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Døllar

EXEDUM - Community driven

exedum@protonmail.com

Most realizations of decentralized stablecoins so far have been based on collateral reserve models. These work reasonably well, but are both capital inefficient and carry risk to the underlying collateralized assets. Ad-ditionally, the total supplies of these stablecoins are constrained to strictly less than the available reserve assets on-chain. In this paper we'll propose instead an elastic supply stablecoin constructed on existing primitives, and describe its implementation as a fully decentralized Ethereum DAO.

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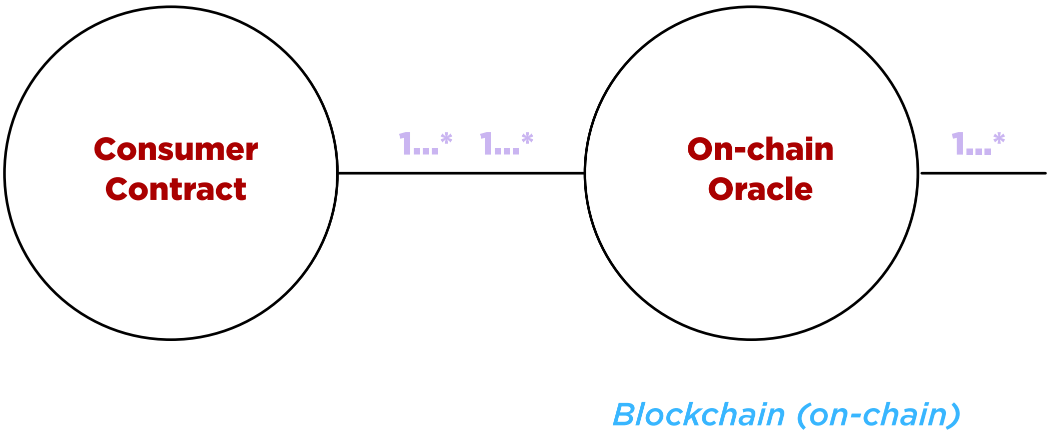
Contract Architecture

The Døllar protocol is operated by a DAO that governs and regulates the supply of its stablecoin EXED. It's DAO utilizes a price oracle contract built ontop of the EXED:USDC Uniswap v2 pool. This modular design allows for easy upgrades as Døllar's ecosystem becomes more robust.

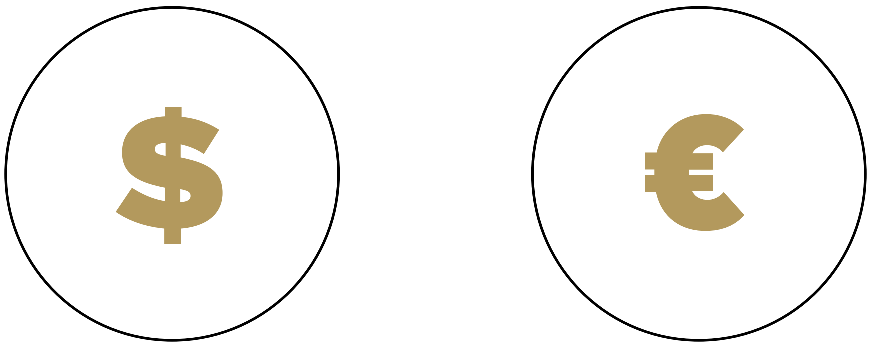


Epoch

Døllar's DAO splits time into distinct epochs of roughly one day to simplify logic around governance, supply regulation, and flash loan resistance.

Epochs are advanced manually by sending an advance() transaction to the DAO. This allows us to apply state transformations like coupon expiry and supply regulation on advancement. To incentivize this behavior, the DAO mints reward EXED tokens to the sender upon successful advancement.

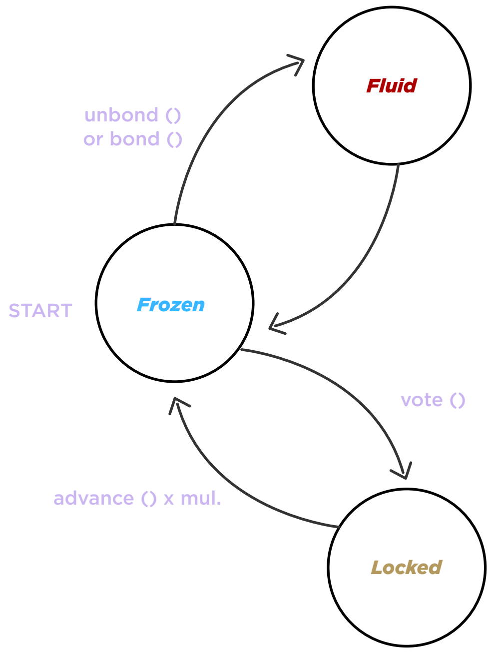
Epochs are available for advancement based on the current block timestamp, however there are no guarantees that an epoch will be advanced immediately when available.



