

# The Art of Central Banking on Blockchains: Non Pegged Stablecoins

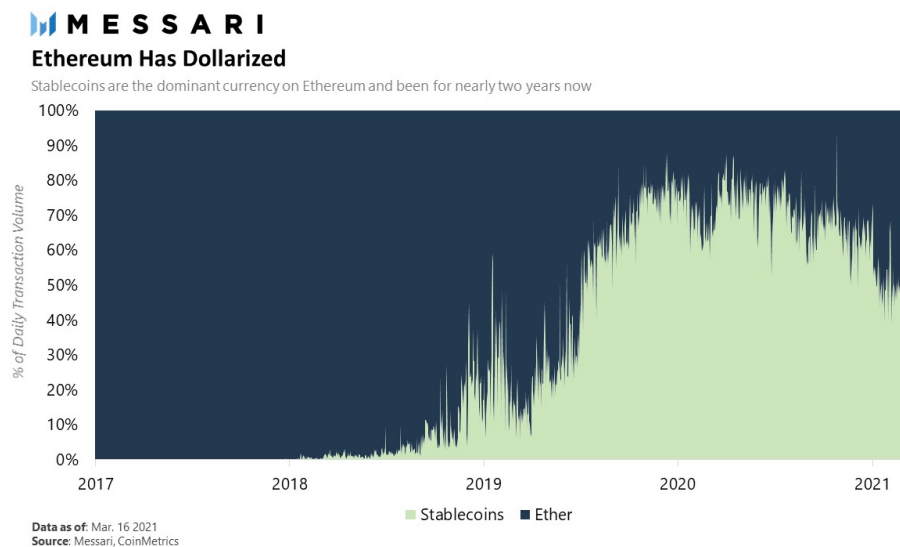
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Mar 25, 2021

Today we are releasing a special preview of our Enterprise Research for Pro subscribers. Messari Enterprise provides advanced tooling to stay on top of changes and trends across the crypto space as well as in-depth research on topics that matter for investors, builders, and infrastructure providers. Sign up for a 14-day free trial [here](#) and see why Enterprise is already trusted by industry leaders like Coinbase, BlockTower, Chainalysis, and more.

Ethereum is an emerging digital economy in the early innings of a multi-decade economic boom. It now hosts tens of thousands of applications, stores **\$350 billion** in assets, settles **\$2 trillion** in transactions annually, and continues to grow at a **staggering pace**. Its potential to become the bedrock of the global economy is apparent to anyone paying attention.

The problem? Ethereum has dollarized, and the dollar is ultimately controlled by the Federal Reserve - clouding dreams of an independent monetary system.



The industry has taken notice. On the horizon is a new wave of projects aiming to create stablecoins that are not pegged to fiat currencies at all. Called “non pegged stablecoins,” these projects offer a radical opportunity for Ethereum’s monetary system to achieve stability while eliminating dependence on fiat currencies. In the process they would not only free Ethereum’s monetary system from the influence of the nation state controlled central banks, but also introduce truly trust-minimized stablecoins fit for use across Ethereum’s economy.

In our second of [two reports](#) on central banking on blockchains, we cover the problems with dollar pegged stablecoins, the market potential for non pegged stablecoins, and the

most promising non pegged stablecoin projects on or coming to market including Reflexer (RAI), Float Protocol, and Olympus DAO.

### The Problem with Dollar Pegged Stablecoins

It's not surprising that Ethereum has dollarized. Many developing economies dollarize due to monetary instability. Ether is volatile and likely will continue to be for the foreseeable future as it continues to attract speculation (Bitcoin also faces this issue). This volatility limits its usefulness as a currency and hampers its ability to facilitate significant economic activity beyond speculation.

Luckily Ethereum's programmability has enabled it to port USD stability into its economy through stablecoins. This stability has allowed Ethereum to attract more capital into its economy as well as boost economic growth. Stablecoins have been a [key enabler](#) of Ethereum's booming DeFi ecosystem.

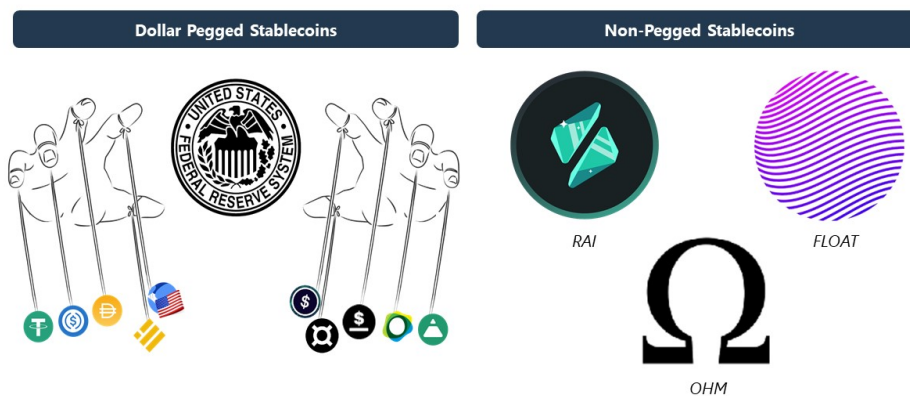
However, as suggested above, dollarization has not come without costs. The flipside of dollarization is that by welcoming stablecoins into its economy, Ethereum has given up its monetary sovereignty and opened itself up to external dependencies that introduce systemic risk.

In practice stablecoin protocols are more like [currency boards](#) than central banks. All their monetary policy decisions are subordinated to maintaining their fixed exchange rate targets with the dollar. Not only does this expose Ethereum's monetary system to the Federal Reserve which doesn't concern itself with the needs of the Ethereum economy, but the dollar peg also introduces [regulatory risk](#) that has the potential to shake the foundations of DeFi. If the recently proposed STABLE Act provides any indications of what's to come for dollar pegged stablecoins, all \$1 pegged stablecoin issuers may eventually get regulated as banks which would force them to obtain banking licenses and hold reserves with the Fed. Of course the STABLE Act was just a proposal, but it does point to the fact that dealing with the dollar invites the US government to take action.

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### What If Stablecoins Were Independent From Fiat Monetary Systems?

Centralized or decentralized, the value of dollar pegged stablecoins is ultimately controlled by the Fed's monetary policy. Non pegged stablecoins offer an independent alternative more in line with the Cypherpunk vision of independent crypto money



### An Independent Ethereum Monetary System

In international economics there is a concept known as the [impossibility trinity](#) which states that it is impossible for an economy to have all three of:

1. A fixed exchange rate

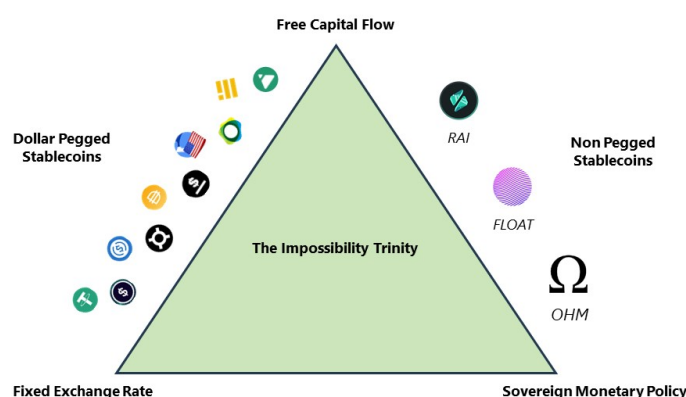
2. Free capital movement (absence of capital controls)
3. Sovereign monetary policy

These three goals are inherently incompatible with each other and an economy can only have two of the three. Dollar pegged stablecoins sacrifice sovereign monetary policy for a fixed exchange rate and free capital flow. Non pegged stablecoins offer an alternative that ditches the fixed exchange rate for sovereign monetary policy. As suggested above, sovereign monetary policy is important because it allows Ethereum's monetary system to behave independently of fiat monetary systems.

