SmartMoney/Enigma Research Note

November 2, 2021

Perpetual Protocol (PERP)

- TYPE: Derivatives (Perpetuals)
- CHAIN: ETH (xDai L2)
- CIRCULATING SUPPLY: 150M
- MAX SUPPLY: 150M
- TVL: $13M
- MARKET CAP: $2.5B
- CONTRACT ADDRESS: 0xbc396689893d065f41bc2c6ecbee5e0085233447

Product Overview/Summary

Perpetual Protocol is a decentralized derivatives exchange that operates perpetual futures markets across Ethereum Layer 1 and xDai Layer 2 networks. Users place orders and deposit collateral on Perpetual's L1 interface. The protocol then creates a corresponding position on the xDai network. Users never have to transfer funds from one network to another, so Perpetual provides fast perpetuals trading at a fraction of Ethereum L1 exchange costs. Despite a dominant summer in 2021, Perpetual Protocol (PERP) decentralized perpetual futures markets have ceded market share like other AMM-based exchanges.

The Perpetual Protocol value proposition is a product of its historical and expected innovation. Perpetual successfully ported the AMM model to a derivatives exchange without the risk of impermanent loss. The innovation enabled futures swaps without counterparties, where an aggregated pool provided opposing sides of a perpetual contract market. Over time, this innovation shifted risk from markets to the protocol, and ultimately PERP holders and stakers. Additionally, limited asset markets, relative to the dYdX protocol, weighed on the protocol's volume and revenue through October 2021.

The competition, however, is far from over. Perpetual V2 will launch a new and improved perpetuals markets on Arbitrum, the Ethereum L2 optimistic rollup. Currently, the PERP price shows market expectations exceed the protocol's performance, and perhaps for good reason.

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Why it's interesting

Product

Perpetual Protocol's automated market maker enables decentralized derivatives markets without the risks of AMM pools. Instead of a central-limit order book that most derivatives exchanges use to match contract counterparties, Perpetual uses a virtual, or vAMM function smart contract. On other exchanges, both centralized and decentralized, software matches opposite orders based on bid or ask prices. While CLOB exchanges require counterparties for every trade, Perp's vAMM enables markets by aggregating positions on both sides. This means a Perpetual user does not need to be matched 1-for-1 with a counterparty. Instead, Perpetual's smart contracts take the counterparty role and pay winning trades with losses each hour.

All users, whether long or short, deposit USDC collateral in Perpetual to open a position, with or without leverage. Investors who want to increase their exposure to an asset will open a long perpetual position that are profitable when the index price exceeds the AMM price on Perpetual. On the other hand, investors who want to earn yield, or manage risk, will open a short position to profit when the AMM price exceeds the mark price. The difference between the mark and vAMM contract price is known as the funding rate, or funding payment when passed from losing to winning side. Users can take over 10x leverage, depending on the underlying asset's risk, to magnify their exposure to a positive or negative funding rate. To protect each perpetual market, participants liquidate a portion of a user's position if their collateral value drops to 6.25%, or the liquidation ratio, relative to the position's value.

Without separate collateral pools or counterparties, the Perpetual vAMM model requires a protocol-wide risk management framework. The Insurance Fund was designed to backstop the protocol in the case of emergency. User fees, at 0.1% of trading volume, capitalize the Perpetual Insurance Fund. When an underlying asset price changes, funding rates grow in either positive or negative direction, and demand does not offset the market, the Insurance Fund can automatically pay funding to profitable positions to keep a market solvent. Funding rates in highly liquid traditional and perpetuals futures markets tend to converge on an underlying asset's spot price, however, Perpetual Protocol experienced prolonged periods Insurance Fund payments to profitable positions over the last year. The Perpetual Protocol V2 update, on schedule for a 2022 release, is designed to limit the Insurance Fund's role in funding payments between positions.

Technology

Perpetual was one of the first protocols to use an Ethereum Layer 2 scaling solution. The protocol's operations on xDai, however, are nearly imperceptible. Users deposit collateral and open positions on the Perp interface that operates on Ethereum L1. To limit gas fees and increase transaction speed, the Perpetual smart contracts store the deposit and open matching positions on the xDai network. Perpetual's xDai system processes oracle price feeds and the vAMM function to make hourly funding payments. Once a user closes their position on the L1 interface, the xDai position is closed and corresponding tokens are burned. No Perpetual users have to interact with the two layers, and Perpetual's relatively low trading costs reflect this simplicity.

The Perpetual Protocol is not unique to the xDai network. The protocol was designed to be self-contained so the community could easily port the open-source code to any Ethereum-compatible smart contract network. For the upcoming V2, Perpetual will launch the new version of its smart contracts on Ethereum's Arbitrum L2 network.

