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The Ethereum Proof-of-Work fork: How to treat it as an indexing company.

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The Merge

It's one of the most anticipated crypto events of 2022. The Merge will see Ethereum move from the energy-intensive Proof-of-Work (PoW) consensus mechanism to a more efficient Proof-of-Stake system. It is not expected to reduce Ethereum's fees and slow transaction speeds, but it will have a significant impact on the network's energy use.

The market is so excited because it's expected that there will be a large supply sink post-merge due to the depreciation of PoW block subsidies and indefinitely locked validator rewards in conjunction with base fee burns. The total Ethereum supply will not only become net deflationary, but liquid rewards earned by validators will be reduced from 15,135 ETH per day to 1,777 ETH per day. Validators also have far lower operating costs and a literal stake in the network, it's reasonable to assume these players are generally bullish on Ethereum.

The new fork

As the Merge nears, discussions around a potential hard fork for an "ETHPoW" (Ethereum Proof-of-work) chain are getting louder. Originally Ethereum 2.0 was planned as a non-contentious protocol upgrade and not a contentious hard fork (unlike Ethereum Classic)[1]. The "fork" terminology in the Ethereum 2.0 specs is used more for public messaging than anything else. When the upgrade is complete, there will be no fork because the network will not end up with multiple competing chains. There will only be one ETH, and the amount of ETH you hold will remain the same.

However, some miners of the current Ethereum chain have a different view. Ethereum mining is a multi-billion dollar industry, generating hundreds of millions of dollars in revenue (sometimes billions) to hardware miners every month. After the Merge, the mining hardware will be useless. There will be a fight to keep this business alive. The ETH miners will protest the Merge by forking into the new ETHPoW chain that retains PoW validation. They already have some support from developers, who removed the difficulty bomb[2]. A migration to Ethereum Classic (ETC), which is also based on PoW was already ruled out by a majority group. ETC cannot practically absorb all of the mining power of Ethereum.

What's the deal?

After the Merge, every ETH holder will receive ETHPoW tokens 1:1 for every ETH held at the time of the Merge. We experienced that with Bitcoin in 2017. The Bitcoin blockchain was forked and BTC holders received tokens 1:1 for every new chain (BCH for Bitcoin Cash, BSV for Bitcoin Satoshi Vision, etc). But there is a key difference between Ethereum and Bitcoin. Hard-forking Bitcoin is simple – only the native token, BTC, remains on the network. Ethereum comes with a whole ecosystem. Not only will Ethereum fork, but all the dapps will fork – the whole network state[3]. This includes hundreds of asset providers and bridging protocols to honor claims on users' assets. The DeFi ecosystem alone includes: stablecoins, Lido's staked ETH, ERC-20 tokens, NFTs, all forms of wrapped tokens that currently exist on the Ethereum chain.

[1] A hard fork is when nodes of the newest version of a blockchain no longer accept the older version(s) of the blockchain; which creates a permanent divergence from the previous version of the blockchain.
[2] Ethereum difficulty bomb is a measure to exponentially increase difficulty level in Ethereum 1.0 until it becomes unprofitable to mine.
[3] Dapps are decentralized applications built on a decentralized network that combines a smart contract and a frontend user interface.

How to value the ecosystem?

When the token holders of a protocol vote to deploy on a new blockchain, the circulating supply of the protocol tokens does not change to prevent dilution of value and utility. However, on a PoW fork, the protocol will be duplicated, as will any native tokens. This means they may be likely to trade at a different price than their counterparts on the PoS chain. While you can copy the tokens and the contracts on-chain, you can't duplicate the off-chain things supporting them. Think of all the developers and infrastructure supporting the protocols. It's the social consensus around it provides the network with value. For specific categories, we can already conclude that they will be worthless.

One category is stablecoins: The largest stablecoin issuer USDC and Tether already announced that they will only support the Proof-of-Stake blockchain. Fiat stablecoins like USDC and USDT will be copied one for one, exactly like every other token, but the cash in bank accounts does not double. For every Fiat USD, there will be 2 USD of stablecoins, which will be worthless on ETHPoW. Those stablecoins are important money building blocks in DeFi. DAI, a decentralized stablecoin backed by 40% USDC also loses a significant amount of the collateral backing it.

The other category is staking tokens: ETH staking will never happen on a PoW chain, therefore all liquid staking tokens will go to zero as they are not redeemable for anything. What does this mean for Aave on PoW, as the have a lot of stETH (staked ETH) as collateral on their platform?

