

Maverick Takes Aim at the DEX Landscape

by Jordan Yeakley, CFA



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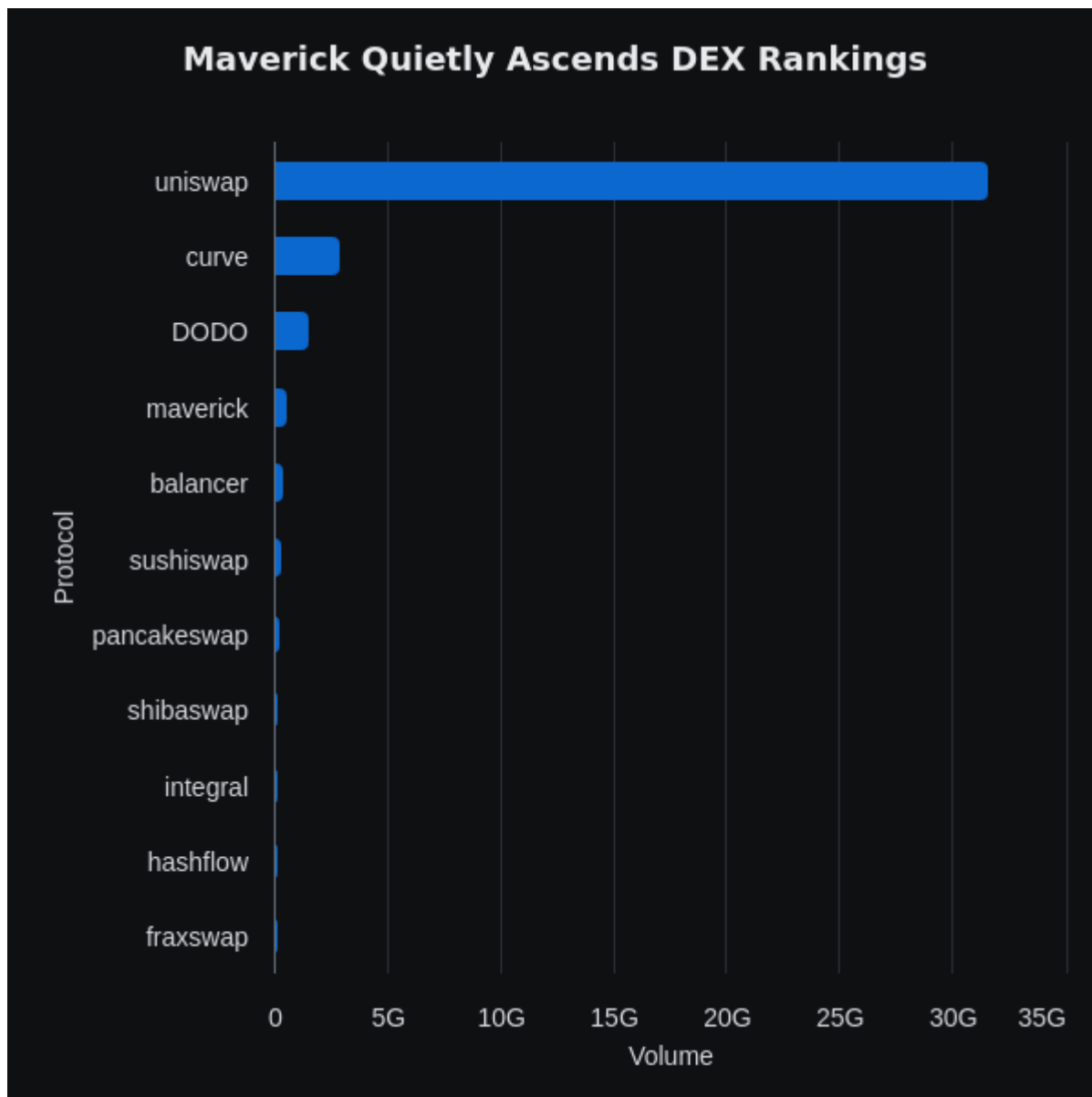
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Introduction

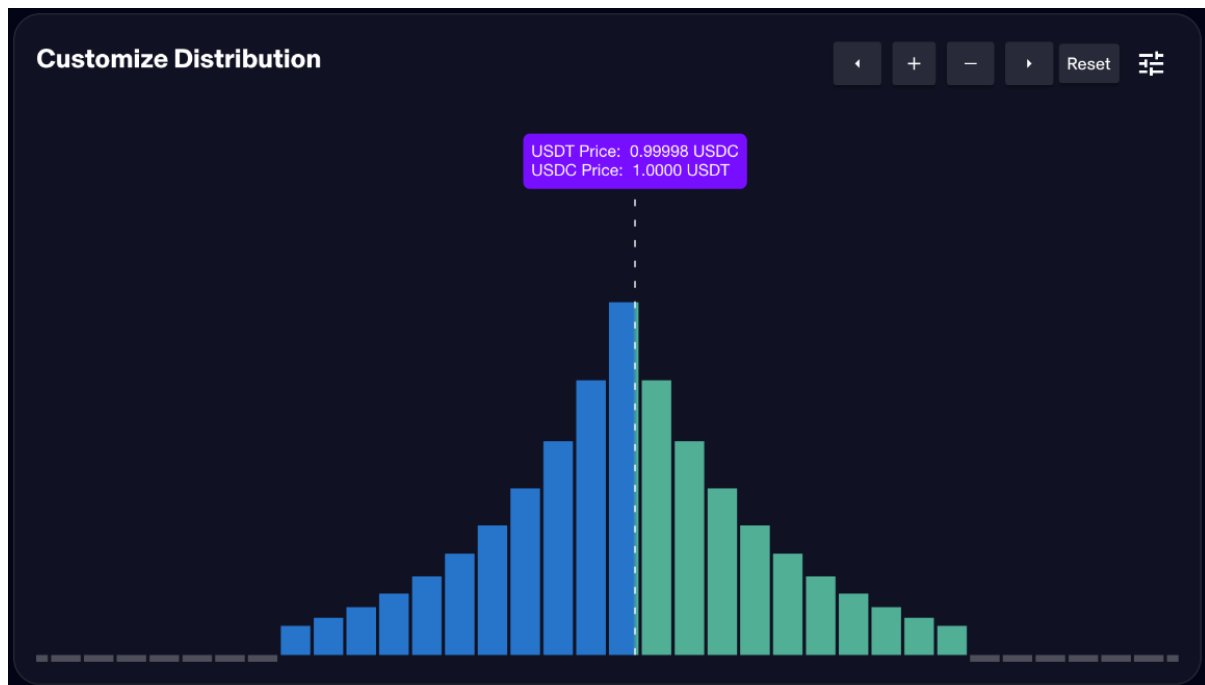
There's a brand new DEX in town, and it's quietly sitting among Ethereum's top 5 DEXs by volume. Maverick Protocol has been off to a great start since its recent launch on Ethereum and zkSync.



Maverick offers directional liquidity provision, extreme capital efficiency, little to no slippage trades, and several QOL improvements for LPs. Let's explore why Maverick isn't just another DEX; it might be the most serious challenger to Uniswap's dominance since the launch of v3.

Maverick AMM Design

Maverick differs from most other AMMs with its use of liquidity bins. Liquidity bins are discrete price ranges similar to Uniswap v3's ticks.



