

# BNRY

Whitepaper v.1.4

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**Abstract** The Binary Holdings (TBH) is a web3 infrastructure provider for the telecommunication sector in emerging economies across Southeast Asia, setting a bold vision to onboard the next billion users to Web3. By adopting Optimistic Rollup technology, TBH will be able to offer scalable, low-cost, and efficient infrastructure services essential for the adoption and growth of Web3 technologies within the telecommunications industry.

With this new focus, TBH aims to dismantle the existing barriers to entry for telecommunication companies looking to explore and integrate Web3 functionalities. By providing an infrastructure that supports high transaction throughput at significantly reduced costs, TBH is not just facilitating a smoother transition to Web3 for telcos but is also unlocking a myriad of opportunities for innovation, enhanced security, and decentralized services.

The Binary Token (BNRY), as the cornerstone of the TBH ecosystem, plays a crucial role in this new framework, enabling seamless transactions and interactions within the Web3 telecommunication infrastructure. TBH's initiative is poised to revolutionize how telecommunications networks operate, paving the way for a decentralized, secure, and user-centric digital future. Through its cutting-edge Layer 2 solution, TBH is committed to being the catalyst for mass adoption of Web3 technologies by telecommunication networks worldwide, making the next leap towards a fully interconnected and blockchain-powered world

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# Overview

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Binary Holdings (TBH) is at the forefront of bridging the worlds of telecommunications and blockchain technology, redefining the essence of digital connectivity for the Web3 era. With the advent of Optimistic Rollup technology, TBH introduces a Layer 2 solution tailor-made for the telecommunications industry, designed to significantly boost transaction throughput while minimizing costs. This innovation marks a pivotal step towards integrating decentralized applications seamlessly into telecommunications platforms, transforming the way we communicate, engage, and interact in the digital realm.

At the heart of TBH's vision lies the creation of a collaborative ecosystem that unites telecommunication operators, blockchain innovators, and Web3 communities. This collaborative effort aims to foster a digital environment where social engagement and communication transcend traditional barriers, empowering users with the tools and platforms to connect, share, and participate in a truly decentralized fashion. By implementing cross-chain identity solutions, TBH ensures that users can navigate the Web3 space with ease, enjoying a consistent, and secure identity across various blockchain ecosystems.

TBH is dedicated to leveraging the untapped potential of blockchain to enhance digital communication and social engagement, facilitating a smooth transition for users from the centralized landscapes of Web2 to the decentralized horizons of Web3. The Binary Token (BNRY) plays a crucial role in this transformation, facilitating access to a myriad of services, governance mechanisms, and incentives designed to stimulate ecosystem growth and promote active user involvement.

As TBH forges ahead, it aspires to not only revolutionize telecommunications with blockchain technology, but also to empower users with the freedom, privacy, and connectivity that come with the transition to Web3. Through strategic alliances and a commitment to innovation, TBH is paving the way for a future where digital communication is enriched with the principles of decentralization, transparency, and community-driven development, connecting the next billion users to the infinite possibilities of the digital world.

# Economy Setup

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Getting a project's token economy right, from day one, is next to impossible. On one side, there are unknowns that we need to assume (like the number of users and their activity). On the other hand, there are unpredictable macro-conditions like the sentiment of the crypto community and the broader market. This is why it is justified to instead rely on several core principles when designing a token economy, thereby minimizing the chance of significant disruption or turmoil as may be caused by the currently unknown future economic conditions, transpiring later down the line.

**Critical breakpoints.** There are certain events where a token economy would have a very hard time recovering. Examples include, but are not limited to, tokens given as incentives running out, the project's governance being taken over by 'whales' or disproportionately controlling participants, and hyperinflation of the token. Since prevention is a lot more effective than corrective action in those and most other cases, our tokenomics design aims to minimize the chance of those events happening in the first place.

**Variables.** Every token economy has variables that need to be adjusted, once the project is live. This is in order to adequately respond to internal and external factors affecting the performance of said token economy. As mentioned earlier, it is impossible to account for all potential eventualities. However, we can (and do) design the token economy with multiple levers which enable the project team (and later on, the community) to course-correct as and when may be needed.

**Token price.** While the BNRV token is not intended as an instrument for profit, significant fluctuations in the token price can disrupt important aspects of the token economy, such as, but not limited to, the reward structures. Throughout this document, we have aimed to build and show concrete token economy principles which support price stability and practical utility-based demand for the BNRV token to be sustained in the long term.