Protocols will need to determine how to manage the value of tokens held by duplicate treasuries. How will governance rights be consolidated? Could somebody buy the cheaper PoW token and still have the same amount of voting power as the PoS version?

Chaos is certain

NFTs:

What will happen to all the NFTs? What's the value of a Crypto Punk on the PoW chain? Is it the original NFT? By social consensus, the PoS Punk will be the more valuable. But it's very likely that the value of a forked Punk or Bored Ape isn't zero.

DeFi:

What will happen to all these DeFi protocols? Do they support the POW chain? There are already a lot of multi-chain protocols, why not support the new fork? Will smaller decentralized exchanges be on PoW because they have no chance against Uniswap on PoS?

Oracles:

Keep in mind, much of DeFi relies on price oracles to function and, like the stablecoin issuers, the major oracle network provider Chainlink has similarly signaled a lack of support for any PoW fork Ethereum miners try to launch. Without a pricing source, a lot of DeFi protocols simply will not work.

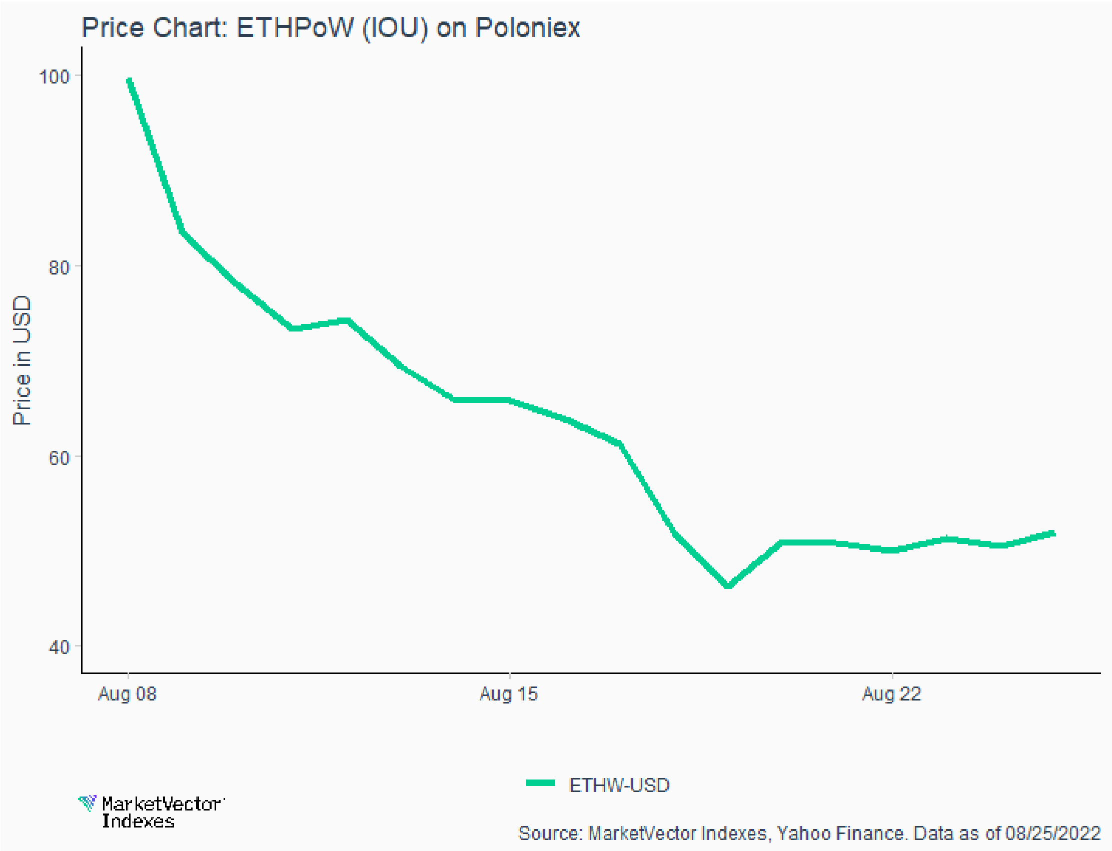
What will ETHPOW worth?

To value ETHPoW, we have two reference points:

1 Ethereum Classic: This coin has no state because there were no NFTs and dapps in 2016. The market cap currently stands at 5.1 bln USD. Theoretically speaking, ETHPoW should have the same value as ETH Classic, plus some upside for potential utility from all of the NFTs and dapps that will still be on there.