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### The Impossibility Trinity and Stablecoins

The impossible trinity is a concept in international economics which states that it is impossible to have all three of: a fixed foreign exchange rate, free capital movement (absence of capital controls), and an independent monetary policy



How does an independent Ethereum monetary system powered by non pegged stablecoins work in practice? It starts with Ethereum's native asset ETH.

ETH is decent money and will become better with time. It's scarce, easy to verify, fungible, divisible, portable, and with Ethereum 2.0 and EIP-1559, potentially deflationary. However, it's not a great [currency](#). It's volatile and undesirable to use for many financial activities that benefit from price stability. In other words, ETH may be a solid store of value, but it's a poor medium of exchange and unit of account.

To address this stability issue an independent Ethereum monetary system could issue currency against ETH and stabilize it algorithmically through incentives. This is the core idea of the new wave of non pegged stablecoins. Non pegged stablecoins ultimately derive their value from their underlying collateral (primarily ETH), similar to how the dollar did under the gold standard.

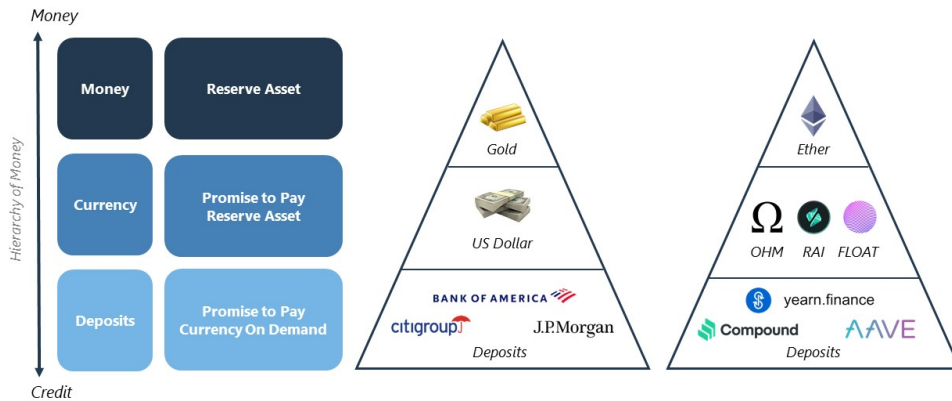
Once Ethereum has independent stable currencies, a truly independent banking system can emerge on Ethereum. Non pegged stablecoins can be put to work in DeFi money markets and yield aggregators which effectively turn those non pegged stablecoins into deposits. This resembles the banking system in the traditional financial system where individuals and institutions deposit their currency into banks in exchange for deposits which are promises to payback that currency on demand.

Below is a visual comparison of an independent Ethereum monetary system compared to the US under the gold standard.

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### A Comparison of Monetary Systems

How Ethereum's monetary system powered by non-pegged stablecoins compares to the US monetary system under the gold standard



**Note:** Hierarchy of money typically includes securities (promise to pay currency over some period of time) below deposits; however, there is currently no parallel on Ethereum; OHM does not currently hold ETH collateral

Competitive private currency issuance is not new. There is a long history of private entities issuing currency, and up until [two centuries ago](#) private banks were the sole issuers of paper currency in virtually every country. While private currencies have been criticized for counterfeiting and par acceptance issues (two issues that are addressed trivially in DeFi with easy auditability and programmatic enforcement of rules), they have also been praised for their reliability and apolitical nature. Unlike state controlled central banks which may choose to not honor redemptions for currency when needed due to their monopoly status, and which may let political factors determine their decision making, private banks are subjected to market forces which promote the highest quality currency. Multiple private banks issuing currency on Ethereum is not only an idea with historical precedent, it may even be desirable to produce the best possible currency.

In the following three sections we dive into the three most promising non pegged stablecoin solutions on or coming to market.

#### **Reflexer (RAI)**



Source: [Ameen Soleimani](#)

In February 2020 SpankChain and MolochDAO co-founder Ameen Soleimani [announced](#) MetaCoin - a new governance-minimized decentralized stablecoin created as a response to MakerDAO's introduction of Multi-Collateral Dai (MCD). To Ameen, MakerDAO's MCD upgrade introduced unacceptable counterparty risk to Dai by abandoning ETH as its sole form of collateral. The solution was to create a new more trust-minimized Dai that not only stayed pure in its commitment to ETH as its sole collateral, but also reduced MakerDAO's governance vulnerabilities including token holder concentration and over-reliance on governance for stability.

A couple months later this idea formed the foundation for Reflexer Labs, a startup aiming to build [trust minimized stable assets](#) based upon many of the ideas laid out in the [MetaCoin post](#). Soon after it was [funded](#) by Paradigm and the team ramped up building its first prototype of a "Reflex Index" called Proto RAI - an unaudited mainnet demo of its now launched Reflex Index RAI.

At a high level RAI is similar to Single Collateral Dai (SCD). It is an overcollateralized debt position for users that demand ETH leverage. Users can open this position by depositing ETH into a SAFE (similar to Maker's vaults) and minting RAI against it. Users can redeem their collateral by paying back their RAI plus a borrow fee. If a user still has debt outstanding and their collateral ratio drops below a certain threshold, their collateral will be liquidated to cover their debt. RAI's token FLX is used to govern and backstop the system.

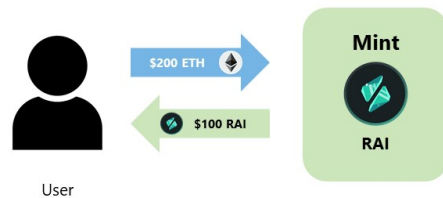


## RAI Minting and Redemption Example

Users can deposit collateral into SAFEs to mint/borrow RAI. Their underlying collateral may be redeemed upon paying back their loan plus interest

### Minting Process

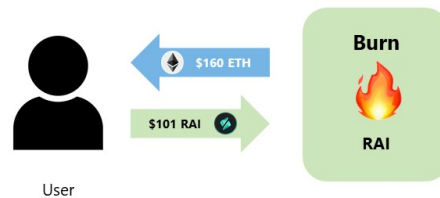
In this example a user deposits \$200 of ether into a SAFE at a 200% collateralization ratio to maintain a margin of safety in case the collateralization ratio falls below the minimum 150%. The user then borrows \$100 of RAI that the contract mints



