met with staking: the whole validation system requires multiple parties. That’s the pooling (i.e., the more demanding interpretation of common enterprise—horizontal commonality).

The expectation of profit is clear enough too—stakers get rewards.”

Prof. Levitin also addressed *Howey*’s requirement for finding something to be a security that “the profits are expected to be derived ‘solely from the efforts’ of others.” He conceded that if the term “solely” were taken very literally, “then staking will not meet the test [because] the staker is also a participant.” But he argued that things were not that simple, because “lower courts have basically read ‘solely’ out of *Howey*, and “have read ‘solely’ as being more likely ‘primarily’ or ‘significantly,’” referencing such Court of Appeals cases as *SEC v. Glenn W. Turner Enters.*, 474 F.2d 476, 482-83 (9th Cir. 1973) (“the word ‘solely’ should not be read as a strict or literal limitation on the definition of an investment contract, but rather must be construed realistically, so as to include within the definition those schemes which involve in substance, if not form, securities”), and the U.S. Supreme Court’s decision in *United Housing Found. v. Forman*, 421 U.S. 837, 852 n. 16 (1975), which noted this line of authority but declined to take a position on the issue. Granting that “what any individual staker contributes relative to the total sum of the efforts in the enterprise is probably quite limited,” Prof. Levitin nevertheless concluded that “I suspect the ‘solely [=primarily] from the efforts’ of others element is met.”

Ultimately, though, Prof. Levitin agreed that this still did not answer what he termed “the trickier question” of “who the ‘issuer’ is when you’re dealing with a decentralized system.” But he noted that this was “part of the broader problem of how to fit decentralized systems into a person-based legal system.”

Prof. Levitin's remarks were widely covered and debated in the industry press, see, e.g., Frederick Munawa, "[What's at Stake: Will the Merge Turn Ether Into a Security?](#)" CoinDesk (Aug. 10, 2022). While many disputed his views, at least some others have taken a similar view of the legal import of a blockchain's using "proof of stake" model upon the outcome of the *Howey* analysis as to its tokens. Perhaps most notably, Australian computer scientist Dr. Craig Wright (who claims to have been the pseudonymous creator of Bitcoin, Satoshi Nakamoto) argued in a 2017 paper entitled "[Decentralisation](#)" that certain rather technical aspects of the design of "proof of work" systems like Bitcoin had critical features that make them fall outside the *Howey* test, but that "proof of stake" systems by contrast lack those features (as indeed do certain "proof of work"-based Bitcoin variants), thus causing them to fall under the *Howey* test in his view.

Debates on this issue are percolating online. See [Rodrigo Seira](#), [Amy Aixi Zhang](#) and Jake Chervinsky, "[Ethereum's New 'Staking' Model Does Not Make ETH A Security](#)," Paradigm (Oct. 5, 2022) ("Ethereum's adoption of a proof-of-stake consensus mechanism does not make ETH (or even staked ETH) an investment contract, and such a finding would result in a nonsensical application of securities laws"); "[The Merge](#)," Decentralized Law (BanklessDAO) (Oct. 1, 2022) ("Debate on the legal ramifications of The Merge is where crypto-legal practitioners diverge. One of the most contested legal issues to arise is whether it's now more likely that ETH will be classified as a security under U.S. law."); Zeming M. Gao, "[Most 'cryptos' are securities according to the Howey test](#)," CoinGeek (July 27, 2022) (arguing that all crypto is a security unless it uses a "proof of work" system with a "locked base protocol"); Andrew Glidden, "[Does Proof-of-Stake Violate Securities Law? Part II](#)," Medium (Nov. 10, 2017) ("for a general, platform-level token like Ethereum or Tezos, it appears that Proof-of-Stake is unlikely to satisfy all four elements of the *Howey* test").

While in the past few years various securities law claims have been filed with respect to certain tokens that run on "proof of stake" blockchains, it does not appear that any court has yet issued a ruling addressing the application of the *Howey* analysis in the "proof of stake" context.

## Tax implications for stakers

Historically, the IRS has taken the position the tokens earned through "mining" on "proof of work" blockchains were taxable as income upon receipt. But questions remain about whether the same should apply when tokens are earned through staking on "proof of stake" blockchains.

[IRS Notice 2014-21](#) provides that "virtual currency is treated as property" for federal tax purposes, i.e., neither as cash nor stock. Accordingly, the IRS's position is that "when a taxpayer successfully 'mines' virtual currency, the fair market value of the virtual currency as of the date of receipt is includible in gross income." Id., FAQ A-8. Similarly, receiving virtual currency as compensation for performing services constitutes income when received. See id., FAQs A 10, A 11, A 13.

The IRS also has taken the position in [IRS Rev. Rul. 2019-24](#) that "[a] taxpayer has gross income, ordinary in character, under [IRC] §61 as a result of an airdrop of a new cryptocurrency following a hard fork if the taxpayer receives units of new cryptocurrency," because the tokens received are "gains or undeniable accessions to wealth, clearly realized, over which a taxpayer has complete dominion."

At the same time, for more than a century the law has been clear that a stock dividend in kind without any distribution of profits could not be taxed as income until there is some subsequent sale or other event of realization. See generally *Eisner v. Macomber*, 252 U.S. 189, 193-95 (1920).