## Monetary and Fiscal Policies

**Project setup.** As TBH transitions to support the telecommunications industry's evolution into Web3, The Binary Token (BNRY) economics are meticulously designed to facilitate this change. The BNRY token acts as the medium through which transaction fees are minimized, ensuring that the enhanced transaction throughput benefits of the Optimistic Rollup technology are fully realized by telecommunication operators and their customers. This fosters a more accessible and efficient digital communication ecosystem.

**Token function.** The BNRY token is a utility token for the TBH ecosystem, offering discounts to its users when selected as a payment method for registrations, varied transactions and multiple other secured forms of activities as executed throughout the ecosystem. Furthermore it includes those supported across integrated marketplaces and blockchain networks. The BNRY token facilitates additional functions such as rewards for good platform or network performance of secured data, user transactions or exchange as well as the earning of passive yields for its stakers and LPs. The short list of token functions are:

Paying of cross-network or multi-chain and network transactions, registrations or engagement fees in the platform via the token and thereby further enjoying a discount on said fees

- Staking for:
  - Earning of a passive yield
  - Tiered discounts on fees
  - Priority access to future events and tokens
  
- Get rewarded for:
  - Staking the BNRY token
  - Providing liquidity to BNRY

## Payment

Payments on the platform can be carried out in multiple accepted fiat and cryptocurrencies. While not the primary function of the native token, it can be used for the payment of goods and services on the platform and for transactional settlements in a variety of methods.

The platform will incorporate dynamic pricing for purchases, where the cost of the purchase automatically adjusts to the price of the token. The cheaper the token, the more tokens a purchase would cost, and vice versa. Another way of putting this is that prices on the platform would be denominated in USD and the payment amount in tokens will automatically adjust based on the current BNRV/USD exchange rate.

## Staking

TBH introduces a staking model that incentivizes telecommunication operators, service providers, and users to lock BNRV tokens, thereby contributing to the network's economic security and scalability. Staking the BNRV token will provide stakers with multiple advantages. The program is structured as more than just a passive reward incentive for anyone willing to stake. Instead, the most benefits go specifically to users who also promote the TBH network and use its core functionality. The full staking benefits are:

- Passive yield in the form of BNRV token rewards
- Reduced fees on the network (stacks with discounts from payments in BNRV)
- Priority access to special events and tokens

The staking benefits are based on levels determined by the FIAT equivalence of the tokens staked, at the time of staking. This means that users will not lose their benefits even if the utility token decreases in value, as long as they do not unstake. Conversely, as the token increases in value, users can choose to unstake and stake a lower token amount to gain or earn the difference.

The FIAT equivalence and corresponding tokens above are based on the highest price during the token sale. These figures are provisional and may require adjustment once the project goes live and there is further data on the actual user behavior and the market-determined token price.

All benefits that users receive are dependent on the level that they reach via FIAT-based staking, this being of course except for the APY, which itself is variable. The size of each user's yield is determined by the multipliers they have actually achieved through active completion of varied forms of user engagement, external or extended referrals, as well as the selected duration of staking as compared to other users on the network. This logic is explained, in more detail, in both the Multipliers and Rewards section of this document.

## Perpetual reward pool

A common issue in the blockchain space is that projects tend to offer significant upfront incentives to boost their token price. Frequently, by doing so, they subsequently run out of tokens. A more elegant approach, as inspired by Bitcoin, is a perpetual pool. A perpetual pool is where the earned rewards gradually decrease or go down over time, in order to ensure that the pool cannot run out of tokens within the foreseeable time frame.

The perpetual reward pool operates on an Epoch basis, where each Epoch has a fixed number of per-block rewards (for simplicity's sake, we will refer to the rewards on a daily basis, from there the per-block reward can be obtained simply by dividing the daily reward by the number of blocks within the day). In turn, the Epoch reward is always determined by the outstanding number of tokens in the reward pool. Now, let's illustrate this with a simple example (the following numbers are theoretical, for simplicity's sake):

1. The pool starts with 1,000,000 tokens.
2. The Epoch daily reward is set to 1% of the pool's tokens. This means that each day, for the first Epoch, the pool will distribute 10,000 tokens.
3. The Epoch duration is 30 days, so on day 30, 300,000 tokens have been distributed.
4. Epoch two starts. The tokens in the pool are now 700,000. The Epoch reward is still 1%. This works out to 7,000 tokens per-day, for the next 30 days.