Data as of: Mar. 24 2021  
Source: Messari

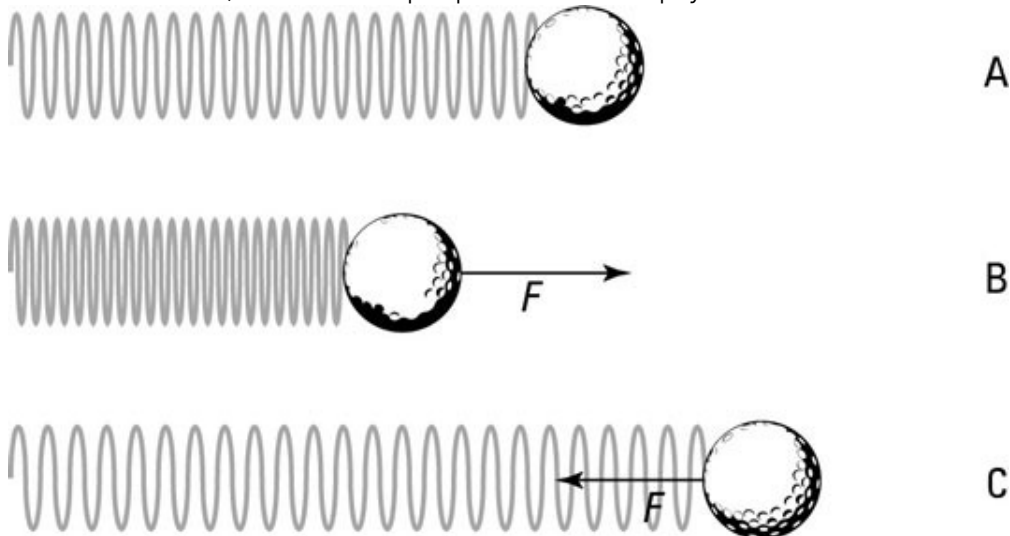
### Redemption Process

In this example a user redeems their \$200 of ether from the SAFE after a 20% price decrease in ETH. They do this by repaying their borrowed RAI plus interest accrued on the loan which in this example is 1%



Note: The borrow fee RAI charges is not the primary monetary policy tool used to influence the price of RAI. RAI's stability is primarily influenced by target rate adjustments

However, RAI introduces a number of changes to the SCD model. First and foremost, RAI is not pegged to the dollar and instead pegged to itself. It starts out with an arbitrary target price (called the redemption price) that it adjusts to influence the market price of RAI. The way this works is that as RAI moves away from its redemption price it automatically adjusts its redemption price to proportionally oppose the price move to stabilize RAI. Essentially the system devalues or revalues RAI according to a redemption rate (rate at which RAI is being devalued or revalued) to incentivize people to borrow or pay back their debt.



This above mechanism also allows RAI to implement negative interest rates, which is something that MakerDAO can not do given its peg to the dollar. Although RAI isn't explicitly charging interest rates outright to either borrowers or holders, by repricing RAI it effectively achieves the same effect. By devaluing RAI, the protocol makes it less attractive to hold RAI and more attractive to mint debt, which both put downward pressure on RAI's market price. And because RAI doesn't have a commitment to any peg it is fine devaluing RAI in order to influence its market price down, whereas devaluing Dai would break its social contract.



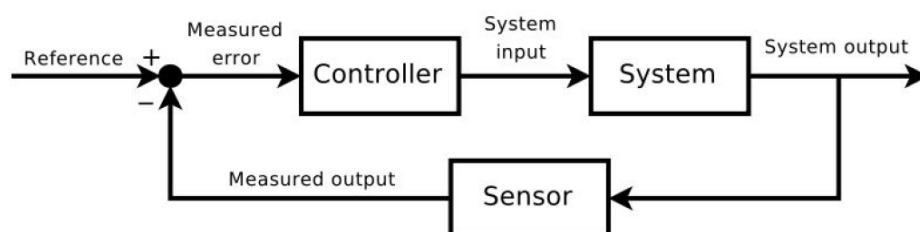
RAI's autonomous redemption price adjustment mechanism stands in opposition to MakerDAO which attempts to influence the price of Dai through governance at the discretion of token holders. Furthermore, RAI's interest rate it charges borrowers (not to be confused with the redemption rate described above) is not RAI's primary monetary policy tool like it is for MakerDAO. It is instead just a "spread" taken by the protocol that it used to incentivize external parties to maintain the protocol as well as build a surplus buffer meant to settle bad debt. In the long run RAI will cap its borrow rate in order to make the cost of maintaining a SAFE more predictable.

#### PID Controller and Redemption Rate Feedback Mechanism

The way RAI stabilizes itself is heavily influenced by [control theory](#) - the scientific discipline of maintaining stability in dynamic systems. Control theory has broad applications ranging from engineering to life sciences, and as explained in the [RAI whitepaper](#), over 95% of

industrial applications and a wide range of biological systems employ elements of control theory. Furthermore, while it hasn't yet been applied to monetary applications, [researchers](#) have found that many central bank monetary policy rules such as the [Taylor Rule](#) are actually approximates of PID Controllers (more on this below).

In most modern control systems there exist an algorithmic controller that is given control over a system input in order to automatically update it based on deviations between the system output and setpoint. For example in a cruise control system for a car, an algorithmic controller could be given control of the car's gas pedal in order to automatically update it based on deviations between the car's speed and the desired cruise control speed.



Source: [RAI Whitepaper](#)

The most common type of algorithmic controller is a PID controller which uses three parts to determine its output:

- A Proportional Term that is proportional to the deviation
- An Integral Term that takes into account how long the deviation has lasted
- A Derivative Term which takes into account how fast the deviation is growing or shrinking

RAI's redemption rate is set by a PID controller (the redemption rate feedback mechanism) that is informed by deviation between the market price of RAI and its redemption price, how long the deviation has persisted, and how fast it's moving. It uses these inputs to calculate a redemption rate that slowly starts to increase or decrease the redemption price to influence the market price of RAI back to equilibrium.

In order to achieve stability, RAI must finely tune its controller parameters to ensure that it can achieve stability within a reasonable amount of time without overshooting or destabilizing in the face of external shocks. This is not an easy process and requires a wealth of research, data science, and simulations to create models with predictive power to inform the parameters, let alone evaluating these models against real world data to test if they work in

the wild. The team has spent nearly one year now fine tuning RAI's controller parameters to get to where it is today having launched on Ethereum mainnet.

#### Ungovernance Roadmap

One of the core guiding principles of RAI is its philosophy of governance minimization. In order to become a trust-minimized foundation for decentralized applications to build upon it, RAI [believes](#) it should be as automated, self-sufficient, and devoid of external dependencies as possible. With this in mind RAI has outlined a [detailed roadmap](#) for slowly automating and "ungoverining" RAI over the coming years. RAI ultimately hopes to reach a state where governance will not control or be able to upgrade most of RAI's core contracts, and most of its parameters will be set autonomously.

RAI's governance token FLX will be a key part of this process, progressively reducing its own power over time, until its primary function will be to serve as a lender of last resort to the system during insolvency events. The team is also currently discussing adding a potential third function for FLX as a "lender of first resort," whereby FLX could be added in a staking pool that gets slashed in case there is bad debt in the system.

