LP Sniping Mitigation

Disclaimer: This idea was designed in 13 minutes at the Next gen DEX hacker event by@ballsyalchemist, [@JonahB

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image

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](https://collective.flashbots.net/uploads/default/original/2X/1/1f365e4d6041c41ab4f276b60cb13fc85a3c6a43.jpeg)

Problem

Initial LPs in constant product type pools face undue risks when depositing liquidity, especially in the context of assets that have not yet undergone price discovery. This challenge stems from the inherent mispricing risk associated with launching new pools for tokens without a pre-established market price. The first wave of order flow to a new pool often involves MEV bots exploiting the mispricing and correcting the price through arbitrage, which commonly arises from the information asymmetry among the market (this is a case of impermanent loss/ LVR). Here is an example.

This situation highlights a critical imbalance in the distribution of incentives across early LPs and participating traders/bots. While bots buy into the pool to secure the lowest-priced assets for immense upside (assume LPs don't rug the pool), early LPs are punished for the price-seeking activities for providing liquidity to the underlying assets. The question arises: how can a pool be designed to mitigate this early mispricing risk? Is there a new design that can allow the LPs to recapture the early arbitrage opportunity while mitigating the impact of LP sniping?

Solution

To address this imbalance and realign incentives, the rights to arbitrage must be auctioned, with the value captured from the auction redistributed to the initial LPs to compensate for the mispricing risk.

Design:

The initial volume in the pool is regulated by auctioning off the right to transact in units of volume, executed through a sequential batch auction. Assuming a competitive environment, nearly all of the expected value of the arbitrage can be internalized by the AMM itself, as arbitrageurs should be willing to bid up to the value of the expected arbitrage opportunity. The proceeds from the auction are then distributed pro-rata among the initial LPs. Upon completion of this auction, the AMM opens to all traders.

This mechanism will derisk early participation as LPs while better pricing the early buy-in opportunity that drives LP sniping.

Implementation Ideas:

- Use Semantic Layer's verifiable sequencing rule to perform the batching and prevent the frontrunning and backrunning of each unit of auctioned volume
- Use SUAVE to run the auction and leverage its privacy features to prevent collusion
- Use SUAVE to enable pool-specific parameterization such as adjusting the size of a unit volume and/or amount of volume for which the auction will be performed