It becomes obvious from the example above that numbers close to 1% are quite aggressive in this scenario. Thus, we have set much more conservative quantifications and metrics:

- 0.03% of the outstanding tokens in the pool will be used as a basis for the daily Epoch rewards.
- Epoch duration will be 7 days.

This works out at an annual inflation rate (of the perpetual reward pool alone) of around 3.5%, which is well within the expected limits of a healthy inflation rate. From there, the daily reward is split between users who perform the following actions:

- Provide liquidity for the BNR/USDT pair on ByBit (or similar and comparable exchange services) and stake the resulting LP tokens (60%)
- Users who stake the BNR token (40%)

## Multipliers

Multipliers are used to properly weigh the user contribution(s) as adjusted for the various ways by which their actions then benefit the network. The subsequent rewards will be distributed based on the following formula:

$$P_{D\%} = \frac{U_x}{\sum_1^n U_1 \dots U_n}$$

Where:

- $P_{D\%}$  is the percent of the daily rewards, which a particular user (X) gets
- $U_x$  is the participation weight of user X for the particular full day
- $\sum_1^n U_1 \dots U_n$  is the sum of the participant weights for all users

We can define the participation weight, as per the aforementioned user actions, which are eligible for rewards, as follows:

- Number of LP tokens staked , weighted by duration M, the referral multiplier R, the Asset Multiplier N ,and the Engagement Multiplier E
- Number of tokens staked, weighted by duration M, the referral multiplier R, the Asset Multiplier N ,and the Engagement Multiplier E

For items with a multiplier, we can further define the participation weight of a user  $U_x$  as a function of the multiplier and the tokens staked ( ), as follows

$$U_x = T \times M \times R \times N \times E$$

There are several ways users can boost their APY to receive higher token rewards via multipliers:

- Generating engagement (shares, views, likes, comments)
- Referring or inviting future users to the BNRV network
- Locking of BNRV for a predefined duration

These multipliers are valid for both stakers of BNRV and liquidity providers for BNRV, who stake their LP tokens.

**Engagements** Another way for users to increase their staking rewards is through multipliers received from engagements of other users, such as likes, shares, views, comments and similar actions. The engagement multiplier, which leads to additional rewards, is therein determined as based on the brackets in the table below.



Engagements	Reward Multiplier
10-100	1.1
101-1,000	1.2
1,001-10,000	1.3
10,001-100,000	1.4
100,001-1,000,000	1.5
1,000,001+	1.75

The engagement multiplier is calculated on a quarterly basis and is reset at the start of each quarter.

**Referrals** Referrals are differentiated from and separate to the single-use code for new-user invites. The link owner receives a bonus multiplier based on the number of people who use the same shared link and then become active users of the TBH network. These invites are tracked via a single-use code, meaning anyone who clicks this code and joins is then counted as that user's invitee - irrespective of where or how the joining user may have received or become aware of such code.

Referrals	Reward Multiplier
10-20	1.1
21-35	1.2
36-50	1.3
51-70	1.4
70-100	1.5
100+	1.75

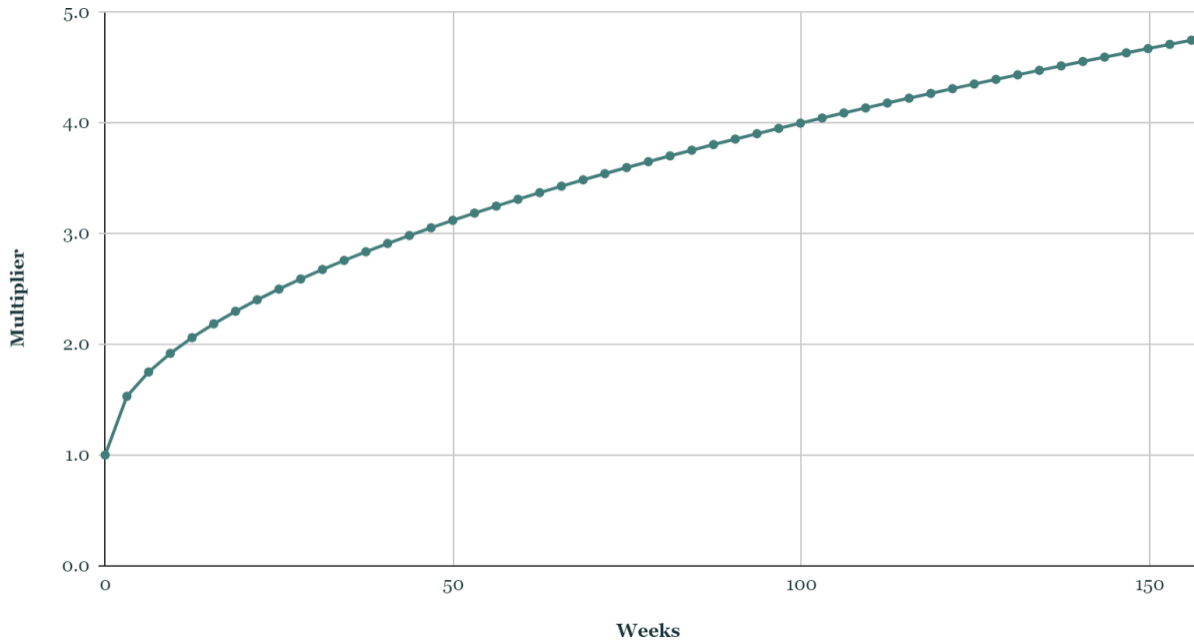
These numbers are cumulative and represent the total unique active users referred to the TBH platform.