#### Token Distribution

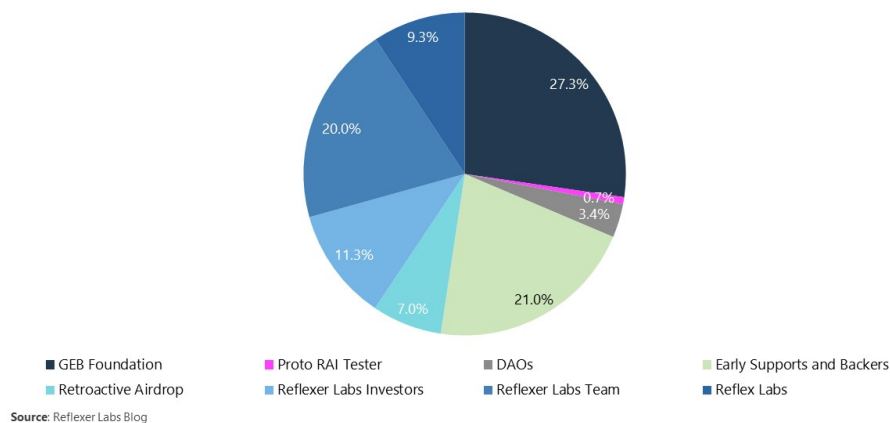
In February Reflexer [announced](#) the launch of RAI and hinted at a retroactive token distribution in their blog post. The purpose of this retroactive rewards program was to encourage people to mint RAI and bootstrap RAI/ETH liquidity on Uniswap. Within days liquidity quickly ballooned to over [\\$200 million](#) while the RAI supply grew to over [\\$100 million](#).

Days later after hinting at the retroactive token distribution the team announced FLX and provided [further details](#) on its token distribution. The post outlined the below distribution for FLX (more details on categories in linked post).

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#### FLX Token Distribution

1 million FLX have been minted at genesis and will progressively be released from now through approximately August 2023



One aspect of the distribution that has drawn mild criticism is the modest allocation to RAI's community, which stands out compared to Float Protocol and Olympus DAO which allocated the overwhelming majority of their tokens to their communities. It's unclear at this point if this will have a meaningful negative impact on RAI's ability to build a community around it; however, it does give the fair launch protocols a leg up in early community engagement. That said, RAI counts some of the most active venture firms on its investor roster, such as Paradigm, which may provide it a significant leg up in building partnerships and winning integrations.

#### A Battle Tested Model



If there's one thing we've learned about decentralized stablecoins over the past couple of years it's that over-collateralization works. MakerDAO has survived multiple cycles and crashes without going bust, which is a testament to the over-collateralization model. While RAI is by no means the same as MakerDAO and will have to prove itself on its own, its over-collateralized model, heavily influenced by MakerDAO, does provide an incremental level of confidence over its more novel and experimental competitors. To an extent RAI's over-collateralization derisks it from a death spiral perspective.

Furthermore, and speaking of competition, RAI is the only non-pegged stablecoin protocol that is live and fully functional. This allows us to observe its stability in the wild. Although data points are limited at this time, RAI has been remarkably stable following its volatile start. At launch, between retroactive distribution incentives and new users not being familiar with RAI's mechanics, its price shot up well above its redemption price. However in the days since it has gotten progressively more stable as market participants get more familiar with RAI's mechanics and arbitrage RAI around its redemption price.



Of course only time will tell how RAI performs. However, on paper RAI offers one of the most theoretically sound attempts at building a truly decentralized stable asset that is governance minimized and economically efficient.

### **Float Protocol**



Source: [Float Protocol Blog](#)

Announced in February by a team of pseudonymous developers called Abbey road, Float Protocol is a two token, partially collateralized stablecoin protocol with FLOAT as its currency and BANK as its seigniorage token. FLOAT draws its value from its underlying basket of collateral which at launch will consist solely of ETH, and will be stabilized through auctions that expand and contract its supply. BANK serves three purposes - The first being to take the profit created in times of excess demand for FLOAT, the second being to support the price of FLOAT during contractions, and the third being to govern the Float protocol.

At the core of Float's stability model is protocol controlled value (PCV) and [dutch auctions](#). Float protocol maintains a fund to stabilize the price of FLOAT called the "Basket" which holds a portfolio of cryptoassets - initially just ETH. The fund is owned by the protocol (FLOAT cannot be redeemed for the underlying collateral) and is built up through auctions where arbitrageurs buy new FLOAT from the protocol in exchange for ETH. Once stored in the Basket that ETH is then used at a later date to support the price of FLOAT if it falls below its Target Price.

At launch the value of the ETH in the basket should be equivalent to the total value of FLOAT in circulation at its Target Price (more on this later). Of course however the value of ETH is volatile and will fluctuate over time. This ratio between the value in the Basket and the total value of FLOAT at its Target Price is called the Basket Factor.

$$\text{Basket Factor} = \frac{\text{Total value in Basket}}{\text{Total value of FLOAT at target price}}$$

In every auction (more on this below) the protocol aims to move the Basket Factor back to 100%. Although as confidence in the protocol increases, over time this ratio can decrease at the discretion of governance.

Although there are no concrete plans to make Float protocol's PCV productive, the expectation is the Float protocol will eventually put its collateral to work (e.g depositing it into lending protocols).

## Auctions

Every 24 hours Float Protocol calculates the FLOAT TWAP (market price of FLOAT) and if it differs from the Target Price it expands or contracts the FLOAT supply through auctions. The auction interval was initially set to this length so that users could get comfortable with the auction mechanism; however, it will shorten over time to whenever anyone wants to launch an auction. The plan is to double the frequency of the auctions held by the Protocol every two weeks as FLOAT is more widely used and more bots are built to participate in the auctions.

If the price is greater than the Target Price the protocol expands the FLOAT supply (mints and sells new FLOAT) through a dutch auction. If the price is less than the Target Price the protocol contracts the FLOAT supply (buys and burns FLOAT) through a reverse dutch auction. The maximum length of each auction is 150 sequential blocks.

## Expansions

The way expansions work is that if the TWAP is greater than the Target Price the protocol will offer to sell newly minted FLOAT to arbitrageurs starting at the TWAP. Every block it lowers its offering price in decreasing price increments between the TWAP and Target Price until either all the FLOAT offered is bought, or there is no more demand remaining to buy FLOAT.

*TWAP > Range of prices new FLOAT is offered for > Target Price*






To buy the FLOAT available in the auction arbitrageurs pay a mix of ETH and BANK. If the Basket Factor was at its 100% target then the protocol would take the Target Price as ETH and the difference between the current auction price and Target Price as BANK. That difference paid in BANK is considered the profit from expansion and burned, reducing the BANK supply. The ETH paid is put into the Basket and a small portion of the BANK received is distributed to a community treasury.

The Basket Factor may not always be 100% (in fact it's likely to not be considering the Basket is volatile), so the protocol uses expansions to rebalance the Basket depending on its ratio. It does so by adjusting the amount of profit (auction price - target price) it takes in ETH vs BANK. In general when the Basket is at a surplus 100% of the profit is taken in BANK while when the Basket is at a Deficit a portion of the profit is taken as ETH to replenish the Basket.