Bonding

Døllar is a single token protocol. In addition to being the stable asset, EXED tokens are also used to gain ownership in its DAO.

Users deposit EXED tokens into the DAO which can then be bonded. Bonded tokens grant the owner stake in the DAO, but are temporarily locked from depositing or withdrawing until at least the following epoch. This ensures a static balance during the bonded epoch which underpins its security model.



We introduce a special state Locked to cover cases where our DAO must lock already-bonded user funds for multiple epochs. A user enters this state when voting during the governance process, and remains there until the election has concluded to ensure the user’s balance is unchanged for the duration.

To summarize, the user can only bond and unbond when their account is Frozen or Fluid, but can deposit, withdraw, vote, and receive regulator payouts when they are Frozen or Locked.

Oracle

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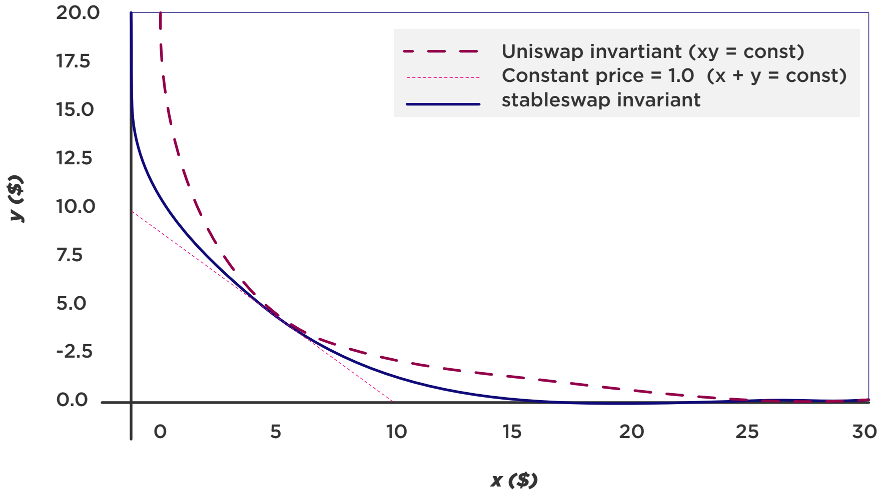
Døllar's initial oracle is constructed using the EXED:USDC Uniswap v2 pair, giving us a flash loan resistant price feed out of the box. New average weighted prices are polled and computed from the oracle's data during each epoch advancement cycle.



Incentivization

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Oracle liquidity providers incur an opportunity cost by keeping their EXED outside of the DAO. To offset this, a small portion of the newly minted EXED during a supply extension will be diverted to an LP incentivization pool. Rewards in this pool will be distributed to liquidity providers who have staked their UNI-V2 tokens from the EXE-D:USDC pair.

Stability Mechanism

Døllar uses supply elasticity to adjust for changing demand while targeting a fixed value per token. We balance supply with the following simple equality,

$$supply_n \cdot price_n = supply_{n+1} \cdot 1.00$$

From which we can determine the required change in supply to regulate the price,

$$\Delta supply = supply_n \cdot (price_n - 1.00)$$

Additionally, to prevent debt from overtaking supply, we instead use net supply (su-pply l ess debt) in the above calculation which allows debt t o approach supply a symptotically.

Supply Extension

For positive supply, new EXED tokens are minted by the DAO and distributed as follows:

1. Credited to redeemable pool, for outstanding coupons, until pool can cover entirety of the outstanding coupons.
2. Immediately burned to reduced debt until debt reaches 0.
3. Any surplus credited pro rata to bonded EXED holders.

Supply Contraction

In order to contract the supply, we must incentivize participants to burn their EXED tokens. This is accomplished by offering coupons redeemable for a premium quantity of future EXED.

To contract by supply, the DAO issues the equivalent amount of debt, which marks the current amount of EXED tokens that may be burnt in exchange for coupons.