This referral multiplier is calculated based on the cumulative number of referred and invited users. In each Epoch, the new referrals are added to the total count to form the pertinent or updated multiplier.

**Duration** Then finally, we can define as a function of the duration for which the tokens were staked (in weeks). This approach was first pioneered by Curve's vote locking mechanism. We define the multiplier as follows:

$$M = 1 + 0.3 \times D^{\frac{1}{2}}$$

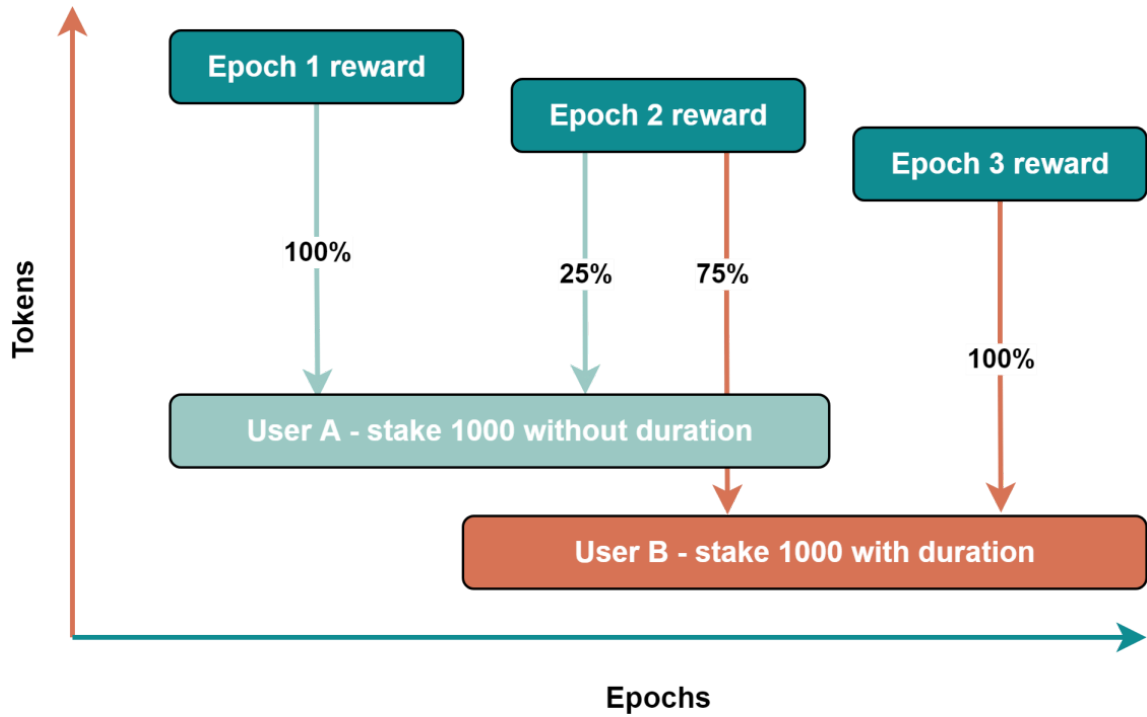
Where (D) is the duration of the stake measured in weeks, this gives us the following multiplier curve based on duration.



The APY (Annual Percentage Yield) from the user's stake will be capped so as to not exceed 60% throughout any distribution event.

