Rocket Joe: A Launch Platform for Bootstrapping Protocol-Owned Liquidity

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Introduction

Rocket Joe is a token launch platform where participants bid to provide liquidity for newly issued tokens. The platform enables price discovery and token distribution over a period of time before tokens are issued to the public market while discouraging front-running by bots. In addition, it improves liquidity sustainability by allowing issuing protocols to acquire its own token liquidity.

New token launch problems

Currently, protocols looking to launch new tokens on a decentralized exchange (DEX) will typically seed a small amount of token liquidity into a liquidity pool. This liquidity seeding may occur just before a token public sale concludes. However, protocols often encounter some problems:

- DEX liquidity pairs require 2 tokens, e.g. TOKEN paired with WAVAX. At early stages, many protocols are not able to raise enough AVAX to provide liquidity for their new token. Some may not have any funds at all.
- Protocols either pick an arbitrary price or seed the liquidity at a public sale price concluded at a launchpad. This might make sense, but since token public sales are designed to be a low price, it attracts bots to front-run market users.

Beyond the initial token launch, oftentimes liquidity pools require token incentives to maintain sufficient liquidity (aka “pool 2”). TraderJoe manages many such incentivized liquidity pools (aka “farms”) in order to maintain liquidity levels.

- While it is possible for issuers to fund their own farms, we find that DEX’s are better equipped to manage liquidity and trading user experience.
- Farms may suffer low retention when token incentives end.

Protocol-owned liquidity (POL) is an alternative model whereby the issuer owns its own TOKEN/AVAX liquidity and has a lower dependency on liquidity providers via yield farms. By encouraging the adoption of POL, we can improve sustainability by reducing incentive costs for liquidity.

Prior Art

Balancer: Liquidity Bootstrap Pools (LBP)

Popularized by Balancer, Liquidity Bootstrap Pools (LBP) allow for the ratio between 2 tokens in a liquidity pool to be adjusted over time. LBPs can be configured to start at a high price, and slowly lowered over time. As in the case of Copper, this configuration of LBP can be used as a form of token auctions. LBP based auctions discourage early buyers and front-running bots by allowing new tokens to start at a high price, and then slowly lowered over time. This allows users to participate in price discovery over a longer period of time.

Delphi: Liquidity Bootstrap Auction (LBA)

In a recent paper titled *"Lockdrop + Liquidity Bootstrap Auction" (Delphi Digital, Dec 2021)*, Delphi Digital re-examined how to approach token launches and designed a two-phase process. This process is in trial for the Astroport launch in Dec 2021. The first phase (lockdrop) serves as an initial token distribution phase and the second phase (LBA) is the price discovery phase. During the LBA, participants are allowed to deposit one side of a liquidity pair following a withdrawal limiting schedule and receive LP shares after a lock/vesting period. The design intent is to establish a secondary market list price and supply liquidity depth at that price.

Olympus: Bonding as a service (Olympus Pro)

Olympus introduced the concept of liquidity bonding by allowing users to sell OHM-DAI liquidity pair tokens to Olympus DAO, in exchange for discounted OHM tokens vested over time. This allows the Olympus treasury to accumulate its own OHM LP liquidity, without relying on a continued stream of incentives over time.

Olympus Pro extends this liquidity bonding service to third-party protocols looking to reduce their cost of liquidity.

Protocol Design

We propose a new protocol that allows participants to bid for newly issued token liquidity pairs. Our design differs from LBP or launchpad IDOs in that capital raised is used for DEX liquidity, thereby solving liquidity bootstrapping needs for issuers.

Rocket Joe provides issuers with a platform to provide their tokens, and for participants to price those tokens with AVAX during a pre-listing period. At its conclusion, the tokens and AVAX are paired into Trader Joe liquidity pools as LP tokens and divided proportionally between the issuer and the participants.

We propose an architecture composed of three smart contract devices:

- **Rocket Joe Staking** to distribute *allocation credits* in the form of *rJOE* tokens.
- **Rocket Factory** to create and manage launch events.
- **Rocket Launch** Contract to facilitate liquidity provision during the various phases of the launch event.

Comparing to Launchpad IDOs

Launchpad Initial DEX Offerings (IDO) are popular platforms for retail users to participate in early-stage projects. The objectives for IDOs are to offer fair and equitable distribution and often require KYC to verify identity and prevent bad actors. In some cases, KYC may be required to meet local compliance requirements.

Where IDOs are designed to distribute a limited number of tokens at the same price to as many real people as possible, Rocket Joe allows for a larger amount of liquidity to be raised closer to the open market price.

Complementary Launch

A launch strategy for new projects could be to utilize both traditional KYC launchpad and bootstrap liquidity with Rocket Joe.

- A number of tokens can be issued to KYC verified users at a fixed public sale price.
- A larger number of tokens can be offered for liquidity bootstrapping on Rocket Joe. The price will be determined by participants and may be higher than the public sale price.
- Rocket Joe liquidity launch will complete before launchpad public sale release any tokens to the public. This will ensure that DEX secondary market will trade based on the liquidity raised from Rocket Joe and discourage any bot front-running as typically encountered in launchpad IDOs.

