The ACCretion

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The next phase of Tokemak is all about growing our PCA (protocol controlled assets). The PCA concept encompasses both the value of the portfolio the protocol owns (the so-called PCV or protocol controlled value) as well as the actual portfolio make-up or diversification.

Intro

In order to achieve rapid growth of the PCA, Tokemak is launching accTOKE, the ACC token, and a refined reward logic. All three will work in concert to achieve rapid growth of the PCA, improve the utility and efficiency of our liquidity, reduce emissions, and serve as the gateway into expanded protocol governance.

This article aims to provide the reader with a complete overview of how the different components work together.

Current Reward Logic

A reminder of the logic behind the current reward system will be helpful in order to fully understand the changes. Please refer to this Medium article for details about the reward equations.

In short, the three reward buckets (Liquidity Directors and both the Liquidity Provider groups across Pair and Token Reactors) are allocated to the individual Reactors based on the relative size of their pool within their category for LPs and across all reactors for LDs.

The actual amount paid out to both the LDs and LPs within any given Reactor is then determined by the balance of LP and LD. The full amount is only paid out if the Reactor is perfectly balanced.

Examining the ABC Reactor in the above illustration:

- LP:

ABC represents 52.6% of pair assets provided by LPs (100M / (100M + 90M)), 25.6% of all LP provided assets across both Pair and Token Reactors (100M / (100M + 90M + 100M + 100M))

- LD:

TOKE staked to ABC represents 50% of TOKE staked to Pair Reactors (100M / (100M + 100M), and 25.6% of TOKE staked across Pair and Token Reactors (100M / (100M + 100M +100M + 90M))

Rewards to the ABC LPs are calculated as follows (assuming 1,000 TOKE rewards allocated to Pair Reactors):

Rewards to the LDs staked to ABC are calculated as follows (assuming 2,000 TOKE rewards allocated to LDs):

Revenue Modulated LD-Rewards

Currently the Liquidity Directors (LDs) rewards are determined by the balance of the reactors, meaning the relationship of the TVL of both assets provided by LPs and TOKE staked by LDs relative to each other and to the total TVL in the system (Pair Reactors, Token Reactors and TOKE staked across both Reactor types):

In order to further strengthen the alignment of LDs and Tokemak an additional factor is introduced into the above reward logic. This parameter will weigh the LD rewards taking into account the system revenue generated by the underlying asset deployed to the different venues. In essence the LDs will earn rewards commensurate to the revenue generated by their directed liquidity.

While this is aimed at increasing the system revenue generated from which all will benefit, it will also have positive second order effects such as creating a more balanced interrelation between more asset/venue agnostic Tokemak oriented LDs, and LDs that might benefit from liquidity direction in more other ways outside the core Tokemak economics (think DAOs, trading venues etc.)

Just as importantly, taking into account the ACC mechanics described below, it will additionally give LDs control over which assets will be accumulated in the PCA. The updated logic including the factor will look as follows:

Here, R is a Revenue Factor that we will be unveiling soon. This factor will balance the Reactor not only in terms of LPs vs LDs, but also in the underlying revenue that is earned by the deployed liquidity. Since the LDs are the ones making the choices on where the liquidity is deployed, the LD rewards equations are the ones that are being modified by this factor.

The initial factor should be chosen in a way that doesn't lead to a momentous change in APR, such as completely cutting off rewards from a Reactor generating little yield during a cycle — this could be achieved by implementing a lower limit soon to be determined.

The Revenue Factor shall at a later point be introduced as one of the governance controlled parameters.

Points to remember:

- System revenue generated by a Reactor will have impact on the local LD rewards, resulting in a bonus paid out to LDs directing liquidity in ways beneficial to the protocol
- The updated equations balance the interests of different type of Liquidity Directors
- LDs will indirectly control which assets are accumulated in the PCA
- The revenue control parameter will become a governance controlled parameter

Surplus Modulated LP-Rewards

It is important to remember that ultimately Tokemak aims to deploy its PCA, using LP provided assets as leverage (defined by the PCA multiplier). This is an important shift in thinking that moves us beyond the need to use the PCA as an idle backstop for deployed LP assets.

Tokemak is currently paying out rewards to LPs regardless of the current PCA holdings (which we here refer to as protocol controlled ABC, or pcABC tokens) to LP asset ratio (the tABC). Fundamentally, this equates to a loan of assets that sometimes cannot be usefully deployed as liquidity and to earn system revenue, and instead they sit idle in the reactor.

To account for the deployability of assets in any given reactor (and to further counteract the "laddering up" of a reactor in concert with the revenue factor) the reward equation on the LP side will include a factor taking into account the current PCA of the respective asset — thus optimizing capital efficiency.

