CONTRIBUTE

A Capital Coordination Tool

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Introduction

Contribute is a decentralized capital coordination tool that incentivizes the creation of a perpetual interest-generating pool through smart contracts on the Ethereum blockchain. Contributed funds are exchanged to TRIB tokens that are issued through a bonding curve model to reward early risk takers for initially seeding the contract.

All funds deposited in the pool are sent to a smart contract which optimizes yields on different lending protocols continuously generating interest. This interest can be claimed by any TRIB token holder as long as they sell the same dollar amount of TRIB back to the contract.

A 10% fee is applied to anyone entering or exiting the pool. The fee is used to buy and burn TRIB tokens, permanently locking value in the lending protocol. This allows for a constant stream of interest to be generated for as long as there is demand for the underlying asset, benefiting every TRIB token holder.

Contribute is an experiment which is only possible because of the advent of Decentralized Finance (DeFi) on the Ethereum blockchain. It uses crypto economic incentives to bootstrap an automated interest-generating pool.

This article focuses on specifics of how Contribute works.

Contribute Contract Specification

- **Contribute Contract**: 0x0DdfE92234b9DCA2de799736bBBa1D2F25CFC3b8
- **Genesis Contract**: 0xf48d1FfBed1D9b87cC0B4410d16230B35BdFC28A
- **Protocol Token (TRIB)**: 0xe09216F1d343Dd39D6Aa732a08036fee48555Af0
- **Principal Asset (mUSD)**: 0xe2f2a5C287993345a840Db3B0845fbC70f5935a5
- **Burner Address**: 0x0000000000000000000000000000000000000dEaD
- **Initial Token Price**: 0.000001
- **Maximum Supply**: Unlimited
- **Bonding Curve Multiplier**: 0.000001
- **Tax**: 10%
- **Total Contributed**: Total mUSD that is permanently locked in the contract due to fees that have been paid in consequence of the tax.
- **Total Reserve**: Total mUSD value that backs all TRIB in circulation.
- **Total Burned**: The amount of TRIB tokens that have been taken out of circulation and can no longer be exchanged for mUSD.
- **Price Floor**: The lowest possible price TRIB can be exchanged for mUSD.
- **Interest Bearing Protocol**: mStable

Bonding Curve

A bonding curve token model is used to mint TRIB tokens. It uses a simple linear function in the form of $p = m * s$, where

- p is the token price
- s is the token supply
- m is a multiplier constant expressing the slope of the linear function

The function has no constant term, (no b in the generic linear function $y = a * x + b$) which implies that the price of the token starts at zero with zero supply.

Reserve to supply and back

For a given supply s, the reserve r (i.e. value of all TRIB tokens in existence) is computed as an integral of the bonding curve function on the interval $[0, s]$. Given the integral equals the area below the curve, the formula used is $r = s * p/2$.

Based on the bonding curve formula ($p = m * s$) we get these two equations for calculating reserve from supply and the other way around:

$$r = \frac{m * s^2}{2}, s = \sqrt{\frac{2 * r}{m}}$$

Taxes

A 10% tax is applied to every purchase and sale of TRIB tokens via the smart contract. The fee is used to buy and burn TRIB tokens.

The tokens are permanently inaccessible after they are sent to the burn address and even though these tokens are still part of the TRIB total supply, they can no longer be redeemed back to the underlying asset used to purchase them. This has the following consequences:

- The price floor increases with every taxation event. This is the lowest possible price the contract will exchange TRIB for mUSD.
- The mUSD value that backs taxed tokens is permanently locked, continuously generating interest.

Investing

In order to participate, users need to exchange mUSD for TRIB tokens. After an amount of mUSD is deposited into the smart contract a 10% tax is applied and used to buy and burn TRIB tokens according to the bonding curve model. The remaining 90% is exchanged to TRIB tokens and then sent to the investor. The total mUSD received is then sent to mStable's saving contract and the underlying asset is offered to borrowers in different lending protocols supported by mStable.

Investing Example

This example assumes the total supply of TRIB to be 0.

Alice sends 1,000 mUSD to the smart contract in exchange for TRIB according to the Bonding Curve Formula. A 100 mUSD fee is charged and used to buy and burn 14,142.1356 TRIB the remaining 900 mUSD is exchanged to 30,579.2239 TRIB.

The contract's current state is the following

- Total Contributed = 100 mUSD
- Total Reserve (Value Accruing Interest) = 1,000 mUSD
- Price = 0.0447 mUSD
- Price Floor = 0.0141 mUSD
- Total Supply = 44,721.3595 TRIB
- Total Burned = 14,142.13560 TRIB
- Alice's Initial mUSD Balance = 1,000 mUSD
- Alice's mUSD Balance = 0 mUSD
- Alice's TRIB Balance = 30,579.2239 TRIB

Interest Claim

The Claim function allows any TRIB token holder to withdraw the accumulated interest generated by the mStable protocol. In order to do so, the token holder must sell the same dollar amount of TRIB back to the contract. The contract will then return the interest plus the mUSD amount from the sale after applying the 10% tax. This has the following consequences:

- Anyone is able to claim the accumulated interest of all deposits as long as they sell the same dollar value amount of TRIB tokens back to the contract.
- The higher the price of TRIB tokens the less tokens are needed in order to redeem the accumulated interest.
- A 10% tax is applied on every interest claimed event permanently raising the floor price of TRIB.