Price discovery within a bin uses a constant-sum formula, allowing for zero-slippage trades. Slippage only occurs when all of a bin's liquidity is consumed, causing the active bin to shift up or down. Even though Uniswap is extremely capital efficient, there is still a small amount of slippage within ticks due to the constant-product formula.

The standardized nature of bins compared to ticks carries the benefit of fungible LP positions. This allows Maverick to support a liquidity mining apparatus where projects can permissionlessly incentivize liquidity via "boosted pools."

Much of the Maverick's liquidity bin architecture is shared by Trader Joe. For a deep dive into the nuance of bin architecture, check out [Trader Joe's Novel Take on Concentrated Liquidity](#).

Maverick's key features are its incentivized pools, custom liquidity shaping, custom fee tiers, and directional liquidity provision. Directional liquidity provision is achieved with Maverick's Automated Liquidity Placement (ALP) mechanism.

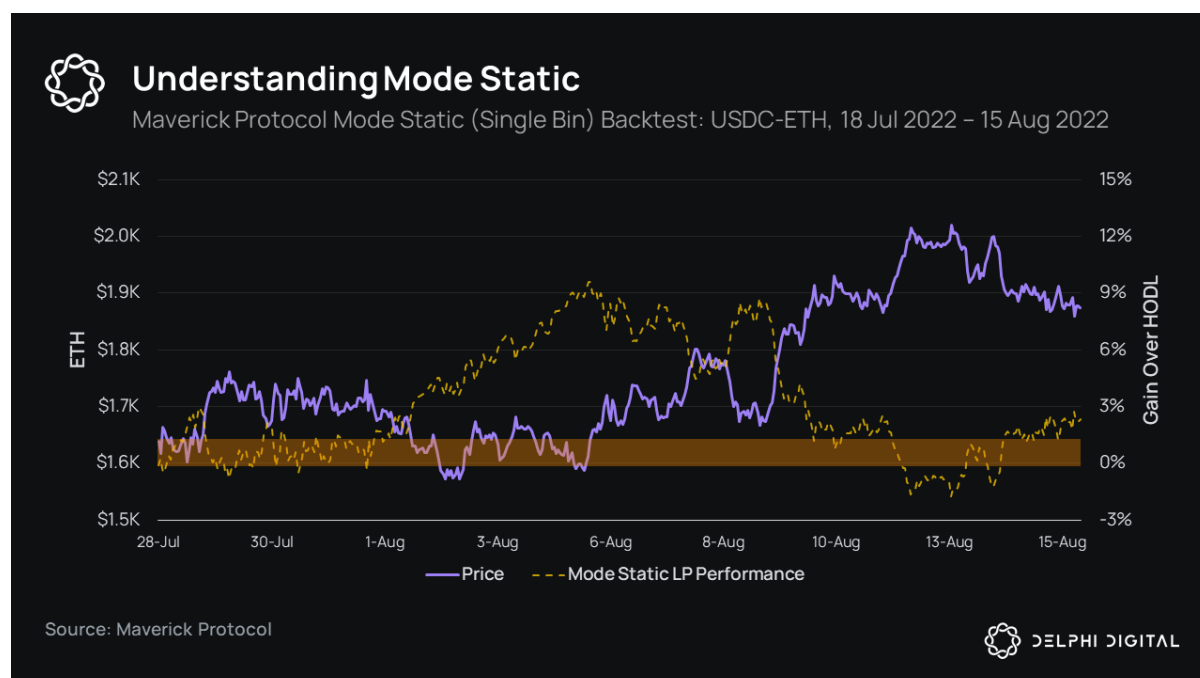
Directional liquidity provision powered by ALP allows LPs to embrace the positive-delta nature of liquidity provision. Previously, LPs have been forced to assume the market risk of both assets while lacking the commensurate degree of

upside. Maverick's modes allow LPs to express an opinion on the trajectory of an asset, earning increased fees with minimal impermanent loss if they are correct. Trading fees are auto-compounded into the LP position, enhancing yield further. There are four modes for users to provide liquidity with. Understanding these modes is crucial to getting the most out of Maverick.

Mode Static

Mode Static serves as Maverick's "normal" mode, operating similarly to existing AMMs. Mode Static does not utilize automated liquidity shifting mechanisms, but gives users plenty of freedom with how to deploy liquidity with three default options:

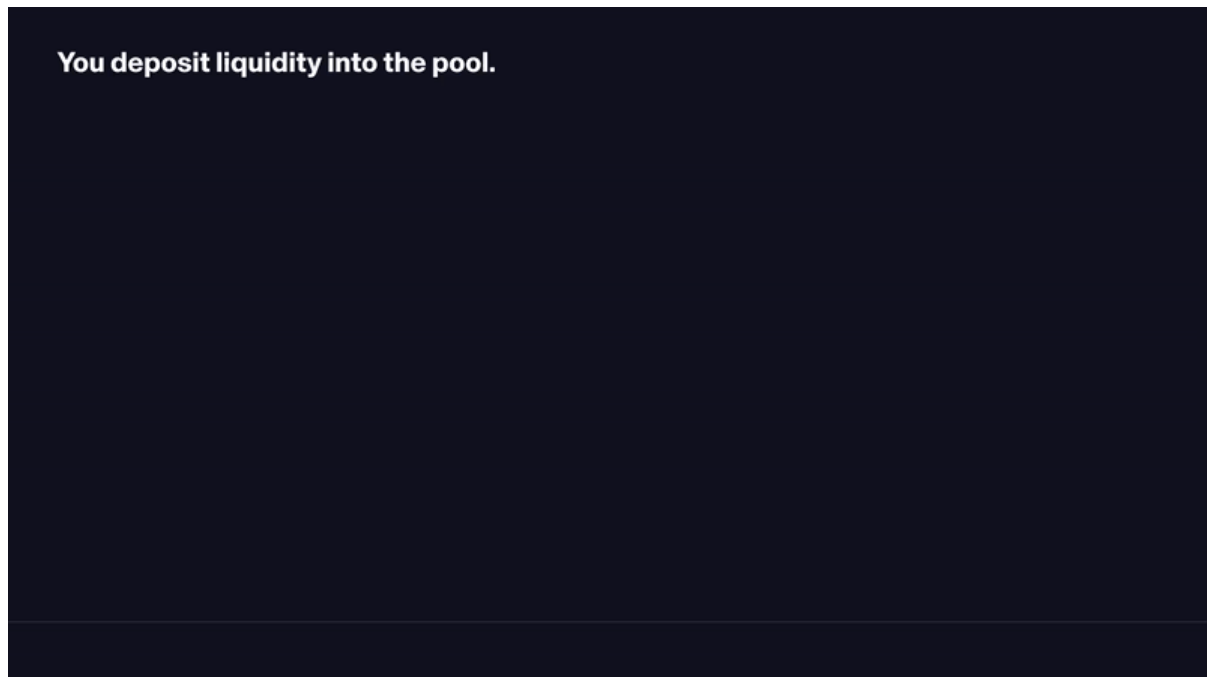
- **Exponential:** High concentration of liquidity around the current pool price. The remaining liquidity is spread in exponentially decreasing increments across the surrounding bins.
- **Flat:** Distributes liquidity evenly across a range of bins, centered around the current pool price. Comparable to Uniswap v2.
- **Single Bin:** Deploys liquidity only in the active bin. Comparable to Uniswap v3.