TOKENOMICS

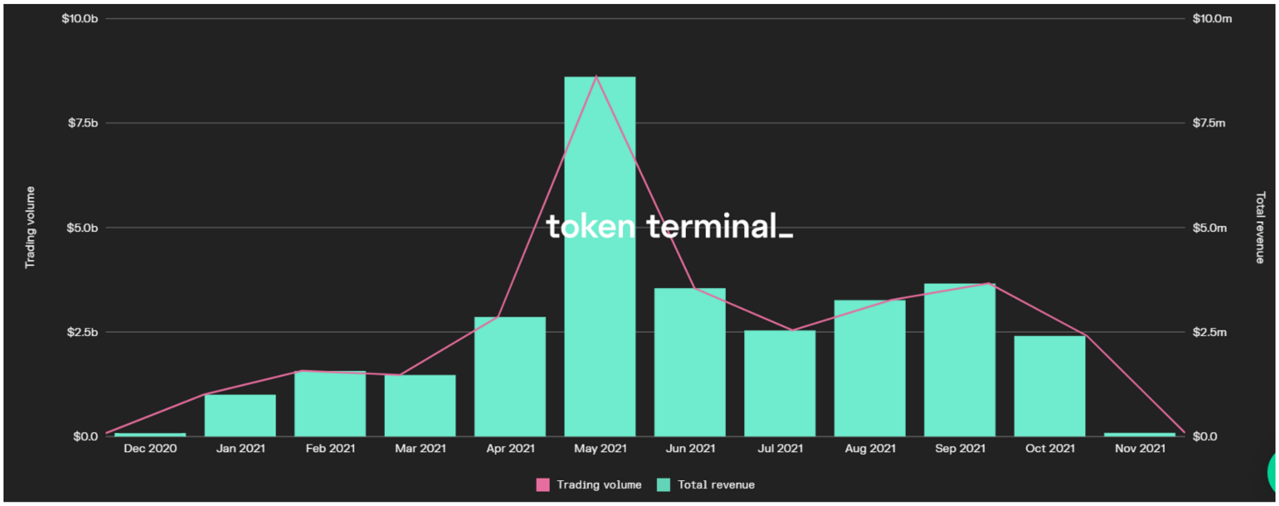
Token Supply & Utility

The Perpetual Protocol token, PERP, capitalizes the platform and enables decentralized governance. Investors, or PERP holders, can stake their PERP tokens in the Perpetual protocol's smart contract to gain voting rights in proportion of all PERP staked. In exchange for voting rights, PERP stakers ultimately take on the protocol's risk. Their staked PERP can be liquidated in a catastrophic situation, after the Insurance Fund is depleted and all losing positions were liquidated. This model makes staked PERP reserves central to the protocol's stability. With more PERP staked, the protocol can safeguard markets to keep pace with demand.

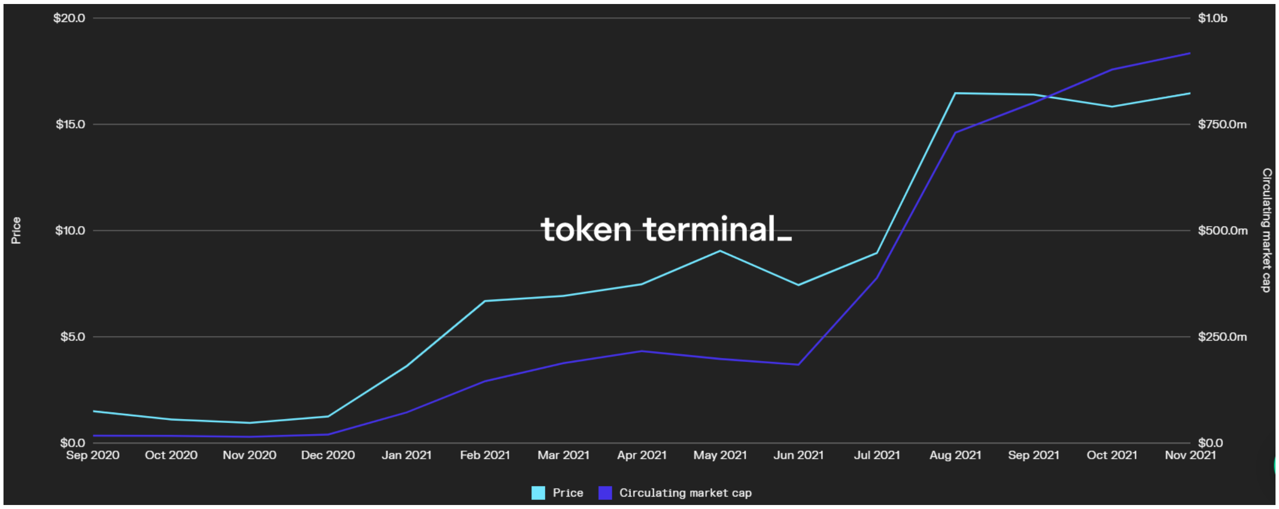
Perpetual initially incentivized PERP stakers with combined staking rewards. Token issuance was awarded to PERP stakers, at 150K tokens weekly. Then, 50% of the Protocol's trading fees were allocated to PERP stakers. Trading fees and PERP issuance were combined to reach the equivalent 150K PERP value. Trading fees over the 150K weekly PERP value could replace PERP issuance rewards to PERP stakers. Within weeks of the first PERP staking in the summer of 2021, 50% of trading fees surpassed the 150K PERP weekly issuance. This simultaneously incentivized PERP staking and pushed PERP price upward as issuance slowed. To prevent a complete halt in PERP token inflation, the Perpetual team will redesign staking rewards in Perpetual's V2.