Interest Claim Example

This example is a continuation of the previous Investing Example, we assume the contract's state has not changed. In this example, the lending protocol has been producing 5% APY. After one year the lending protocol should have generated ~50 mUSD on top of the original 1,000 mUSD invested.

In order to redeem the accumulated interest of 50 mUSD, Alice needs to sell 1132.3701 TRIB tokens (50 mUSD worth) back to the contract. The contract applies the 10% fee to the dollar value of TRIB tokens (5 mUSD) before sending the remaining 95 mUSD (exchange value after tax + interest) to Alice.

The contract's current state is the following

- Total Contributed = 101.6266 mUSD
- Total Reserve (Value Accruing Interest) = 955 mUSD
- Price = 0.0437 mUSD
- Price Floor = 0.0142 mUSD
- Total Supply = 43,703.5467 TRIB
- Total Burned = 14,256.6929 TRIB
- Alice's mUSD Balance = 95 mUSD
- Alice's TRIB Balance = 29,446.8538 TRIB

Exiting

The Contribute smart contract is an automatic market maker. This means that it will always offer liquidity to buy back TRIB tokens from the market. It uses the bonding curve formula to calculate the price of TRIB at the time of the trade. After TRIB is exchanged to mUSD a 10% tax is applied and the remaining 90% is credited to the user.

The 10% is used to buy and burn TRIB from the market at the current price. The underlying mUSD which backs the TRIB remains permanently locked in the

lending protocol generating interest.

Exiting Example

This example is a continuation of the previous Investing Example, we assume the contract's state has not changed.

Alice has 29,446.8538 TRIB which she sends to the contract in exchange for mUSD. Based on the bonding curve formula, 29,446.8538 TRIB can be exchanged for 853.3733 mUSD. After the application of the 10% tax, 768.0360 mUSD are sent to Alice and 85.3373 mUSD stay in the lending protocol generating interest after being used to buy and burn 5,080.5241 TRIB tokens.

The contract's current state is the following

- Total Contributed = 186.9639 mUSD
- Total Reserve (Value Accruing Interest) = 186.9639 mUSD
- Price = 0.0193 mUSD
- Price floor = 0.0193 mUSD
- Total Supply = 19,337.2170 TRIB
- Total Burned = 19,337.2170 TRIB
- Alice's mUSD Balance = 863.0360 mUSD
- Alice's TRIB Balance = 0 TRIB

Genesis Mint Event

The Genesis Mint Event (GME) has started on September 9th, 2020 and it will last until 00:00:00 on September 21st, 2020. It is meant to bootstrap liquidity and allow for fair participation in the system. Anyone who wants to participate can use mUSD to do so, and the Smart Contract will keep track of claimable TRIB tokens relative to each individual's contribution.

TRIB's price at the GME will start at 0.000001 mUSD per TRIB, and the TRIB price will increase by the same amount as the initial price (0.000001 mUSD) for each subsequent TRIB minting.

The formula for distribution will be the following: INDIVIDUAL CONTRIBUTION / TOTAL mUSD CONTRIBUTIONS * TRIB SUPPLY

The date for the mint event is yet to be determined.

Genesis Mint Event Example

Contributors Alice, Bob and Charlie send 50K, 30K and 20K mUSD to the Genesis contract respectively. Each one of them is credited with shares of the same value as their contribution.

After the contribution period, 100K mUSD is sent to the Contribute contract from the Genesis contract. A 10% tax will be applied (10K mUSD in this particular scenario) to the total amount before minting TRIB tokens.

The entire contribution (100K mUSD in this hypothetical scenario) is then allocated to ymUSD to start accumulating interest that will be made available to any TRIB token holder.

Based on the initial parameters of the Bonding Curve, 100K mUSD will mint 447,213.5954 TRIB at a last price of 0.4472 mUSD per token.

After the 10% tax is applied and used to buy and burn TRIB tokens the remaining

305,792.2392 are then sent to the Genesis contract where they can be redeemed by each participant.

Using the aforementioned formula to calculate each individual's share:

- Alice will have **152,896.1196** TRIB allocated (50,000 / 100,000 * 305,792.2392).
- Bob will have **91,737.6717** TRIB allocated (30,000 / 100,000 * 305,792.2392).
- Charlie will have **61,158.44784** TRIB allocated (20,000 / 100,000 * 305,792.2392).

All contributors to the GME would have acquired TRIB tokens at an **average price of 0.3270 mUSD**, even though the TRIB price is currently at 0.4472 mUSD in the contract.

At this stage, a contributor can decide to send their TRIB back to the Contribute contract for a profit and redeem them at the current contract price of 0.4472 mUSD, or they can wait for the contract to start accumulating interest, and claim some of that interest with their tokens.

The starting TRIB supply is therefore derived from the amount raised in the GME.

Risks

The Contribute smart contract has not gone through a third party security audit and it could contain bugs and exploits. We welcome the developer community to inspect the contracts.

The smart contract integrates with mStable for its functionality. The risks in this protocol can carry over to Contribute.

The interest from the lending protocol is not guaranteed and it is purely a function of supply and demand. If there is no demand for the underlying assets backing mUSD in the lending market, the interests could be negligible or even null.

Contribute is a new experiment in DeFi, and with any new experiment comes new risks. It is advisable to participate with small amounts. Assume a total loss of funds could occur for those who participate.