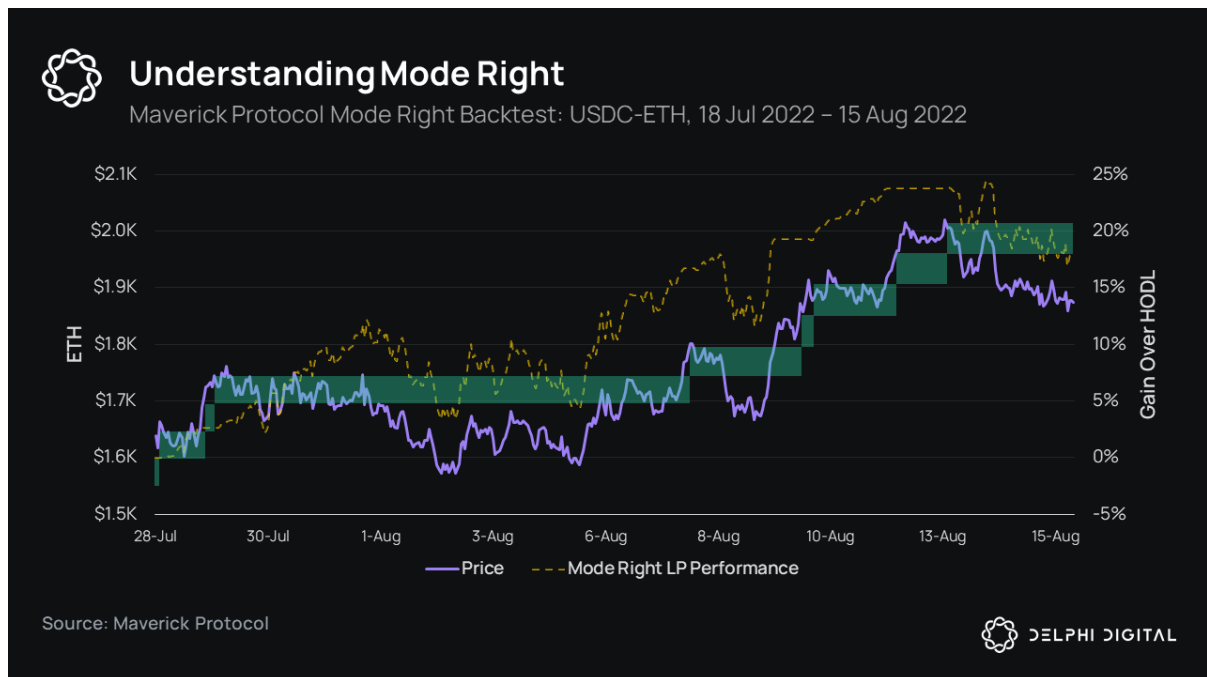
Users can override these default distributions and create any sort of custom liquidity shape by dragging individual bins.

Mode Right

Mode Right functions like a dynamic range order, following the price in a pool when it moves upward.



Mode Right allows LPs to take advantage of positive price action in the base asset. Mode Right keeps a bin of the quote asset directly to the left of price as it moves right in the pool, ready to capture fees whenever price falls into range.

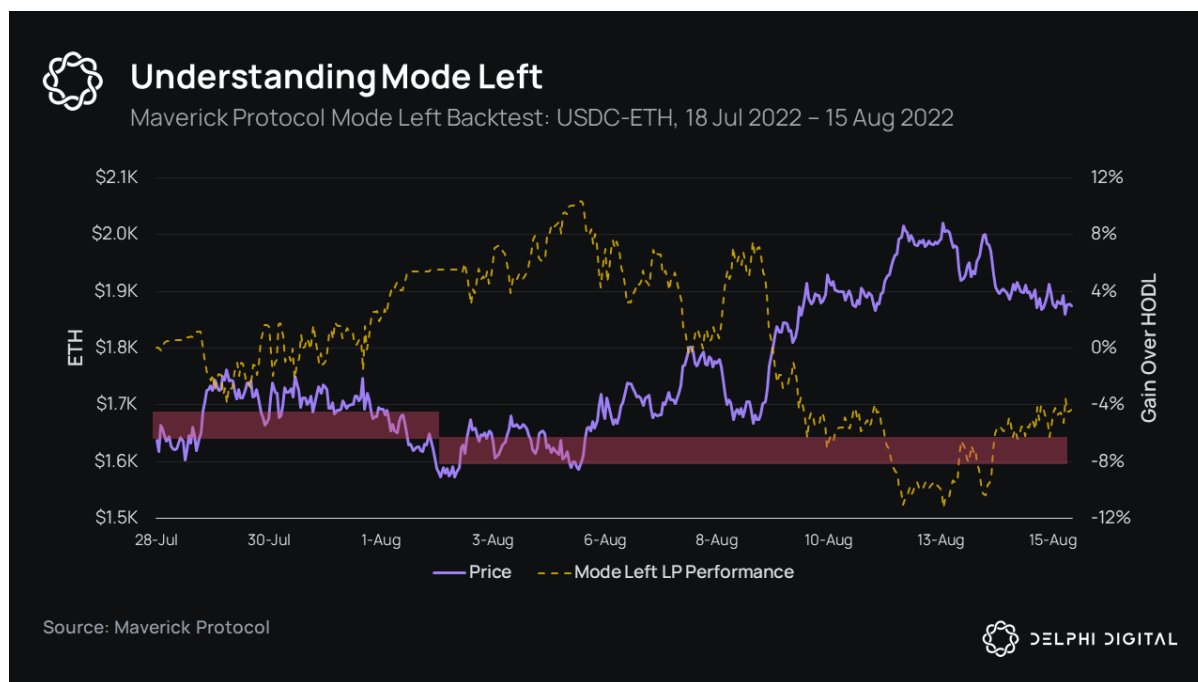


When depositing to Mode Right for a USDC-ETH pool, it is suggested that users deposit to the left of the current active bin in order to minimize impermanent loss.

When price drops, the user's LP position consists fully of ETH.

Mode Left

Mode Left functions like Mode Right but in reverse. Maverick will continually shift liquidity to the right of the current active bin when the base asset trends down. If a user is correct in their prediction, they can earn a substantial amount of fees with low impermanent loss.