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### FLOAT Expansion Scenarios

If the FLOAT TWAP is greater than the Target Price the protocol will offer to sell newly minted FLOAT to arbitrageurs starting at the TWAP

Scenario	Basket Factor	Surplus / Deficit	Auction Component Mix	Profit Component Split
Basket Surplus	120%	20%	100%  ETH	100%  BANK
Basket Deficit	80%	(20%)	100%  ETH	20%  ETH 80%  BANK

## Contractions

The way contractions work is that if the TWAP is less than the Target Price the protocol will offer to buy FLOAT from the market (and burn it) in a reverse Dutch auction starting at the TWAP. Every block it raises its offering price in increasing price increments between the TWAP and Target Price until either all the FLOAT the protocol is willing to buy is bought, or

there is no more demand to sell FLOAT below its target price.

*Target Price > Range of prices new FLOAT is offered for > TWAP*

To buy the FLOAT, the protocol offers arbitrageurs a mix of ETH and BANK. If the Basket Factor was at its 100% target then the protocol would pay the full amount ETH. However, as outlined above, the Basket Factor will likely not always be 100%, so the mix of ETH and BANK paid to arbitrageurs will change depending on its ratio. If the Basket Factor is greater than 150% the protocol will buy both FLOAT and BANK from the market and burn the BANK as profits to BANK holders. If the Basket Factor is between 100% and 150% the protocol will only purchase FLOAT and simply pay the full amount in ETH. If the Basket Factor is less than 100% the protocol will buy FLOAT using a mix of ETH and newly minted BANK based on the current Basket Factor. The BANK portion is determined by the deficit percentage (so if the Basket Factor were 90% the protocol would buy FLOAT with 90% ETH and 10% newly minted BANK).

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### FLOAT Contraction Scenarios

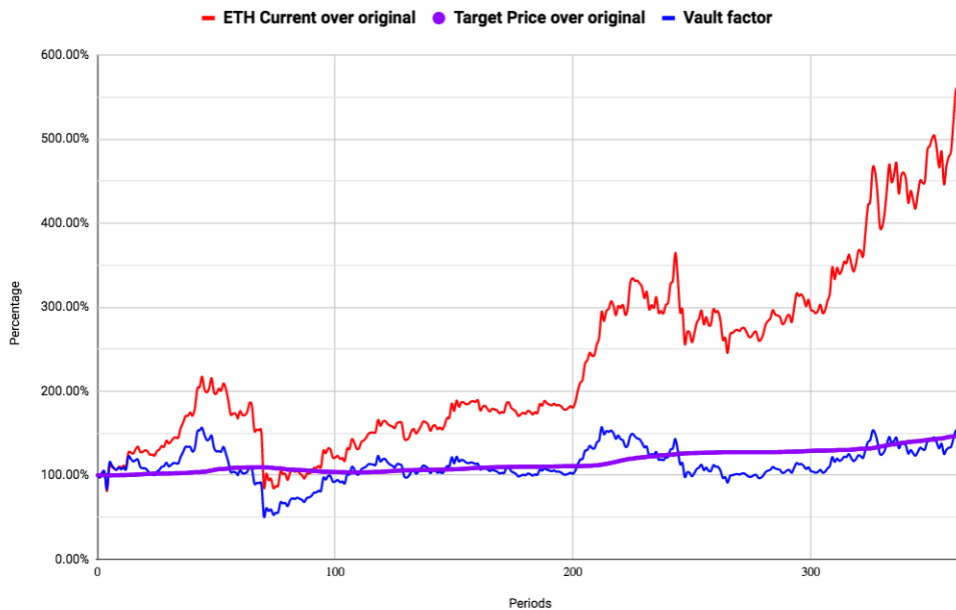
If the TWAP is less than the Target Price the protocol will offer to buy FLOAT from the market (and burn it) in a reverse Dutch auction starting at the TWAP

Scenario	Basket Factor	Surplus / Deficit Basket Factor	ETH / BANK Split
Formula	x%	y%	ETH % = Basket Factor BANK % = 1 - ETH %
Extreme Basket Deficit	40%	(60%)	<div>40% ETH</div> <div>60% BANK</div>
Basket Deficit	90%	(10%)	<div>90% ETH</div> <div>10% BANK</div>
Basket Surplus	110%	10%	<div>100% ETH</div>

### Target Price

Like RAI, FLOAT's Target Price will start at an arbitrary number - initially \$1.618 which is the [Golden Ratio](#) in Mathematics. Its Target Price will slowly adjust depending on the Basket Factor. So if the value of the basket is growing relative to the value of the outstanding FLOAT, the Target Price will increase over time (and vice versa). The pace of this adjustment is determined by the demand for FLOAT which the team defines as market price divided by Target Price at every auction.

Below is a simulation the team provided which demonstrates how the FLOAT Target Price would have behaved during 2020 as the price of ETH rose. FLOAT's Target Price would've risen ~50% over 2020 as ETH rose ~575%.



Source: [Float Protocol Documentation](#)

In contrast to RAI whose Target Price is inversely correlated with demand for RAI, FLOAT's Target Price is positively correlated with demand for FLOAT. What this means is that while FLOAT's price may be stable in the short-term, in the long-run FLOAT's price will change more than RAI and will slowly increase in value as the value of its collateral grows. This design choice was to ensure that FLOAT protects the long-term purchasing power of users within the cryptoeconomy as it grows. Conversely, FLOAT's Target Price will slowly decrease in value as its collateral value drops.

Lesson from Frax

One thing you may have noticed is that Float's design is somewhat similar to Frax, which we covered in our previous [piece](#) in this series. I highlight this only to outline a potential death spiral vulnerability Float has that Frax almost experienced back in January. A refresher from our previous piece in the context of Frax's recent change in how it adjusts its collateral ratio:

Essentially, FRAX holders were rushing to redeem their FRAX for newly minted FXS which they were selling into thinning liquidity, which depressed the FXS price further and caused more panic. In a scenario where Float's collateral dropped violently it could face a similar scenario where FLOAT holders rush to sell their FLOAT back to the protocol for newly minted BANK so they can be the first ones to sell. This panic would be amplified if BANK liquidity is also thinning or already too thin to begin with.

There's even reason to suggest that this scenario would be worse for Float than Frax considering it holds uni-directional exposure to ETH. Even MakerDAO which is over-collateralized got tested on Black Thursday and ended up having to auction MKR to cover a collateral short-fall. It logically follows that an undercollateralized system, though more capital efficient, is more reliant on the lender of last resort function than any overcollateralized system (like RAI).

However, it is important to note the key difference between Float and pegged stablecoins in a death spiral scenario is that Float doesn't have a peg to defend. As a result, during any period of prolonged contraction Float can always devalue its currency to absorb all the FLOAT selling pressure over time without violating a social contract as would be the case if a dollar pegged stablecoin elected to de-peg. With this in mind, so long as the system can recover it

helps boost confidence over the long-run.

It's also important to note that in V1 Float has few incentives for speculators to get involved when the price is below peg, thus the team [plans](#) to introduce a bond-like system in future releases. Like every protocol detailed in this piece, Float is a work in progress that will strive to improve over time.