Staking for Allocation Credits

In order to participate in *Rocket Joe*, users will be required to spend *rJOE* tokens, which represent *allocation credit* for launch events.

Users may participate in multiple concurrent launch events provided they have sufficient *rJOE* tokens to use. For example, if a user wishes to invest 100 AVAX and 50 AVAX in launch events A and B respectively, they should have an equivalent rJOE balance for 150 AVAX allocation. *(Note: in actuality, we pair Wrapped AVAX or WAVAX in liquidity pools but we refer as AVAX in this paper).*

Factory

The factory contract creates new launch events. Issuers engage *Rocket Joe* by committing an allocation of issuing tokens and any additional incentive tokens to a liquidity launch event. Launch events are permissionless and may be created by anyone, similar to DEX liquidity pools. Examples of launch event contract parameters include:

- Issuing token and supply
- Withdraw penalties
- Max/Min allocation per user
- Bonus Issuing Tokens
- Issuer timelock
- User timelock
- Liquidity mining reward supply and reward rates

Launch Events

Launch Event contracts allow participants to bid, by depositing or withdrawing AVAX to the pool. The interactions are split into multiple phases.

Phase 1: Deposit (2 days)

During the first phase of the launch event, users will be able to stake an amount of AVAX, up to their available allocation credit. User AVAX deposits are pooled to then be paired with a fixed quantity of the issuing token.

Example

An issuer offers 1,000,000 XYZ tokens. The requirement for depositing 1 AVAX into the XYZ launch event is 100 rJOE tokens.

- Alice spends 300,000 rJOE and receives an allocation of 3000 AVAX.
- Alice deposits 3000 AVAX, up to their allocation limit.
- Bob spends 700,000 rJOE and deposits 7000 AVAX.

- Total tokens pooled are 1,000,000 XYZ against 10,000 AVAX. The tokens would be deposited to a liquidity pool and converted to LP tokens.
- Alice in this example owns 15% of the total launch pool and would receive 15% of the resulting XYZ-AVAX LP tokens.
- Bob in this example owns 35% of the total launch pool and would receive 35% of the resulting XYZ-AVAX LP tokens.
- The issuer in this example owns 50% of the total launch pool and would receive 50% of the resulting XYZ-AVAX LP tokens.

	rJOE spent	Tokens Deposited	LP Pool Share
Alice	300,000 rJOE	3000 AVAX	15%
Bob	700,000 rJOE	7000 AVAX	35%
Issuer	-	1,000,000 XYZ	50%

Over-subscription

Highly anticipated token offerings may have strong demand for their tokens. Users may stake more AVAX (and spend more rJOE), in order to receive a larger share of the LP Pool share. In such cases, the total AVAX deposited may result in a XYZ:AVAX ratio higher than the public sale price.

Example

- Bob increases their spend to 900,000 rJOE and deposits 9000 AVAX
- The total pool tokens are now 12,000 AVAX to 1,000,000 XYZ
- The implied price of XYZ has increased +20% from 0.01 to 0.012 AVAX.

	rJOE spent	Tokens Deposited	LP Pool Share
Alice	300,000 rJOE	3000 AVAX	12.5%
Bob	900,000 rJOE	9000 AVAX	37.5%
Issuer	-	1,000,000 XYZ	50%

Under-subscription

In the case that launch events do not raise the target liquidity, the total AVAX deposited may result in an XYZ:AVAX ratio lower than the public sale price.

Example

- Bob decreases their spend to 500,000 rJOE and deposits 5000 AVAX
- The total pool tokens are now 8000 AVAX to 1,000,000 XYZ
- The implied price of XYZ has decreased to 0.08 AVAX

	rJOE spent	Tokens Deposited	LP Pool Share
Alice	300,000 rJOE	3000 AVAX	18.75%
Bob	500,000 rJOE	5000 AVAX	31.25%
Issuer	-	1,000,000 XYZ	50%

Withdrawal Penalties

In order to facilitate free-market price discovery, we allow participants to deposit and withdraw their allocation. A simple price manipulation may be as follows:

- *Bob* increases their deposit such that the price of *XYZ* is now 0.05
- *Alice* disagrees with this price and withdraws their deposit
- *Bob* is now 100% of the user AVAX liquidity; at the last moment before the deal closing, they can withdraw their deposit to 10,000 AVAX and own 50% of the liquidity pool at the lower public sale price of 0.01 AVAX.

