dYdX LP Rewards Programme Review

Updated Report: Report

** Minor corrections to title names, mislabelling Epoch 22 as 28.

** Adjusting the font sizes for the appendix

Link to Working Paper: Report

Background

The LP Rewards Programme was introduced to incentivize LPs to provide two-sided liquidity based on their maker volumes, depth and spread, and uptime on the exchange. Given the exchange's strong positioning among DeFi platforms as having a robust orderbook, a critical point would be to maintain a balance between active liquidity near the BBO (Best Bid-Offer) and deep liquidity to dampen volatility. In particular, against wider uncertainties and pullback in liquidity, it is important that the Programme still remains attractive to LPs. Thus, this grant aimed to revisit the maxSpread parameters in this programme (where LPs will be eligible for rewards) and explore alternative mechanisms to improve the present scheme to encourage more healthy liquidity. Some key questions include:

1. How is trading behavior on the platform?
2. How are current liquidity provision strategies by LPs, using the order books and LP Rewards distribution as a proxy?
3. How resilient are dYdX's order books in times of volatility?
4. Can dYdX consider rebates and rewards and alternative structures in enhancing market efficiency?

Methodology

Order book snapshots were collected on a minute interval, with depths at various intervals (between 5 and 40 bps). This was contextualized against the present trade data to provide a better understanding on the amount of passive liquidity in the order books. Furthermore, in periods of liquidity stress tests, 'high market impact events' (i.e. PPI Release, US Initial Jobless Claims, FOMC Meeting Minutes Release) were used to observe the changes in the order book depths. Therefore, the following data was collected:

- Order book data at different maxSpread intervals
- Trades executed on dYdX
- LP Rewards Metrics (from the Dashboard)

The trade data was then reconstructed at a per minute basis to re-create the order book depths (upper bound). These were then subjected to various conditions in establishing the possible maxSpread values:

1. Lower Bound: MinTickSize > Price * Spread
2. Mean depth at chosen spread > Mean volume at each side (bid, ask)
3. Depth at chosen spread exhibits mean reverting behavior
4. Depth at chosen spread > Volume at each side (bid, ask) during high market impact events (Event Studies)

Metrics for evaluation include:

1. Average Trade Size, Max Trade Size, Number of Trades above a certain amount on a daily basis
2. Time to recovery to 75% of average order book depth during high market impact events
3. Estimated depth required (based on reconstruction)

Summary of Results

1. Majors (BTC and ETH) exhibit very resilient order books with tight spreads and deep liquidity on both sides. While 10bps would be ideal for maxSpread, it can be contended that the exchange does not need to keep incentivising liquidity as the books have also exhibited strong self-correcting capabilities around the BBO (especially during periods of volatility). These are testament to the fact that these markets are mature enough to attract LPs.
2. Altcoins revealed huge variations across the spectrum. Tick Constrained Markets include UMA and ZRX where a 1 tick difference already incurs > 40bps and these have historically seen relatively lower volumes. Furthermore, despite a high LP Reward Coeffecient, LPs are not attracted to provide active liquidity, suggesting inelasticity to these rewards.
3. SOL leads with the largest number of notional trade volumes and requires a significant amount of depth to absorb

flows on either side. This is followed by AVAX, DOGE, MATIC, LINK, LTC, FIL and ATOM.

4. In terms of order book resilience, liquidity recovery in the less active markets are much slower and these markets exhibit very thinly traded books with a distinct difference in liquidity at each level. However, most notably, SOL and MATIC, suffered a huge dent in liquidity during these periods given the sudden influx in trade volume, thereby requiring a wider maxSpread to cater for these events.

Recommendations

For more details and rationale for these recommendations, please refer to the full report.

1. Amend the maxSpread parameters to:
2. Revise the LP Rewards formula for BTC/ETH markets to a volume parameter:
3. Increase the makerVolume weightage for altcoin markets from 0.65 to 0.85, following the path taken by BTC/ETH last year.
4. Implement the LP Rebates Scheme (as a signal to the Trading Team)
5. LP Rebates for BTC/ETH
6. Enhanced Rebates for Altcoins as rebates for altcoins are lower than the present LP Rewards Programme
7. LP Rebates for BTC/ETH
8. Enhanced Rebates for Altcoins as rebates for altcoins are lower than the present LP Rewards Programme
9. Implement a DMM structure per epoch for altcoins with a preferential rebates and rewards scheme similar to traditional exchanges (as a signal to the Trading Team)
10. Suggested Allocation to Markets (Tiered Structure)

Next Steps

- Discuss the research, results and recommendations and proceed with the relevant governance process to implement changes, if any.