#### Launch

Float Protocol is currently in the process of distributing BANK in what it dubs as a "Democratic Launch". Essentially what this entailed was allowing certain [whitelisted](#) addresses to deposit up to \$30,000 across three initial pools to farm BANK over a six week period. The philosophy behind this was to attract active DeFi users (those who participated in governance in major protocols) to farm BANK while mitigating the dominance of whales who tend to flood new farms. In total this first group received 37.5% of the total BANK supply.

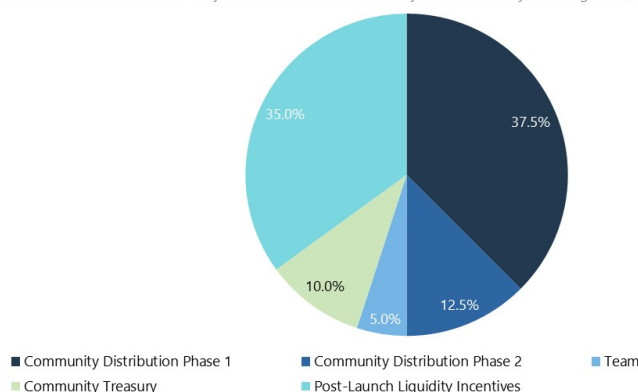
The rest of the token distribution is as follows:

- Community distribution Phase 2 (not whitelist, uncapped farming): 12.5%
- Team tokens: 5% (locked for 12 months after initial mint ceremony)
- Treasury: 10% (Minted at the start of Phase 2 and controlled by governance)
- Post-launch liquidity incentives: 35% (5% initial float mint, 30% voted on by governance but currently reserved for various liquidity incentives and partnerships)

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#### BANK Token Distribution

Float Protocol's BANK distribution heavily skews towards the community with community receiving most of the BANK supply



Source: Float Protocol Blog

Once the protocol has been audited and the 8 week initial distribution period has passed, Float will do an initial FLOAT minting ceremony where FLOAT will be available to buy in exchange for ETH. As an incentive to do so, Float will distribute 5% of the BANK supply pro rata to participants in the ceremony.

#### Olympus DAO

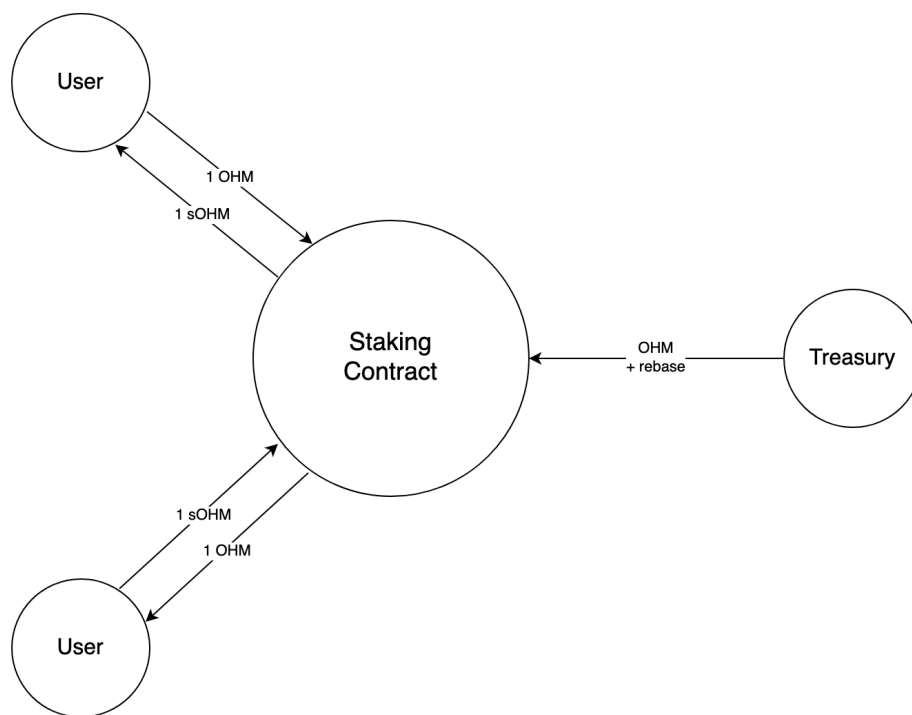
Source: [Olympus DAO Twitter](#)

Announced in January 2021, and perhaps the most unorthodox of the three, Olympus DAO is an attempt to create a stable asset through the management of treasury of assets. Like Float Protocol, Olympus DAO is founded by pseudonymous developers and places a



significant emphasis on community with the majority of its supply being distributed to [early Discord members](#).

At a high level Olympus DAO features a single token, OHM, which is both the system's stable asset and its governance token. OHM primarily draws its value from its underlying basket of collateral which at launch will consist solely of DAI. OHM can be staked in return for sOHM which allows OHM holders to accrue protocol profits as well as participate in Olympus DAO governance. When the Olympus DAO treasury distributes profits to the staking contract, stakers' sOHM balances rebase up to match the new amount of OHM in the contract so 1 sOHM always equals 1 OHM. This is a way of allowing stakers to receive and compound yield without them manually harvesting and reinvesting their profits.



Source: [Olympus DAO Gitbook](#)

At the core of Olympus DAO are protocol controlled value (PCV), market operations, and bonding. Olympus DAO maintains a treasury that ultimately provides a price floor on OHM. It is built up through sales of OHM and through yield generating opportunities using its existing treasury assets (e.g depositing its treasury DAI into Compound to generate yield). When OHM trades above 1 DAI, the protocol mints and sells new OHM. When OHM trades below 1 DAI, the protocol buys back and burns OHM. In each case the protocol makes a profit as it either receives more than 1 DAI for the sale or spends less than 1 DAI on the purchase. Olympus DAO distributes these profits 90% to OHM stakers pro rata and 10% to a DAO.

Olympus DAO also features Bonds which are a secondary policy tool that allows Olympus DAO to both incentivize and accumulate OHM liquidity pool shares (this value also accrues to OHM stakers). Essentially a Bond provides a user the option to trade their OHM/DAI LP share with the protocol for OHM at a discount at a later date. The purpose of this operation is to both incentivize and lock liquidity by offering yield (more on how Bonding works below).

## Market Operations

Market operations are the primary mechanism to expand and contract the OHM supply. At the core of market operations is the Sales Contract which sells OHM when it trades above 1 DAI and sells OHM when it trades below 1 DAI. Users can buy or sell OHM to Olympus DAO by submitting a trade to the Sales Contract. Once the contract is engaged it first checks to see if the last epoch (every ~7.5 hours) has ended and if it has ended, the contract then requests funding for the trade from the treasury. The treasury computes how much to fund the Sales Contract with based on the following equations:

If the OHM TWAP is greater than its Intrinsic Value (IV), the treasury mints new OHM to fund the contract for the sale. IV is initially set to 1 DAI which is the asset backing OHM. Inflation Control Variable (ICV) is a DAO-governed variable that allows the protocol to scale protocol sell pressure up or down. A higher ICV means more sell pressure and higher inflation. A lower ICV means less sell pressure and lower profitability. The discount rate determines the arbitrage available to execute protocol market orders, which in turn affects protocol profitability. The discount rate serves as a strong incentive for users to trade with the protocol (they get a better price than available on SushiSwap).