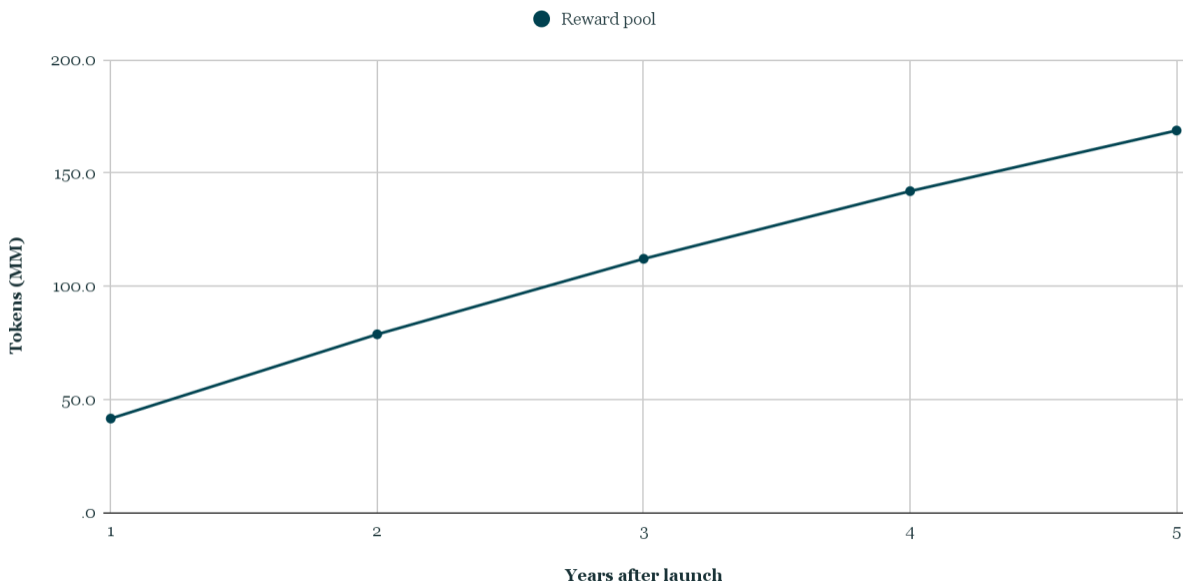
We herein illustrate the above with a simple example:

- User [A] stakes 1,000 tokens without a duration, so his participation weight is 1,000.
- User [B] stakes 1,000 tokens with a duration of 50 weeks, which translates into a ~3 multiplier, so that his or her participation weight is 3,000.
- If, at the end of the relevant day, those two users [A and B] are the only two who have an active stake, then:  
 User [A] gets  $1,000 / (1,000 + 3,000) = 25\%$  of the rewards.  
 User [B] gets  $3,000 / (1,000 + 3,000) = 75\%$  of the rewards, even though he staked the exact same amount as user [A].