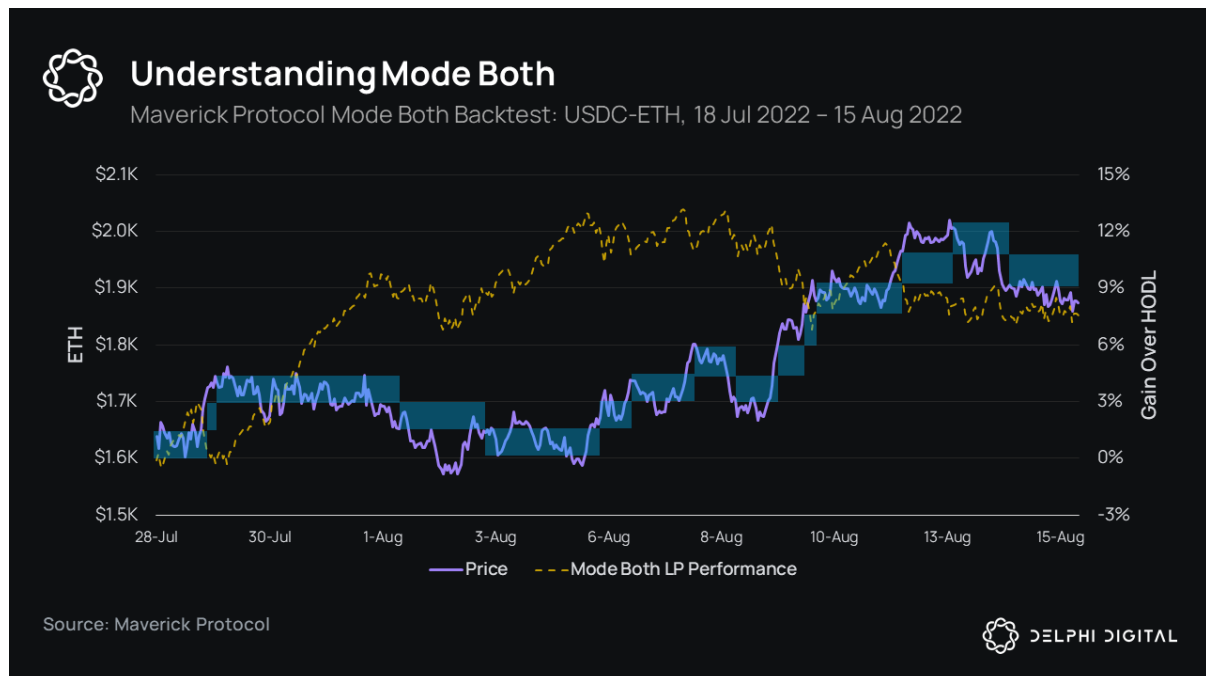
A Mode Left LP wants to keep a bin of base assets directly to the right of price as it moves left in the pool, ready to match orders once the price rebounds.

Mode Both

Mode Both allows an LP to add liquidity to the current active bin and to either of the adjacent bins. As price moves in either direction, Mode Both re-concentrates liquidity into the previously active bin, following the price both up and down.

You deposit liquidity into the pool.

For example, let's assume a user deposits single-sided USDC liquidity to the left of the current active bin in the USDC-ETH pool. If the price of ETH increases, the position will function like Mode Right, shifting the liquidity to the left of the current active bin, with the position still consisting entirely of USDC. If the price of ETH falls back through the range, the LP will be re-concentrated into the bin to the right of the active bin, functioning like Mode Left and consisting entirely of ETH.



Mode Both is essentially a very tight Uniswap v3 range that is constantly being rebalanced around the current price. The risk of impermanent loss is therefore much higher with Mode Both. In addition, LPs can suffer from permanent loss due to rebalancing in adverse/choppy price environments. In such a scenario, the LP

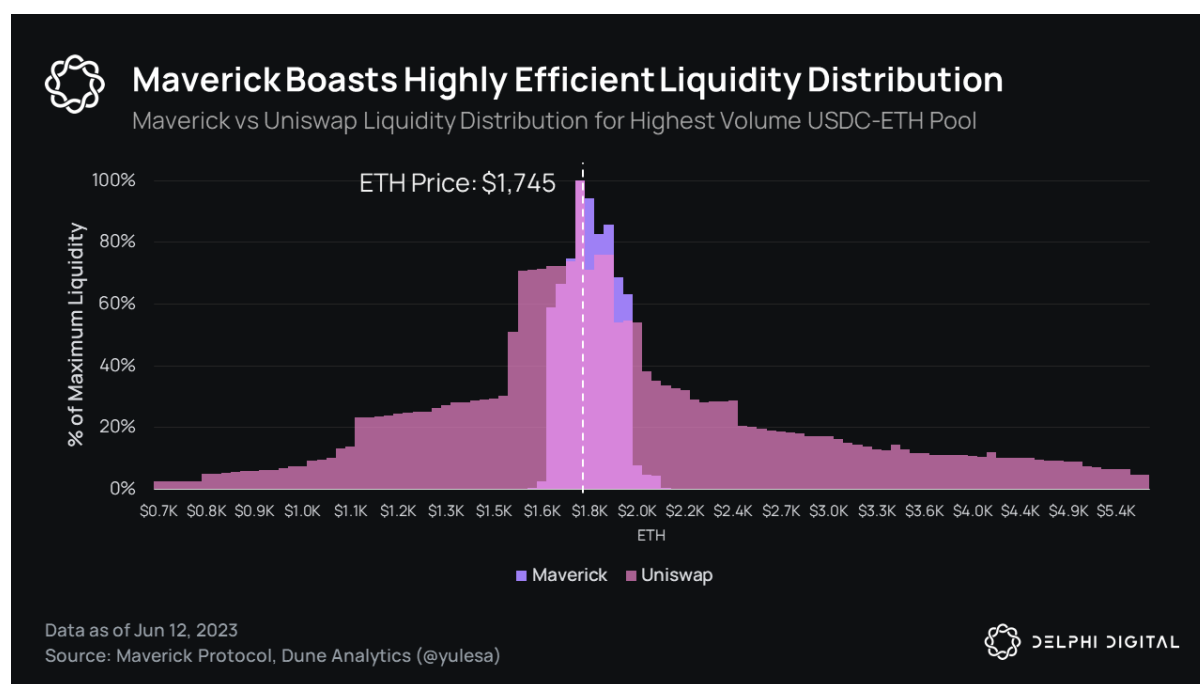
would be buying high and selling low, resulting in losses that are realized immediately. This can be partially mitigated by using larger bin widths.

The ALP modes (Right, Left, Both) use the internal TWAP price with a configurable lookback period to move bins. The lookback period is set to three hours by default, in order to keep liquidity reactive to price while avoiding possible attack vectors.

Bin size and lookback period are key variables that affect LP returns according to the price action. Longer lookback period = less reactive. Liquidity is less likely to move from short spikes, but more likely to lag behind strong moves.

Comparing Liquidity Distributions

A mental model to simplify ticks and bins is that bins are a fungible, standardized implementation of ticks that build liquidity vertically. Ticks build liquidity horizontally and can offer a bit more precision at the cost of flexibility. Uniswap v3 has been very capital efficient for LPs who are in range, but is known for some suboptimal liquidity distributions.