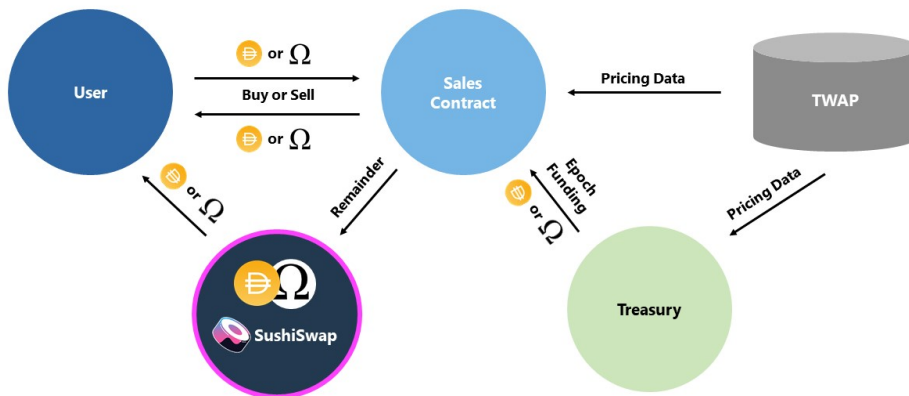
If the OHM TWAP is less than its IV, the treasury funds the contract with DAI for the purchase. Similar to the ICV, the Deflation Control Variable (DCV) is a DAO-governed variable that allows the protocol to scale protocol sell pressure up or down. A higher DCV means more buy pressure and higher deflation. A lower DCV means less buy pressure and a weaker floor.

In some cases the protocol may not supply enough OHM or DAI to completely fill a trader's order. In this event the remainder of the trader's order is filled through OHM's SushiSwap pool.

## MESSARI

### Olympus DAO OHM Sales Overview

At the core of market operations is the Sales Contract which sells OHM when it trades above 1 DAI and sells OHM when it trades below 1 DAI.



Source: Olympus DAO Gitbook

Below is an example of a protocol sale from the Olympus DAO Whitepaper:

## Bonds

Bonding is designed to both incentivize and accumulate liquidity. It does so by providing liquidity providers the option to buy OHM at a discount in the future. In essence the protocol quotes an amount of OHM and a vesting period beyond which a user can trade their OHM/DAI LP shares with the protocol for OHM at a discount. If a user accepts the offer they send their LP share to the Olympus DAO treasury and receive a claim on OHM. The vesting period determines how long it takes for that OHM to become redeemable. In the meantime

while users are vesting, their LP shares are not locked and can be reclaimed at any time by forfeiting the Bond.

At a high level Bond prices are determined by the value of LP shares and the number of bonds outstanding. The more bonds there are waiting to vest, the lower discount bonders receive on OHM (smaller incentive to bond). It calculates this Bond price based on the below formula.

Risk-free value (RFV) is the maximum OHM that the protocol can offer for the bond, which is derived from the assets in the liquidity pool. Since the protocol must protect the backing of OHM, RFV is the lowest price that it can accept; worst case, it can back every 2 OHM bonded by 1 DAI and 1 OHM. Because the protocol views OHM and DAI as equal (each OHM is backed by 1 DAI), the protocol only needs to care about the sum of the assets in the pool to derive RFV. Based on the constant product formula  $x * y = k$ , RFV is the minimum for  $x + y$ , which is when  $x = y$ . The protocol uses the square root of  $x * y$  to determine this point.

The Premium is a protocol-governed policy tool that controls the premium charged for bonds. A lower premium means a higher discount and a higher incentive to bond. A higher premium means a lower discount and a lower incentive to bond. The Premium is derived from the debt ratio of the system and a scaling variable which allows the protocol to control the rate at which bond prices increase. The Premium is based on the below formula where  $n$  is the governance set scaling variable.

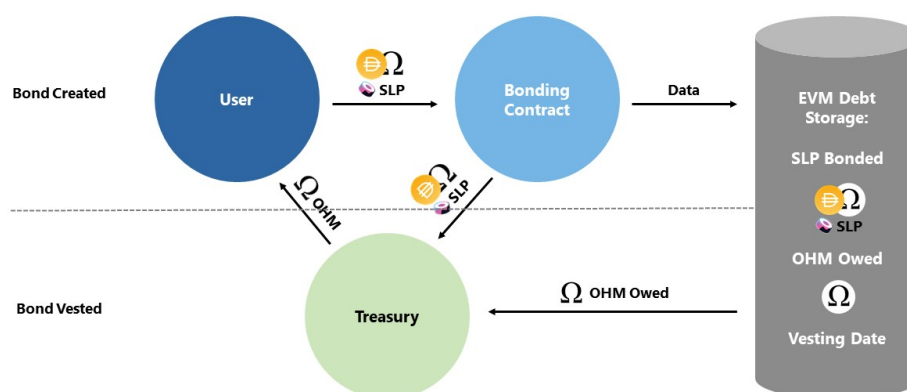
The debt ratio is based on the below formula.

Initially, Bonds will not be accepted if outstanding debt (OHM owed when all existing bonds vest) exceeds 25% of supply.

## MESSARI

### Olympus DAO Bonding Overview

Bonding providers users the option to trade their OHM/DAI LP shares with the protocol for OHM at a discount at future date



Source: Olympus DAO Gitbook

Below is an example from the whitepaper of how this works in practice.

One dynamic you may have noticed is that higher OHM prices incentivize more LPs to Bond. Because the protocol values OHM in LP shares at its intrinsic value rather than market value when calculating Bond prices, Bonders generally sell their LP to the protocol for below market value. However, this is canceled out by the protocol quoting OHM to bonders at below market value. This creates a dynamic where the value of bonded OHM increases much more quickly and dramatically relative to the value of the LP shares. Thus the higher OHM's price goes, the more liquidity there should be. This is a clever way of using OHM speculation to increase and accumulate OHM liquidity, which is a key part of the launch strategy whereby

Sales will not be live initially which will limit selling pressure. With Bonding alone available there will be strong incentives to LP with high OHM prices.

#### Treasury Management

As detailed above the treasury contract holds all PCV. At the end of every epoch, the treasury takes inventory of its PCV by calculating the sum of its reserve assets (initially DAI and OHM-DAI LP). As detailed in the above section on Bonds, the LP shares are valued at their minimum or risk-free value to ensure the protocol is never exposed to price risk (essentially the treasury conservatively values its LP shares). If PCV is greater than it was last epoch, then the protocol mints new OHM to correct the balance between OHM and its PCV, with the newly minted OHM distributed 90% to stakers and 10% to the DAO (these allocations may change if governance elects to do so). Once distributed the treasury can close the epoch and open a new one by reinitializing the sales contract with new funds.

Olympus elected to launch its treasury with just DAI and OHM/DAI LP shares in order to introduce its core concepts to the market while keeping things relatively simple. It plans to eventually add a variety of new assets to its balance sheet at a later date. The first asset it plans to add is Rari Capital's DAI pool token, which entails Olympus DAO depositing its DAI into Rari Capital's yield aggregator to generate yield. According to the team, following integrations will likely be with yield farms, then other decentralized stablecoins such as FRAX and FEI, then eventually some small bets on BTC and ETH. The purpose of allocations to volatile assets would not be to take directional bets on assets, but rather to diversify the treasury into crypto's reserve assets.