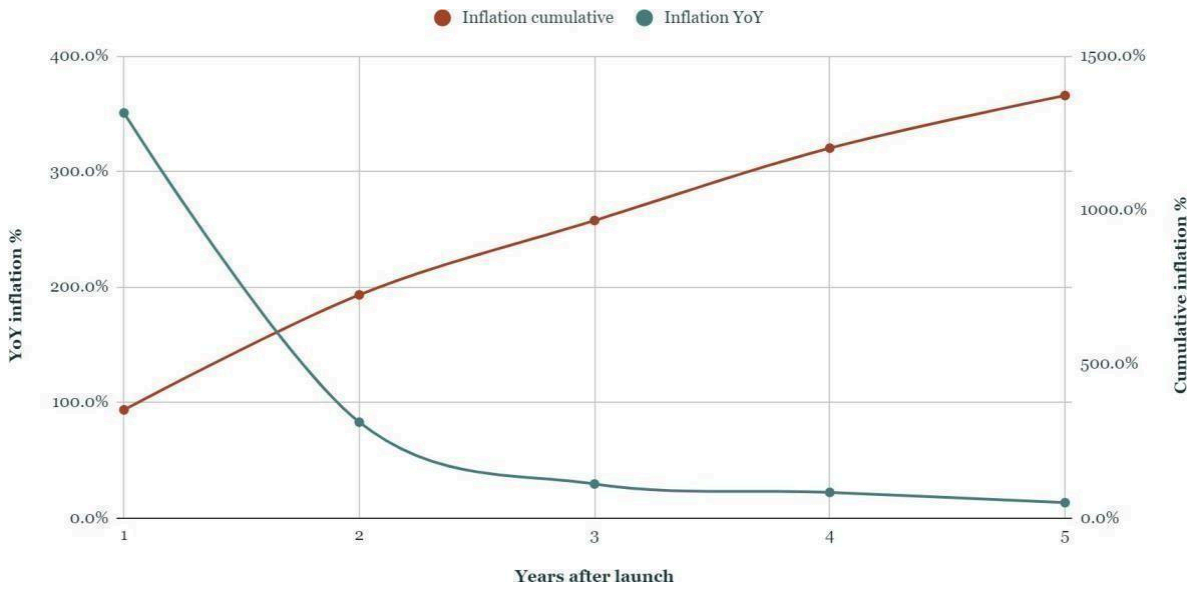


After the duration M is over, the tokens remain staked, the user can withdraw them at any time, however, they still reap the benefits based on the original multiplier chosen.

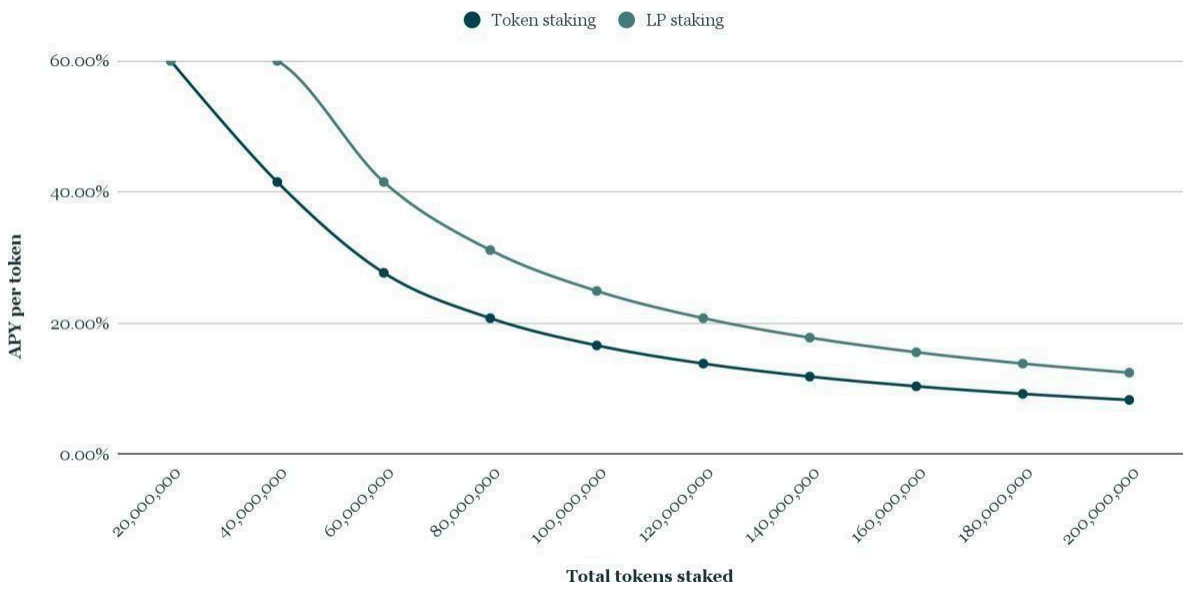
The rewards distribution will be as follows (as a cumulative percentage of all tokens in the reward pool):



*Token distribution schedules and takeover time*



*Token inflation YoY and cumulative*



*APY per token (year 1), based on the total amount of tokens staked*

## Penalties for Early Unstaking

TBH platform participants have the option to unstake their BNRV tokens at any time. However, unstaking before a period of six months incurs a penalty. The size of such a penalty will depend on how much earlier the tokens are withdrawn by the user before reaching the six-month mark.

**Reward penalty** The TBH platform will deduct the reward penalty from the respective user's accumulated rewards. After that, the platform will return the BNRV tokens to the TBH platform's Treasury.

The reward penalty ranges between 50% and 10% of the accumulated rewards, as is calculated based on the last day before the staking duration expires. After the duration expires, this penalty percentage becomes 0%.