The current reward equations for both Pair and Token Reactors are determined as below:

Using the reserve multiplier we can determine the desired, most capital efficient amount of LP assets to be factored into the equation (in this example, to keep things simple, we'll abide by a PCA to deployed asset ratio of 2:1):

In the above Reactor, the PCA of $25M pcABC (protocol controlled ABC) would allow for a deployment of an additional $50M (for a total deployment of $75M ABC) — therefore $50M tABC (LP provided ABC) out of the $100M tABC total would remain idle in the reactor. In order to account for the PCA, the reward equation would be altered in the following way:

Here, lp*(i) is a modified definition of lp(i) to account for surplus modulation. We will share the mechanics in an upcoming detailed article. The introduction of this factor will require stepping into it in a controlled manner, allowing for users to adapt to the change in order to not trigger unwanted behavior.

Please also note that this will take into account the fact that some pair assets can be safely deployed to specific venues (such as Curve) while only requiring minimal PCA backstop.

Points to remember:

- Balance between PCA and LP assets of a Reactor will have impact on the local LP rewards
- This will improve capital efficiency of emissions
- This prevents "laddering up" of a Reactor (farming with LP, stake TOKE rewards on LD side and subsequently raising the LP rewards) — especially in combination with the revenue factor on the LD side

Use of Reward Surpluses

Both of the above factors can, at least initially, lead to less actual reward payments to both LPs and LDs than allocated. These surpluses of TOKE rewards will be used to both increase the Token Reactor PCA (via ACC described below) and provide more productive Pair Reactor assets via TOKE-reward reallocation to productive pair assets in order to incentivize further LP deposits.

LD Surplus: Bonus can be spread across accTOKE holders (accTOKE described below) and TOKE stakers

LP Surplus: Bonus for PCA acquisition (ACC)

ACC — The PCA Token

With the launch of ACC, Tokemak will be able to accept all supported assets not just as TVL (tAssets), but also directly into its PCA — and as such directly under the control of TOKE holders for all future time, without an associated tAsset liability. ACC will also be a main stepping stone to permissionless reactors, allowing protocols to provide their reactor with the necessary reserve.

With this new mechanic, users can deposit any supported asset directly into Tokemak's PCA, and will receive ACC in exchange (somewhat analogous to depositing CRV into Convex and receiving cvxCRV). There will be a bonus available for those who deposit their tokens into the PCA for a token whose Reactor is currently running with an LP Surplus, as described in the above section.

accTOKE — Locking TOKE

One can think of accTOKE as a "vote-locked" token (vl model / non-transferable), allowing holders to lock up TOKE in exchange for a number of benefits — not only further aligning long term holders with the protocol, but also expanding the protocol governance, mechanics, and earning potential for those TOKE holders who opt into the accTOKE model.

Among other governance functions, accTOKE will play a crucial role in the process of standing up permissionless reactors (similar to the approval process of Curve gauges). Revenue splitting and other exciting features will also be coming for accTOKE stakers.

Example

It's important to understand that each of the above mentioned mechanics do not function in a vacuum but reinforce each other and, in combination, have favorable overarching consequences. To illustrate this, we will below examine one of the multiple cause and effect chains between them using a simplified example.

In this simplified example we will focus on the relationship between the revenue / surplus modulated rewards and the PCA. In order to keep things simple we will disregard some aspects (e.g. difference between Pair and Token Reactors) which have little impact on the general concept — and we will use simplified numbers:

In the above diagram, the ABC reactor is generating 5% in revenue yield, while the XYZ reactor is generating 4%. The XYZ reactor generating less system revenue will result in:

LD rewards being weighted towards the ABC reactor (revenue modulation):

- Increased incentive for protocol agnostic LDs to shift more votes over to the ABC reactor, helping balance the interest of LDs that benefit from liquidity in more indirect ways (DAOs, DEXs etc). This will also prevent farming behavior that is unhealthy for the protocol such as "laddering up" a reactor (Add LP, earn TOKE rewards, vote TOKE to reactor allowing to accommodate more LPs)
- LDs moving to the ABC reactor leads to an imbalance between the TOKE and ABC side of the reactor, thereby leading to increased incentives for LPs to provide ABC and thus leading to an increase in the TVL to PCA ratio of ABC

Increase in ABC surplus (surplus modulation):

- The increase in the TVL to PCA ratio will lead to an increase in the reward surplus of the reactor, thus more rewards will be allocated to the PCA acquisition of the ABC reactor. This process will increase the PCA, bringing the TVL to PCA ratio back down to the target value

Rollout

In order to ensure the individual components work as expected and to allow for initial fine tuning of parameters, we will roll out these updates in the following anticipated order:

1. Revenue modulated LD rewards
2. Surplus modulated LP rewards
3. ACC / accTOKE

These updated tokenomics and mechanics will advance Tokemak toward the Singularity, increasing our PCA, revenues, capital efficiency, and utility as the liquidity bandwidth of web3.

Discord: https://discord.com/invite/tokemak

Website: https://www.tokemak.xyz/

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