#### Launch

Olympus DAO launched with one of the more unique and democratic launches in recent memory. Instead of distributing tokens via an airdrop or farm, the team offered early Discord members the opportunity to buy 73% of the genesis OHM supply at a \$200,000 valuation. Each participant in the offering ended up receiving a 141 OHM allocation which they purchased at \$4 per OHM (\$564). What this provided was the opportunity for the project's earliest supporters to purchase a significant stake in Olympus DAO without significant upfront investment requirements, allowing smaller players to participate equally with whales. Additionally, once the Discord "snapshot" was taken, Olympus DAO launched a series of contests to allocate three additional slots in the offering to community members who created art, memes, and educational content. This was a clever way to boost community engagement and raise project awareness during the pre-launch stages on the project.

Beyond the initial discord offering Olympus DAO allocated the remaining 27% of its genesis supply to an initial DEX offering on SushiSwap. Ultimately it was front run by bots as you would expect for a plain vanilla DEX offering. Nevertheless, 100% of the genesis supply was allocated to the community.

So where does the team and [investors](#) come in if 100% of the genesis supply was allocated to the community?

Considering Olympus DAO only features one token, OHM, which must be backed by 1 DAI, it's impossible for Olympus DAO to pre-mine OHM or sell OHM at a discounted price. To get around this limitation while still incentivizing the team and raising the capital it needed from investors to fund development, the team created pOHM - an option to mint OHM by providing the intrinsic value of OHM (for example, an investor would provide 1 DAI and 1 pOHM to mint 1 OHM). Essentially, pOHM is worth the price of OHM minus intrinsic value, and it only makes sense to redeem it when OHM is above intrinsic value.

pOHM is vested based on supply, which provides a KPI based schedule for insider allocations to vest. Insider holders option amounts are ultimately capped between 2 billion to 5 billion OHM. The community will also get a pOHM allocation as well. The breakdown is as

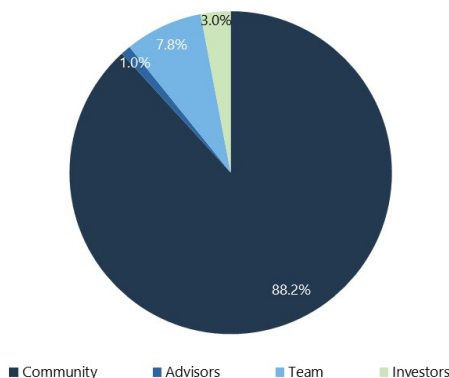
follows:

- Team: 330m pOHM and 7.8% supply
- Investors: 70m pOHM and 3% supply
- Advisors: 50m pOHM and 1% supply
- DAO: 550m pOHM and no supply cap (community can decide this)

## MESSARI

### pOHM Token Distribution

pOHM is an option to mint OHM by providing the intrinsic value of OHM.



Source: Olympus DAO Blog

Olympus DAO launched with limited functionality as it waits for many of its features such as Bonding and Market Operations to be audited. As a result OHM can only be staked at launch and won't face significant protocol led sell pressure, besides the OHM its incentivizing LPs with until Bonding launches.

### The Long Road Ahead

At this point you may be excited about non-pegged stablecoins as a long-term solution, but curious what their adoption will be like in the near-term. The picture is murky and it will take time before we can make strong inferences about whether they will be adopted or not; however, there are a couple of perspectives to consider.

The first perspective is that its not clear users want general "stability", but rather stability with the dollar. As much as the most hardcore participants in the industry favor cryptocurrencies over the fiat currencies, reality is most users denominate their wealth in fiat currencies. It may be some time before users begin using non pegged stablecoins in financial activities such as trading and borrowing. Likewise its an easy bet that any use case bridging blockchains to the real world, such as ecommerce will not be using non pegged stablecoins anytime soon considering even cryptocurrencies like Bitcoin struggle to get adoption (what would the tax implications be of using a non pegged stablecoin that's slightly volatile?). Perhaps non pegged stablecoins can carve out some space in the crypto-native economy such as in the NFT world as a unit of account (instead of ETH which is volatile); however, its not yet clear there's demand for them. One thing is clear and that's that adoption of non pegged stablecoins will require a regime change on how blockchain users think about stability and value.



The second and more positive perspective is that unlike the new wave of algorithmic stablecoins (Frax, Fei, ESD), non pegged stablecoins have no dominant incumbents to overcome. MakerDAO and Terra have formidable leads in liquidity, track record, and adoption that make any challenge to their dominance a more uphill battle. A blank canvas provides a much greater opportunity for non pegged stablecoin projects to grow and stake out their own paths without the overhang of existing competitors. In a sense, compared to dollar pegged algorithmic stablecoins, non pegged stablecoins trade-off clearer market potential for a more attractive competitive landscape.

The third perspective is that adoption for these non pegged stablecoins may differ depending on the project. For example, based on the 2020 simulations shared above, FLOAT would be great for use cases that demand short-term stability, but perhaps not so great for use cases that demand long-term stability like term lending considering its price would've increased 50% in 2020. On a similar note, OHM may win more integrations and trust in the near-term considering its intrinsic value will be 1 DAI, making it similar to a dollar pegged stablecoin, which people are already familiar with. This stands in contrast to RAI and FLOAT which may require much more time for people to get familiar with considering they're brand new units of account. In other words adoption will not just be determined by each team's go-to-market strategy, but by the design decisions each team made when designing their protocols.

### The Avant-Garde of Decentralized Stablecoins



Source: [Revalue the Dollar](#)

When Bitcoin was born it captured people's imagination on the potential for non-sovereign digital currencies. But as Bitcoin began trading it soon became clear that it would not be stable enough to be used as currency anytime soon. The promise was that sometime in the distant future it would eventually stabilize once it became a large enough asset and built up enough liquidity. However, even that is uncertain considering Bitcoin is a fixed supply asset and unable to adjust its supply relative to demand, which may deem it to forever be volatile just like Gold is.

Nevertheless to bridge the gap between now and this promised future industry partici-



pants created dollar pegged stablecoins which solved the volatility bug and catalyzed adoption for many blockchain applications beyond holding. DeFi would not be possible today without them and they've become a critical building block of the emerging cryptoeconomy.

However as the industry continues to evolve its worth revisiting this all important building block that we've begun to rely upon. Once upon a time we wanted independent currencies for a decentralized financial system. Instead we got dollars on a blockchain. If this industry is ever to become truly independent from fiat monetary systems without sacrificing stability it will need to find alternative options beyond dollar pegged stablecoins. This is not merely an appeal to Cypherpunk ideals, it is a practical proposition to wean public blockchain applications off from dollar derived regulatory risks and influence from the Federal Reserve.

Non pegged stablecoins may seem like a far-out experiment without a clear use case now. But they may also be the best bet this industry has on creating non-sovereign stable cryptocurrencies.

Please welcome the Avant-Garde of decentralized stablecoins.