Stake time elapsed	Penalty (on rewards)
<4 weeks	50%
4-8 weeks	40%
8-12 weeks	30%
12-16 weeks	20%
16-22 weeks	10%
>22 weeks	0%

**Principal penalty.** In addition to the reward penalty, the TBH platform will also deduct a percentage of the principal from the staked tokens. The principal penalty is valid only for those users who have staked with a predefined duration for the entirety of the pledged duration. The exact amount is determined by the multiplier as follows:

$$P = 5\% \times M$$

Where:

P - the principal penalty

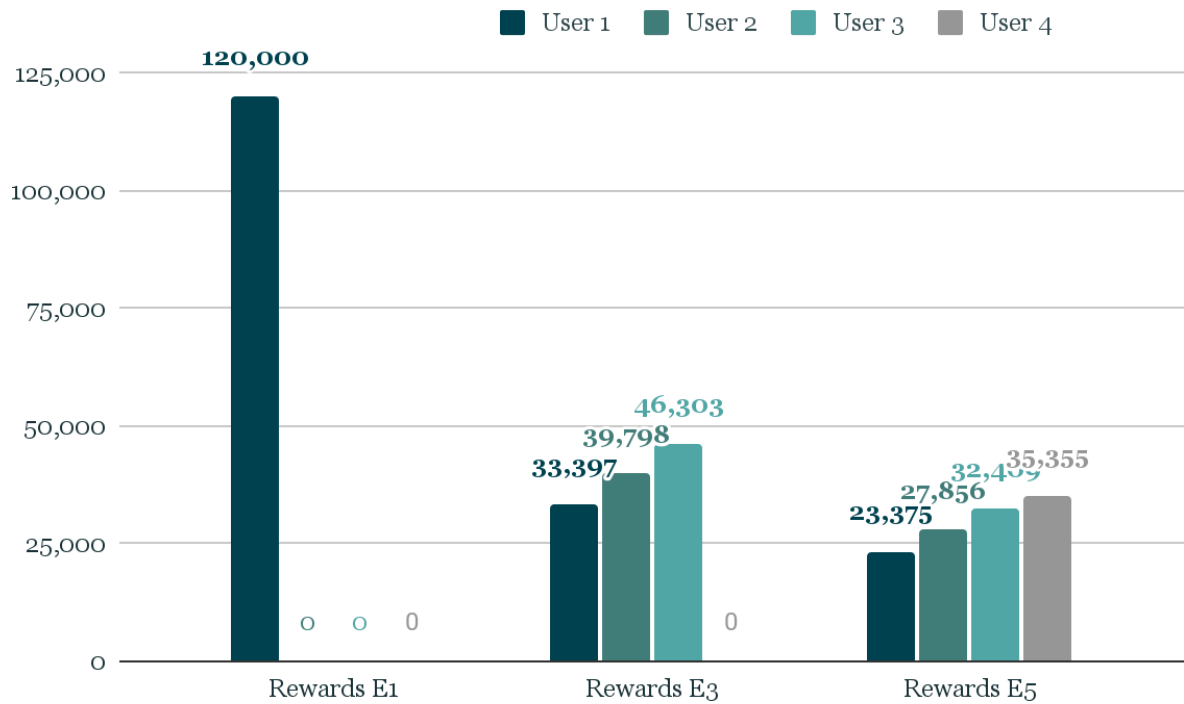
The reward penalty also applies to those users, as per the table above. Meaning users staking for predefined durations are subject to both principal and rewards penalties.

### Examples of Staking Rewards & Penalties:

The following example examines the rewards distribution, starting with 1 (one) eligible user [User 1] and slowly adding 3 (three) more users over 4 (four) Epochs. The Epoch reflects the first Epoch for which users actually receive rewards. Penalties showcase how many BNR tokens users will lose if they unstake immediately at the time of execution or “now” as then based on their “Staked since” column and also using Duration M. We simply assume that all users have staked an equal number of BNR tokens.

	User 1	User 2	User 3	User 4
Duration M	0	1.3	1.5	1.2
Referrals R	1.2	1.2	1.1	1.1
Engagements E	1	1.1	1.1	1.1
Epoch Joined	1	3	3	5
Total Multiplier	1.2	1.716	1.815	1.452
Staked Since	10 weeks	8 weeks	8 weeks	6 weeks
Penalty on Rewards	30%	30%	30%	40%
Penalty on Principal	0%	6.50%	7.50%	6%
Rewards E1	120,000	0	0	0
Rewards E3	33,397	39,798	46,303	0
Rewards E5	23,375	27,856	32,409	35,355

If the awarded tokens exceed the limit of 60% APY at any distribution event, the rewards are then reduced to the 60% limit with excess tokens remaining in the TBH Reward pool. For the sake of simplicity, the example above does not adjust for the limit(s), so as to better illustrate the common case of pro rata distribution.