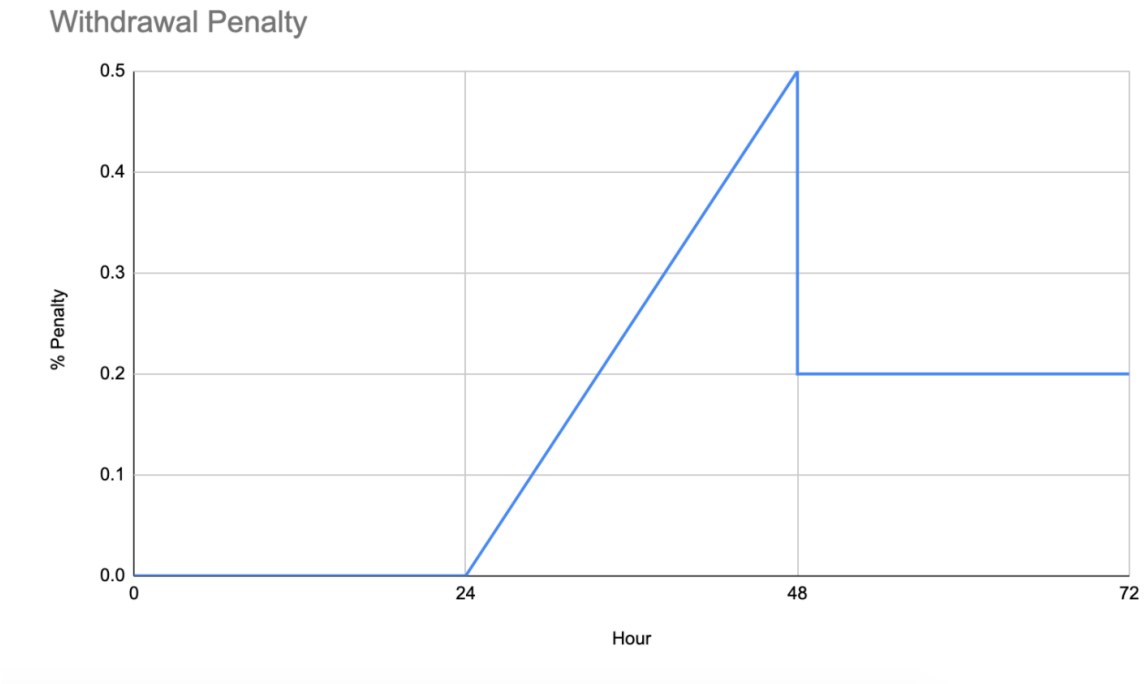
In order to prevent such kind of manipulation, we add a withdrawal fee that scales as the time approaches the end of the Deposit phase.

- During day 1, participants may freely deposit or withdraw from their allocation.
- During day 2, the **withdrawal penalty** scales linearly up to 50% of the withdrawal amount.
- The withdrawal penalty is paid to Rocket Joe.

Example

- On day 2, Bob wants to withdraw 1000 AVAX from their deposit.
- The withdrawal penalty is at maximum 50%
- Bob will receive 500 AVAX from their withdrawal, with 500 AVAX being paid as a penalty fee to Rocket Joe.

	Day 1	Day 2	Day 3
Phase	Phase 1 (Deposit + Withdraw)	Phase 1 (Deposit + Withdraw)	Phase 2 (Withdraw only)
Withdrawal Penalty	0%	Scales 0-50%	20%



Withdrawal penalty over time

Phase 2: Withdrawal (1 day)

During phase 2, Rocket Joe allows for a brief period of price correction. Participants that are not satisfied with the pairing ratio of TOKEN-AVAX may withdraw any amount of their AVAX stake. Withdrawals during this phase, while permitted, will be penalized to discourage rate manipulation during the liquidity launch. The penalty will initially be set at 20% of the withdrawal amount but will be subject to change. Unlimited withdrawals will be allowed so that participants are able to fine-tune the pricing.

Phase 3: Launch (7 days)

At launch, all tokens in the pool are then deposited into a Liquidity Pair (LP) token on the Trader Joe DEX. All participants will then receive LP tokens based on their share of the launch event pool.

- LP Tokens are locked for a short period (e.g. 3-7 days).
- During this time, all LP holders may also accrue bonus XYZ token incentives.

Post-launch: Liquidity Mining (Optional; 30-90 days)

The issuer or protocol may wish to sustain liquidity beyond the initial launch period. They may do so by contributing additional tokens to be distributed as liquidity incentives. These incentives will be distributed through the TraderJOE double reward farms and may also receive JOE incentives.

rJOE Tokens

rJOE tokens are burned for allocation credit and can be valued as an option to participate in an upcoming liquidity launch.

- We propose a fixed price of 100 rJOE to 1 AVAX of allocation credit.
- rJOE is burned at every liquidity launch, therefore the demand for rJOE can be well projected as token launches are typically planned at least 1 month in advance.
- rJOE tokens can be claimed by JOE stakers like a yield farm. The supply rate of rJOE tokens can be controlled by the JOE protocol team.
- rJOE tokens have an infinite supply.

This additional token mechanism aims to be more user-friendly and give greater opportunity to small size token holders.

- Users with a smaller amount of JOE tokens can stake for a long period of time, and result in the same amount of allocation credit as a user with a larger amount of JOE tokens but stake for a shorter time.
- Allocation credit is acquired at a pre-launch basis; large stakers may spend all their rJOE in a recent launch and have less allocation credit for the next launch event.

Summary

We introduce *Rocket Joe*, a new mechanism for protocols to bootstrap token liquidity to address problems users face when token liquidity is first launched on decentralized exchanges. Users spend rJOE tokens to participate in Rocket Joe liquidity launches. This introduces a new token economy for the participation of liquidity launches on the Trader Joe platform.