Some have argued that tokens earned through staking on a "proof of stake" blockchain should be regarded more like the receipt of stock dividends than income earned through providing mining services on a "proof of work" blockchain. See, e.g., Naya Pearlman, "[A Deep Dive Into Crypto Staking](#)," Berdon LLP (July 20, 2022) (also available in [Tax Notes](#) (July 5, 2022)). The argument made is that staking is more akin to investing capital than providing a service, because staking "is a passive process for the stakeholder and only entails a transfer of the crypto to a staking platform," where mining on a "proof of work" system is an active process that requires purchase of expensive equipment and "continuing effort." Staking is also argued to be unlike the hard fork airdrop context to which the IRS's revenue ruling about crypto airdrops was specifically directed. Id.

Others have argued that tokens obtained through staking should be regarded as “created property” like a harvested crop or a mined metal, which are taxed only upon sale, because the tokens received simply arise from running code on a protocol rather than as compensation for services. See Bill Hughes and Greg Stephens, “[The Right Tax Treatment of Staking Rewards Is Clear: Taxation Only After Sale](#),” CoinDesk (Apr. 18, 2022). In the view of these authors, “[t]o say the protocol compensates the validator would be akin to saying the field compensates the farmer with crops or the mine compensates the miner with ore.” Id.

The issue is also considered in a detailed and thoughtful paper soon to be published in the Stanford Journal of Blockchain Law & Policy by Professors Nizan Geslevich Packin and Sean Stein Smith, entitled “[ESG, Crypto, And What Has The IRS Got To Do With It?](#)” (Sept. 1, 2022). The authors argue that “taxing active staking activities could help advance greener, ESG-based goals” and note that as the shift toward “proof of stake” blockchains continues, “the potential for tax policies to drive behavior will continue to increase.”

The authors point to “the general consensus” under current IRS guidance treating crypto as property “that every transaction involving cryptoassets will create a taxable event,” but suggest that this view is “simplistic” and an “oversimplification.” They note:

“Drilling down specifically the very process of staking can result in multiple streams of income or earnings for the taxpayer, depending on the specifics of the staking protocol. Setting that aside, the key question at hand is the nature of the tokens or crypto denominated earnings; are these newly created cryptoassets or are these assets being released from previously created or reacquired assets?”

However, they conclude that “the application of existing tax law—as is—makes no distinction or allowance for crypto staking.” Id.; see also Sean Stein Smith, “[Staking Rewards Are Taxable—What Investors Need To Know](#),” Forbes Digital Assets (Oct. 13, 2022).

The issue of the proper tax treatment of tokens obtained through staking was raised but ultimately not resolved in *Jarrett v. U.S.*, 2022 WL 4793235 (M.D. Tenn. Sept. 30, 2022). In that case, the plaintiffs obtained Tezos tokens through acting as stakers on the Tezos “proof of stake” blockchain. Plaintiffs paid \$3,793 in 2019 taxes on the tokens thus obtained. Plaintiffs later contended that the Tezos tokens they obtained through staking were “created” by them and thus “were not taxable income in 2019,” so as to entitle them to a refund of the \$3,793 in taxes they had paid on them.

For unspecified reasons, the IRS ultimately shifted position and issued plaintiffs a refund check for the amount sought. It then moved to dismiss plaintiff’s lawsuit as moot. The plaintiffs argued that the case was not moot because they refused to accept the refund check, which they argued was merely an offer of settlement that they had rejected. They also argued that this was an issue that could recur again in the future, thus entitling them to continue litigating the issue of the tax treatment of staking.

The court rejected both arguments and dismissed the plaintiffs’ lawsuit as moot. The court explained that the IRS “issued a refund check, not an offer,” having made a determination that there was an overpayment on plaintiffs’ account and thus issued a check accordingly. Plaintiffs’ refusal to deposit that check “has no bearing on whether there remains a live case or controversy for the Court to adjudicate.”

The court also held that the IRS’s tendering a refund to the plaintiffs did not fall into the mootness exception for “voluntary cessation of conduct” because “[t]he United States has not changed the tax rules or regulations and does not claim to have changed its position. It has merely refunded Plaintiffs the overpayment requested.” Nor did this situation fall into the mootness exception for matters “capable of repetition yet evading review” because “[t]he instant controversy was limited to whether Plaintiffs were entitled to a refund of taxes paid for the 2019 tax year,” an issue that would not recur “given that any subsequent controversy would necessarily involve a different tax year.” Judicial resolution of this issue will thus have to await another day.



Lastly, the issue of the tax treatment of tokens obtained from staking recently has received legislative attention as well. Section 208(a)(1) of the proposed S. 4356, the "[Lummis-Gillibrand Responsible Financial Innovation Act](#)" (June 7, 2022), would definitively resolve this issue by adding a new Section 451(l) to the Internal Revenue Code, captioned "Deferral of Income Recognition for Digital Asset Activities," that if enacted would provide: "In the case of a taxpayer who conducts digital asset mining or staking activities, the amount of income relating to such activities shall not be included in the gross income of the taxpayer until the taxable year of the disposition of the assets produced or received in connection with the mining or staking activities."

## Conclusion

Ethereum's effectuation of the "Merge" was a technological tour-de-force with significant environmental upsides in reducing energy consumption and perhaps facilitating continued future innovation in the blockchain space. But unsettled fundamental legal questions remain about whether or how U.S. securities and tax laws will apply to staking on Ethereum's new "proof of stake" environment or other systems based on "proof of stake" models. These questions may inhibit such activity in this area until there is greater legal certainty on these deeply consequential points.



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