2. ETHPoW on Poloniex: Exchanges such as Poloniex and BitMex moved ahead with futures markets on a potential "EthPoW" network token. The token on Poloniex is trading at 52 USD. Multiply EthPoW with the circulating supply of ETH you will arrive at a market cap of 7.1 bln USD.

Exhibit 1: ETHPoW (IOU) Price on Poloniex



This is just a rough estimate. No one can be sure how to value this new hard fork. But chances are the value will be greater than zero. Expect huge volatility at the beginning. It is likely that there will be initial selling pressure as a lot of traders will want to monetize their new ETHPoW coins. Generally speaking, nearly every smart contract on the PoW fork will be broken in some capacity. The idea that a fork with PoW consensus could be useful if the Merge fails is also wrong. It would just delay the process until the problems are fixed with the Merge a few weeks later.

What can institutional investors do?

Before anybody can make an active decision, investors will have to check their trading setup. Will your infrastructure support the new hard fork? Are custodians and trading counterparties listing it or prepared? As seen with the Terra Luna Airdrop, not every investor can participate at the beginning due to critical service providers being either incapable or unwilling to provide the necessary services.

What will we as an index company do?

At MarketVector, our hard fork policy is outlined in the index guidelines. Section 5.2 gives details on the hard fork treatment policy[4]. On top of the hard fork treatment policy, indexes have some additional rules (like custodian support defined by the index owner or the client) which might affect the treatment of the fork in the corresponding index.

As soon as news are published, MarketVector starts tracking the development of the fork. If the corresponding index allows the addition of the forks, forks that fulfill the rules as defined in Section 5.2.1 will qualify to be added to our indexes. After this step, we apply the following checks:

- For the indexes that have the requirement in which the index components must be listed on at least one of the exchanges with AA/A rating by CryptoCompare's Exchange Benchmark, the inclusion of the fork will be dependent on the listing status at any one of the exchanges.
- The indexes may also have the requirement in which the index components should be supported by the designated custodians of the index owner or the index client. If the fork is not supported by at least one custodian, it will not qualify for the index.

If the fork fulfills the rules to be added to an index, the following will be applied:

- Each additional component resulting from a fork is immediately added to the index for at least one day, if traded. In case it does not trade, it will be kept with a price of 0 until the first price is retrieved. It will then be kept in the index for at least one day or the next review becomes effective.

- For indexes that have fixed number of components: If the fork trades, the index component with the lowest market capitalization is detected after the first closing file is generated. On the days announced in the event file, the index component with the lowest market capitalization is removed from the index to keep the number of index components at the fixed number.

- For the indexes that do not have fixed number of components: The fork will be kept until the next review and the investability rules as defined in the index guide for the corresponding index are applied to check whether the fork qualifies for the index.

Customized Indexes will be adjusted according to their specific rules. MarketVector will closely monitor the situation not just around Ethereum but also around all related ERC-20 tokens. Whatever the outcome, we will follow the rules which are transparently defined in the index guidelines. Parameters such as market cap, pricing and community support will guide us in our decision to include or exclude a forked token.

[4] https://www.marketvector.com/rulebooks/download/mv_digitalassets_guide.pdf

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Martin Leinweber is an expert in fundamental and quantitative trading strategies. He sees cryptoassets as a fundamental building block for investors to achieve their return targets in a low interest rate environment. He works as a Digital Asset Product Strategist at MarketVector Indexes providing thought leadership in an emerging asset class. His role encompasses product development, research and the communication with the client base of MarketVector Indexes. Prior to joining MarketVector Indexes, he worked as a portfolio manager for equities, fixed income and alternative investments for almost two decades. He was responsible for the management of active funds for institutional investors such as insurance companies, pension funds and sovereign wealth funds at the leading German quantitative asset manager Quoniam. Previously, he held various positions at one of Germany's largest asset managers, MEAG, the asset manager of Munich Re and ERGO. Among other things, he contributed his expertise and international experience to the establishment of a joint venture with the largest Chinese insurance company PICC in Shanghai and Bejing. Martin Leinweber is co-author of „Asset-Allokation mit Kryptoassets. Das Handbuch“ (Wiley Finance, 2021). It’s the first handbook about integrating digital assets into traditional portfolios. He has a Master in Economics from the University of Hohenheim and is a CFA Charterholder.

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