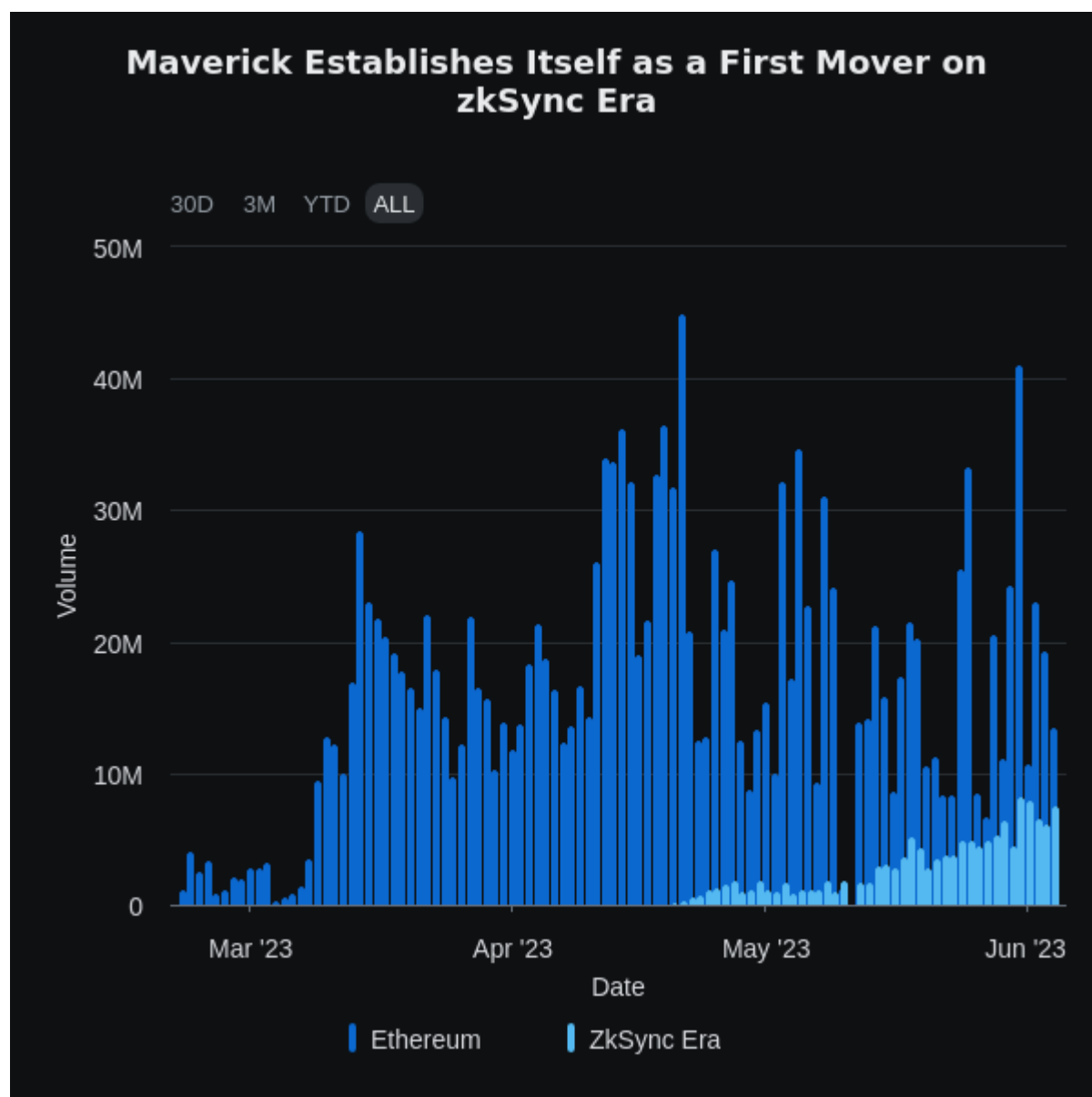


Maverick's ALP allows liquidity to passively congregate around the current price. Maverick's liquidity distribution appears to be much more efficient than Uniswap's. This dynamic will be exaggerated on non-major pools.

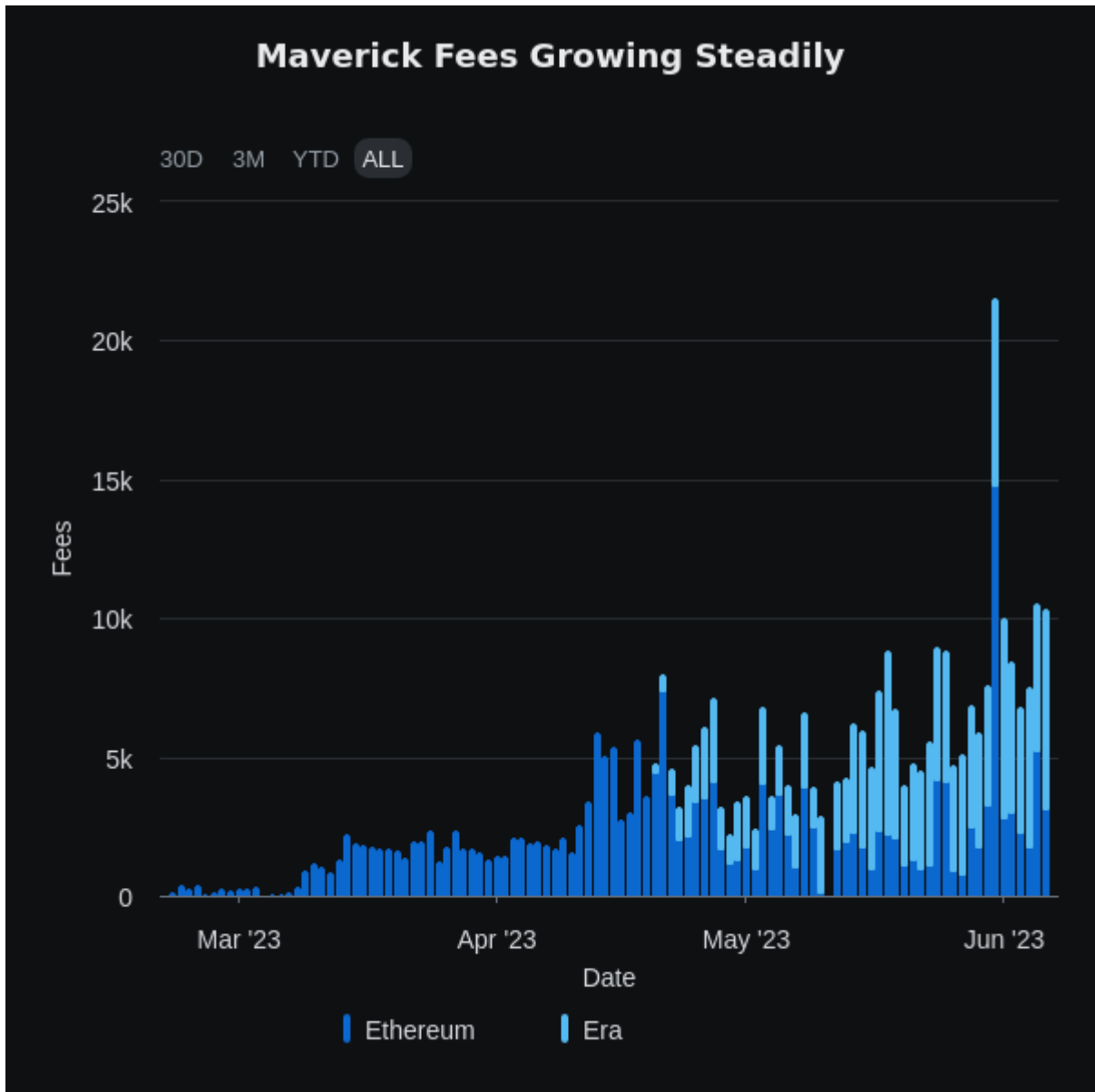
It is important to note that the above chart is only comparing the distribution of liquidity, not the TVL within each tick/bin. Uniswap has much more liquidity than Maverick. For example, within the current active bin on Maverick, there is only 206

USDC and 12.06 ETH (meaning ETH is on the verge of dropping to the lower bin) at the time of writing.

