tl;dr

- Market makers are a critical component of the dYdX exchange, and to compensate them for the liquidity provision service that they provide, they receive incentives.
- Currently, top market makers receive incentives in two forms: a rebate on their trading fees, and LP rewards each epoch.
- We suggest that the rebate be increased from 0.5bps to 0.85bps, and that the per-epoch LP rewards be reduced by 50% from 1,150,685 DYDX/epoch to 575,342.50 DYDX/epoch.
- We expect that this reduction will lead to improved exchange liquidity at or near the the top of the book; it will be roughly economically neutral for LPs; and it will meaningfully reduce monthly DYDX emissions.

The dYdX LP rewards system has been the source of much debate, which has primarily revolved around modifications to the rewards formula. While there may be additional research to help us optimize the LP rewards formula, we do not focus on that here. Instead, we discuss changes to be made to the quantity in rewards itself.

With a current expenditure of 1,150,685 DYDX/epoch (~$2M USD), the LP rewards program constitutes a major source of emissions for the DYDX token. These rewards are distributed to market makers based on their Q score

, a metric computed based on market maker's uptime, depth, and spread. While this score has undergone changes, it does not strictly reward makers based on volume, which has led to unproductive liquidity: liquidity that earns rewards but has low likelihood of getting filled. Although the introduction of a volume term has helped move the exchange in the direction of more productive liquidity, I believe it makes sense from the community and production LPs' perspective to move incentives away from the Q-score LP rewards formula and toward a market maker rebate.

Market maker rebates reimburse market makers for the liquidity that they provide that gets filled. Rebates are common across many crypto exchanges, including Binance, BitMex, and others. Currently, dYdX offers makers a 0.5bps (i.e., 0.005%) rebate. Similarly to the volume term in the current LP rewards program, makers increase their rebate when they take the other side of a taker's order. However, dissimilarly from the LP rewards program, maker rebates come in the form of reduced maker fees, rather than in the form of a DYDX reward.

We suggest that the dYdX community move toward a lower LP rewards program and a higher maker rebate, for the following reasons.

1. The LP rewards program is costly to the dYdX community, as it is a source of high DYDX emissions. Lowering the LP rewards emissions lowers DYDX emissions.
2. The LP rewards program has historically had issues with market makers providing unproductive liquidity that earns rewards but does not get filled.

Consideration 1: this changes the shape of the orderbook

It is worth noting that this change will have implications on dYdX's liquidity. For instance, there will likely be a greater liquidity at the top of the book (i.e., closer to best bid / best ask) as well as lower liquidity further from the mid price. We anticipate that very large trades will receive worse pricing after this change, as opposed to before. Conversely, most of the existing dYdX volume will receive better pricing as a result of this change, as evidenced by the graphs below.

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depth-matic

878×632 164 KB

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Figure 1: MATIC market depth, as measured from number of basis points (bps) back from the mid price. The y-axis is depth, in units of MATIC.

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fill-depth-matic

874×642 71.7 KB

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Figure 2: MATIC fill depth, as measured from number of basis points (bps) back from the mid price.

For example, on the MATIC market, we see from Figure 1 that there is an increase in liquidity that spikes at 40bps away from mid price, which corresponds with the 40bps market cutoff for LP rewards. On the other hand, we see from Figure 2 that only a tiny portion of the MATIC volume hits 40 bps away from mid; in fact, only a tiny portion of MATIC volume eats through more than 10bps. Clearly, most of the volume on the exchange is concentrated close to the mid price, at least on the MATIC market.

We see a similar, although more nuanced relationship on ETH markets, where there is presumably a larger portion of organic depth.

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depth-eth

836×620 169 KB

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Figure 3: ETH market depth, as measured from number of basis points (bps) back from the mid price. The y-axis is depth, in units of ETH.

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fill-depth-eth

858×654 71 KB

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Figure 4: ETH fill depth, as measured from number of basis points (bps) back from the mid price.

Consideration 2: why not do {tiered maker rebates, additional changes to the LP rewards formula, …}?

This proposal is meant to be as simple as possible. Some other community members have made compelling cases for other changes, such as Colin Chan's "Liquidity Providers' Incentive Programme" and Callen's "DRC - Introduce a Market Maker Rebate Program". There are further optimizations that can be made to the maker rebates program, such as tiered incentives for top makers that commit to filling large amount of volume on the exchange (link), or changing the volume term in the LP rewards formula, or changing the uptime term in the LP rewards formula, or squaring the spread term in the LP rewards formula, etc. However, for the sake of minimizing governance complexity, I would like this change to focus on a simple decision: should we increase the rebate and decrease the LP rewards emissions, or not?

Recommendation

As a first step toward reducing LP rewards, we suggest lowering the LP rewards program by 50% (to 575,342.50 DYDX/epoch) and setting the maker rebate to 0.85bps (i.e., 0.0085%) on all markets; we chose these parameters to keep total LP incentives — from rebates and LP rewards — roughly the same as they are today. The saved LP rewards emissions would vest to the rewards treasury, which can then be utilized as dYdX governance sees fit.

Expected Impact

- Impact on LPs.

Using estimates of the DYDX price and LP rewards-seeking behavior, we find that this change would be roughly economically neutral for LPs.

- Impact on dYdX community.

This would lower DYDX emissions, i.e. dYdX community spending, by 575,342.50 DYDX per epoch. At current DYDX prices, that is a $1M+ saving per month to the community. This change is overall positive for the community.

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lp-rewards

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- Impact on traders.

Smaller traders will unilaterally benefit from this change whereas larger traders will see higher execution costs. Based on

historical execution pricing and orderbook data, the volume-weighted execution cost across all traders will decrease, so long as the distribution of taker order sizes remains similar. This change is overall positive for traders.