Coupon Market

To incentivize the exchange of EXED tokens for coupons, we create an AMM over the current debt ratio. As the debt ratio increases, so does the coupon premium, which ensures proper incentivization even during periods of extreme down-regulation.

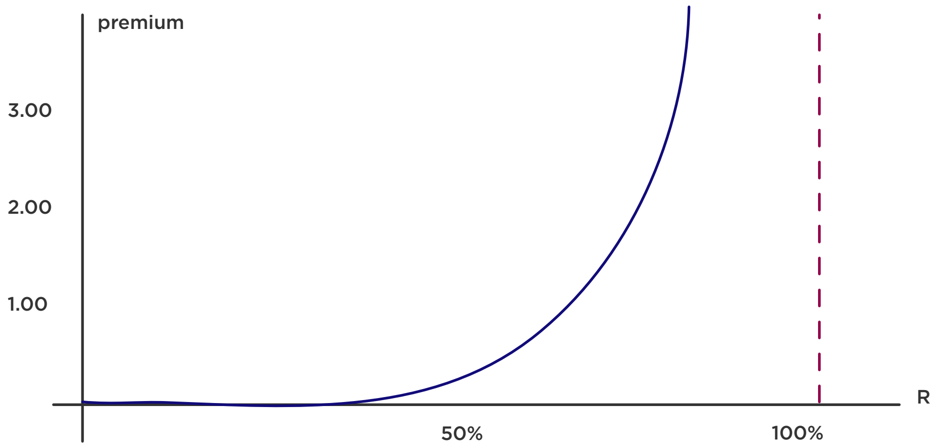
It's important to note that the debt-ratio is expected to be non-zero during periods of supply contraction as it is the mechanism for which the market prices the coupon premium.

First we define the debt ratio R as:

$$R = \frac{debt}{supply}$$

An ideal premium curve would have zero premium at zero debt, with asymp-totically increasing premium as debt approaches supply. With this in mind, we can define our premium curve over R as,

$$premium\ (R) = \frac{1}{3(1-R)^2} - \frac{1}{3}$$



Calculating Coupon Amount

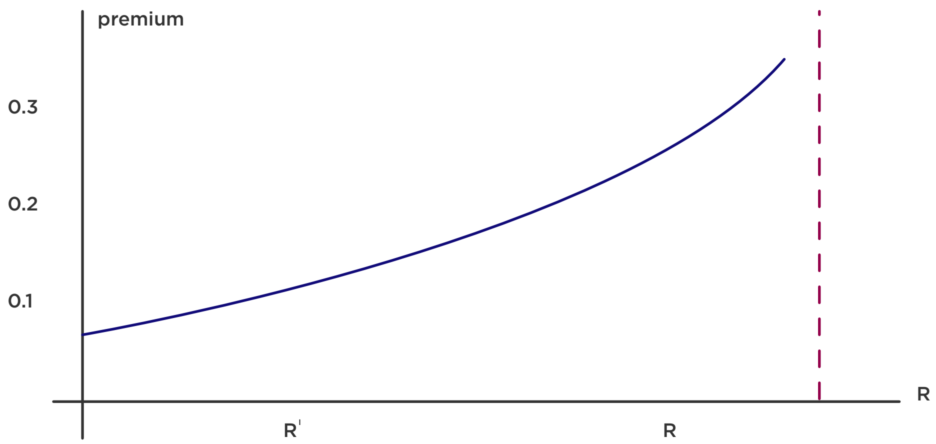
With our curve defined, we can examine how an order of size n will be priced.

$$R' = \frac{debt - n}{supply - n}$$

With R| , we can find our order premium by taking the mean over the curve from R to R| .

$$premium = \frac{\int_{R'}^{R} premium\ (R)\ dR}{R - R}$$

$$= \frac{1}{3\ (1-R)\ (1-R')} - \frac{1}{3}$$



Once the premium is determined we can calculate the resulting coupon amount for the order.

$$coupons = n \cdot (1 + premium) \qquad (3)$$

Redemption

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Coupons entitle holders to a 1:1 redemption of EXED tokens at some point in the future. When there is a supply growth event, new EXED tokens are first credited to the redeemable pool. This pool is first-come first-served for redemption by any current coupon holder.