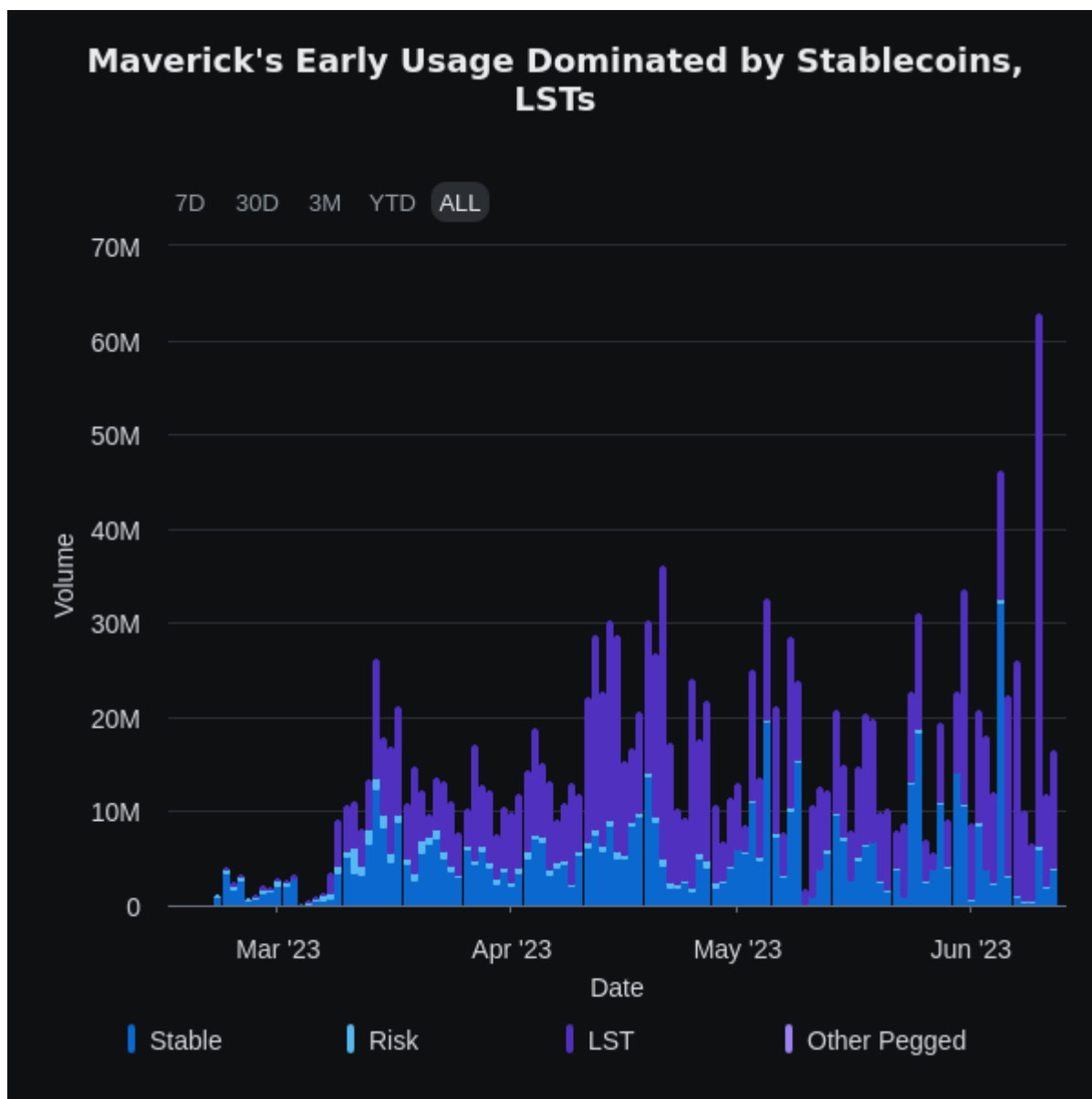
Maverick in Action



Maverick has taken a unique approach in its go-to-market strategy. After launching on Ethereum, it forewent launching on Arbitrum and Optimism to be a first mover on zkSync Era. zkSync Era launched in March and the ecosystem is very immature, but volume is steadily increasing.



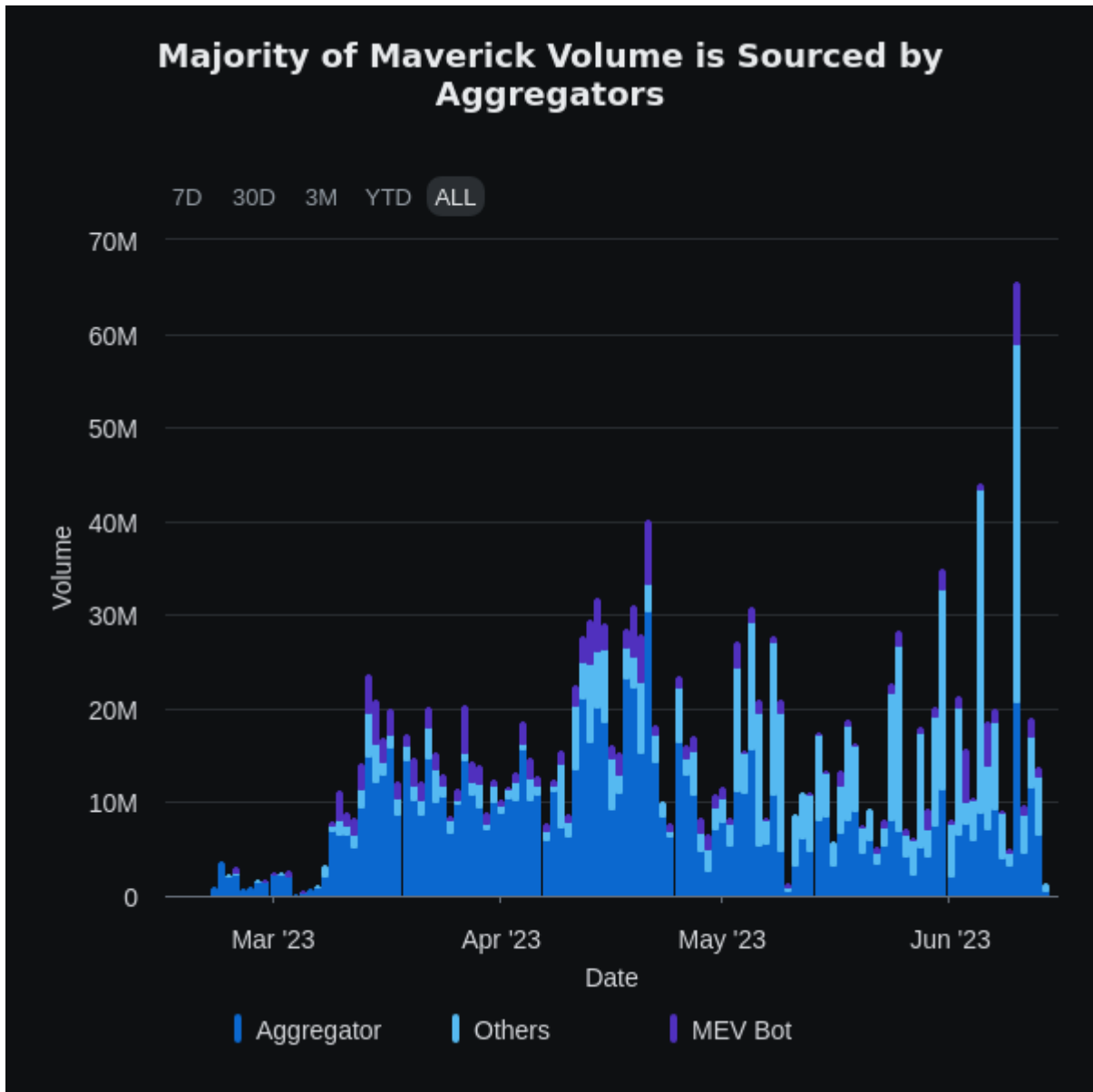
Maverick’s fees are growing even more than its volume, particularly on zkSync. This is likely due to a higher portion of volume on risk asset pools.