Value Accrual & Valuation

Besides staking rewards, PERP holder receive no cash flows or dividends. However, Perpetual V2 staking rewards may include fee sharing for PERP stakers. This would more closely tie PERP staker incentives more closely to the protocol's revenue growth.



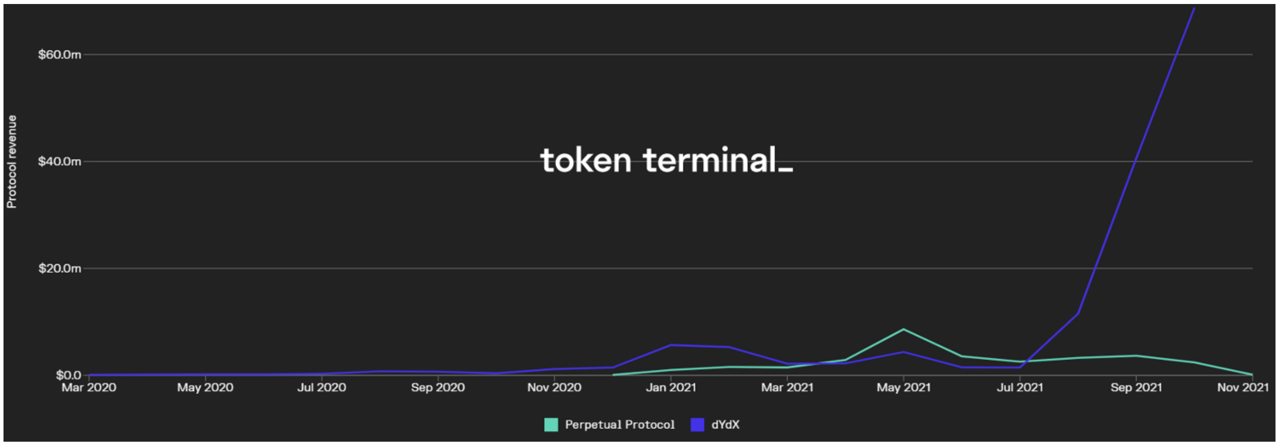
Source: Token Terminal: Perpetual Protocol. Accessed 11/2/21. https://www.tokenterminal.com/terminal/projects/perpetual-protocol



To date, Perpetual's revenue moved in step with perpetual swap demand. As the market cooled from May 2021 volume, revenue and rewards to PERP stakers decreased in proportion. Despite lower volumes after May, PERP's price maintained momentum. Despite no current dividends to PERP holders, price may indicate expectations of fee sharing as part of Perpetual V2 or later in the future.

Competitive Landscape

As noted in our last dYdX report, perpetual futures markets dominate digital asset derivatives. Coinglass shows ETH open interest at its highest point in November 2021, with the ETH price. .



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Because decentralized derivatives exchanges compete to earn revenue on trading volume, the competition can reveal the market's preference for the central-limit or AMM model. Though it appeared Perpetual's AMM won in May 2021, dYdX revenue surpassed Perpetual's in June 2021 and did not change course. At 0.8% of trading volume, dYdX fees far outweigh Perpetual's as a proportion and by realized value.

Recommendations

Despite lower fees relative to the leading competitor, Perpetual Protocol's value lies in its future prospects. In June 2021, Perpetual announced its version 2, called Curie. The Curie release will bring key features to match – and potentially surpass – offerings on dYdX: cross-margining on collateral beyond USDC, limit order types, PERP liquidity mining, vAMM pools replaced with Uniswap V3 Concentrated Liquidity pools and market makers, and permissionless markets. These updates open Perpetual Protocol to the full advantage of decentralized finance. While the current Perpetual Protocol eliminates them, market makers on Curie will unlock counterparties to the perpetual swap protocol. This will significantly reduce risk to the Insurance Fund while providing a new way for investors to earn yield in perpetual markets. The V2 release will continue to be a focal point for PERP investors and competitors into the near and medium term.

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