This ensures that a queue does not form, disincentivizing new coupon pur-chasers, as debt increases. Further, coupons are valid for 90 days, after which they will expire and no longer be redeemable. These are key to mitigating downward spiral events prevalent in similar stability mechanism designs.

Governance

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The DAO is fully self-governing at launch. A new DAO implementation may be proposed at any time by any current stakeholder with at least 1% of the current DAO stake.

Voters have 7 days to choose to either approve or reject the candidate implementation. If a quorum of 33% is reached and more votes approve, then the new implementation may be committed.

By allowing only full implementation upgrades, even for simple constant modifications, we ensure a lightweight governance process.

Benefits

1. No mint or rug functions; all code is clearly documented.
2. All benefits of the network are shared 100% with the community.
3. 50% of the raised ethereum go automatically to the uniswap v2 pool.
4. Governance has 0 fees, transactions are done offchain.
5. Economy growth ecosystem and 100% decentralized.

Exedum Roadmap

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01

UNISWAP listing
third party audit
Strategic partnerships

02

CEX partnership
Offchain governance with 0 fees
Burn supply

03

BETA Mainnet Polkadot
Marketing funding
New features

04

Polkadot mainnet launch
and DEXEDUM launch

Token Distribution

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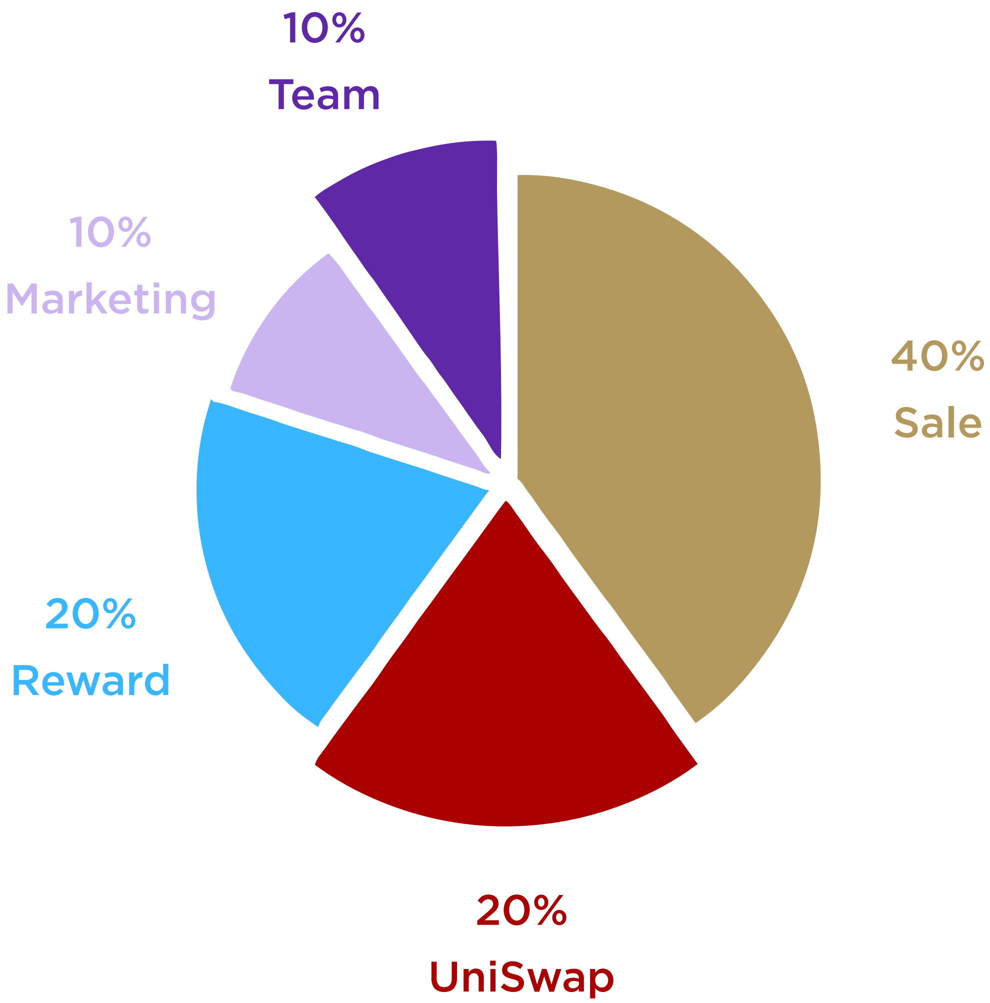

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