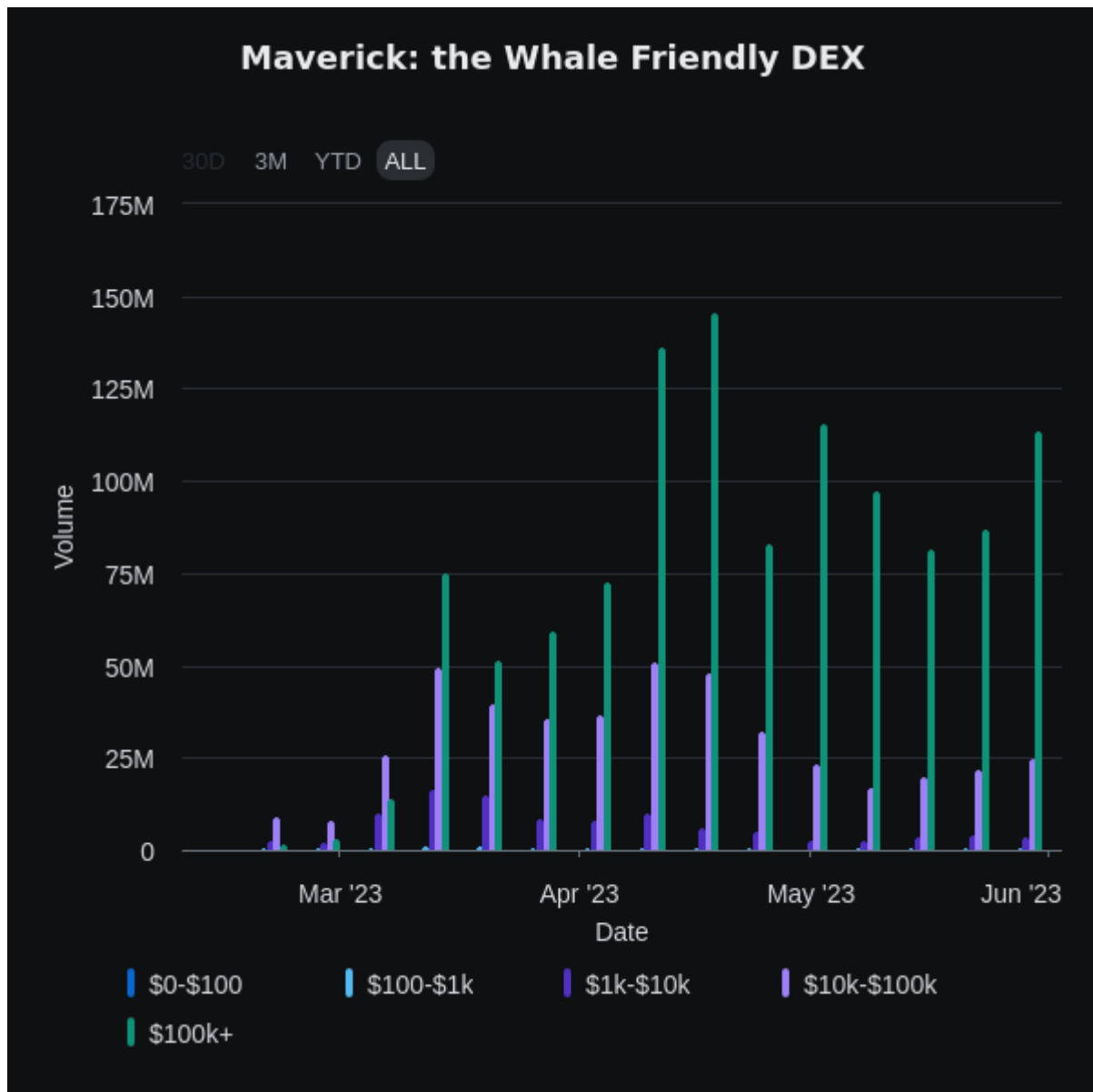
Currently, much of Maverick’s usage is confined to a small number of pools, including stablecoins and pegged assets. The overwhelming majority of risk asset pool volume comes from the USDC-ETH 4bp pool, which undercuts Uniswap’s popular 5bp pool.



Limited data around LP performance is currently available, but early indications suggest that ALP’s ability to keep tight LP positions in range can be very profitable for risk-on pools. It seems clear that the upside is there for risk assets on Maverick, and product-market fit should be attainable. It may take time for users to learn how to take full advantage of ALP, but Maverick certainly has the capacity to grow beyond its current niche with this grassroots-style expansion.



Many new DEXs struggle to generate new users initially. Liquidity mining programs are often used to generate volume and liquidity. Maverick’s low-slippage trades do the work for them, as it has become very popular among aggregators. Ideally, Maverick will begin to generate more direct traffic over time. Nonetheless, its popularity with aggregators can set a nice floor on its growth and is a testament to the design.

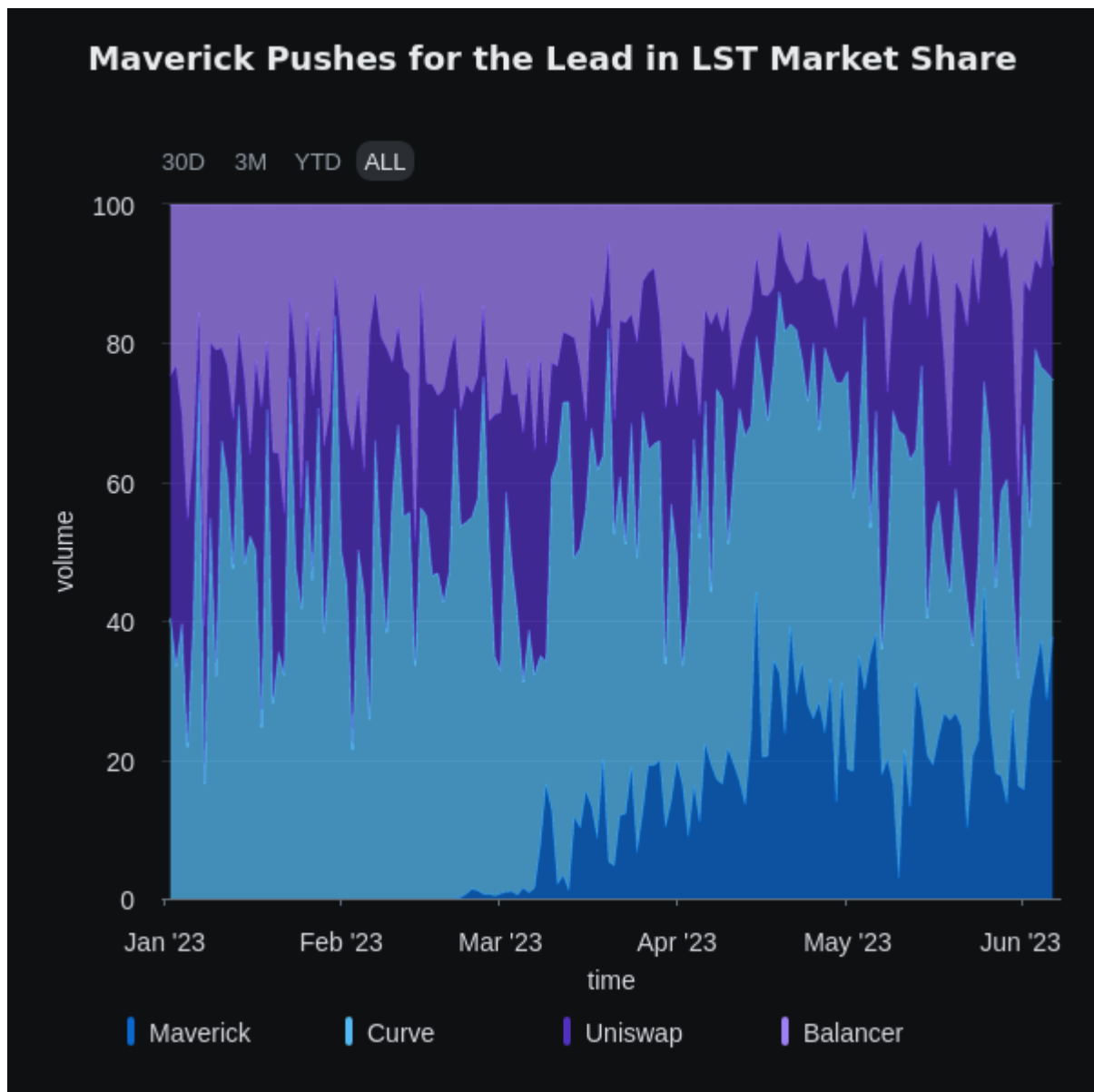


In addition to aggregators, Maverick is strongly preferred by whales. On Ethereum mainnet, over 75% of Maverick’s volume is coming from trades over \$100k. There is hardly any volume under \$100. This is partly due to gas costs, but the congregation of liquidity around current price and constant-sum formula used by the liquidity bins creates a strong environment for large trades.

Liquid Staking Tokens: Maverick’s Competitive

Advantage

LSTs will be a key narrative to watch over the next year. They may become the dominant trading pair on AMMs, and potentially the dominant collateral type for options and CDPs. The extent to which LSTs will usurp native ETH as DeFi's SoV is unclear, but the LST land grab is afoot.



Due to the predictable nature of LST-ETH price action, Mode Both is an ideal fit for LPs. Traders enjoy low slippage trades even with large orders. In less than four months, Maverick is fighting for the lead in LST trading volume.



Maverick's Capital Efficiency for LSTs is Unmatched

AMM	TVL	Daily Volume	Market Share	Capital Efficiency
Maverick	\$16.7M	\$11.7M	21.6%	69.8%
Uniswap	\$27.5M	\$13.9M	25.7%	50.5%
Curve	\$1B	\$16.4M	30.4%	1.6%
Balancer	\$266.8M	\$12M	22.3%	4.5%

Data as of Jun 14, 2023
Source: Dune Analytics (@murathan)



Maverick's ability to challenge for the lead in LST volume despite an order of magnitude lower liquidity is impressive. The ease of incentivizing liquidity for specific strategies will further fortify Maverick's LST moat. Maverick is in a great position to excel in this area for the foreseeable future.

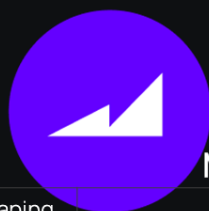
Competitive Landscape

Trader Joe

Trader Joe was the first DEX to implement liquidity bins, and has several innovative features in its own right. As the most similarly designed DEX to Maverick, the comparison is inevitable.



Maverick vs. Trader Joe



Maverick



Trader Joe

Liquidity Shaping	Yes	Yes
Fees	Low - Fixed Tiers	High - Fixed, Variable
Strategies	Passive/Immutable	Active/Upgradable
Chains	Ethereum Mainnet, zkSync	Avalanche, Arbitrum, Binance Smart Chain
TVL	\$30.6M	\$96.2M
Volume (30d)	\$612.4M (Ethereum)	\$126M (Avalanche, BSC)

Data as of Jun 12, 2023

Source: Maverick Protocol, Dune Analytics (@hagaetc), DefiLlama



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The key differences between Trader Joe and Maverick relate to fees and the method of automated liquidity provisioning. Trader Joe has dynamic fees that help protect LPs from IL. Maverick has a more Uniswap-style approach to fees, forgoing any surge fees that could deter traders. Instead, Maverick allows users to create pools with a variety of fee tiers.

Trader Joe has its own automated liquidity placement feature that it calls “Auto Pools.” Auto Pools look different than Maverick’s. Maverick’s ALP mechanism is passive and hard coded into the smart contracts. Trader Joe’s will be more active/discretionary and live on scripts, functioning similarly to vaults. “The General,” Trader Joe’s first Auto Pool, follows a strategy to maximize fee capture while remaining market neutral.

Uniswap

The biggest risk for most new DEXs is the task of carving out market share from Uniswap. Maverick might be in a better spot than most to go head to head with Uniswap. In the past, DEXs that have succeeded against Uniswap (albeit over short windows) have targeted niche markets: Curve – stablecoins; SushiSwap – liquidity mining; Bancor – IL protection for microcaps. Maverick excels in all of these categories and has already become a major player in LSTs.

Compared to Uniswap v3, the extra degrees of freedom offered by Maverick are significant QOL improvements for LPs. Having to go through Uniswap governance to add a 0.04% or 2% fee tier can feel like an unnecessary bottleneck compared to Maverick. Many Uniswap LPs use third-party apps to manage,

deploy, and auto-compound liquidity. Much of this functionality exists within the Maverick app itself.

The recent announcement of Uniswap v4 appears to significantly reduce Uniswap's attack surface. Dynamic fees, more customizable pools via hooks, and potential for new LP strategies could threaten Maverick's value add.

Maverick's biggest potential edge is how ALP modes embed LP nimbleness directly into the protocol's core UX. Maverick incorporates the simplicity and standardization of Uniswap v2 with the complexity and expressiveness of concentrated liquidity. Maverick has made market making accessible to a broader range of users.

Liquidity Mining DEXs

Uniswap v4 aside, Maverick's ability to facilitate efficient, passive, incentivized liquidity should at the very least make it an attractive alternative to other gauge-voting token systems and prior-gen tech.

Maverick's boosted pools are gaining traction even without a MAV token acting as an ecosystem catalyst. MAV, the protocol's governance token, was recently announced. Full token economics have not yet been released, but it will utilize some form of veToken structure.

Conclusion

Maverick is very much on the cutting edge of AMM design with its automated/directional liquidity provisioning, liquidity shaping, and seamless incentivization. Maverick has strong fundamentals and solid positioning within promising narratives. Maverick's early success on Ethereum mainnet serves as an important proof-of-concept for this new design. Maverick's natural synergies with LST-fi and the growth of activity on zkSync could unlock its potential for sustained growth and broader adoption.

Special thanks to Cheryl Ho for designing the cover image for this report and to Ashwath Balakrishnan and Brian McRae for editing.

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