*Rewards per user per epochs 1, 3 & 5*

## Replenishing the Reward Pool

As described earlier, the Reward pool of the project is designed to be non-depletable, the rewards provided become significantly reduced over extended periods of time.

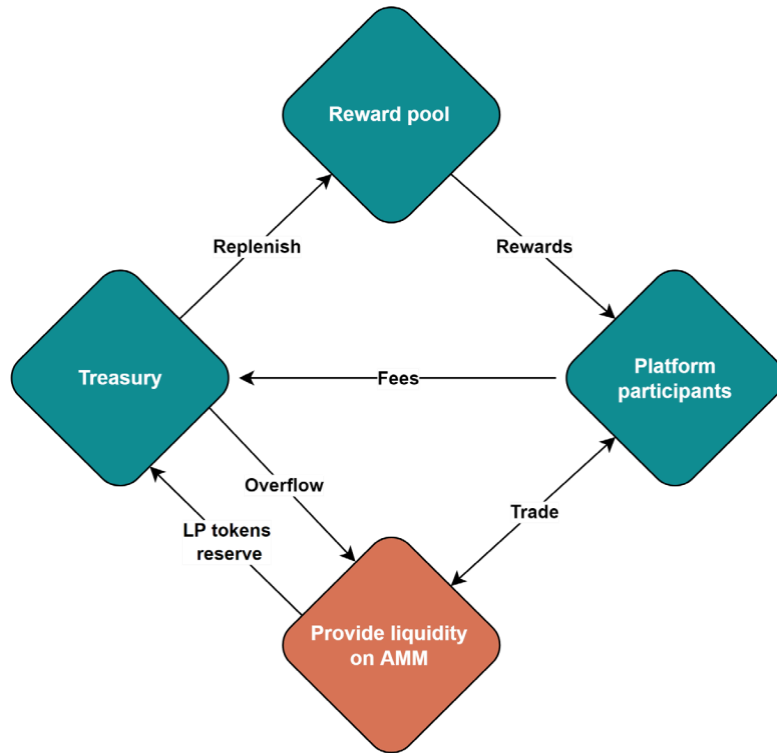
In order to counteract this, a percentage of all proceeds on the TBH platform will be used to replenish the Reward pool. These include:

- 20% of all fees

Furthermore, since a portion of the said fees are collected in currencies which are different from the core protocol token (BNRY), a TBH buyback function will first be executed, thus further increasing demand for the BNRV token.

The replenishment of the Reward pool will only be performed if the pool's current token availability falls below 75% of its original BNRV token allocation. If the BNRV tokens in the pool exceed this  $\frac{3}{4}$  threshold, the remaining tokens (then otherwise classified as 'overflow'), will be used for BNRV buyback(s) and LP, as described in the respective sections. Consequently there will be deflationary pressure on the token in the early stages.

The above setup creates an interesting self-balancing mechanism, wherein eventually the BNRV and TBH ecosystem reaches an equilibrium point meaning by which the daily deposits to the reward pool will roughly be equal to the daily rewards distributed (since the former is a flat value while the latter is a percentage value of the pool). This equilibrium point is self-adjusting since an increase in the deposits would lead to increased rewards, and vice versa.



Here is how this works in practice:

1. User [A] comes to the platform and mints 10 Assets at a price of 9.99 USD each;
2. The platform collects the entire sum of 99.90 USD;
3. 20% of it is used to buyback BNRV tokens from the market;
4. The resulting BNRV tokens are deposited in the Reward pool, if it is below the established threshold, or used for buyback & LP otherwise.



## Buyback & LP

Buyback and burn have proven themselves to be very popular mechanics in the cryptocurrency space, which have historically helped token price appreciation whilst keeping the tokens scarce <sup>1</sup>.

However, with the emergence of Decentralized Finance (DeFi) and Automated Market Makers (AMM) such as ByBit, however, a new approach has emerged which has the core benefits of the buyback and burn approach, together with the added value of deeper liquidity - **buyback and liquidity provision**. In this scenario, instead of burning tokens, they are first provided as liquidity for the token on its main AMM market, and then the resulting LP tokens are stored in the project's long term treasury. Thus, this approach does actively work to combine the benefits of the reduced token supply together with deeper liquidity for the (BNRY) token.

In practice, this methodology is executed as follows:

- I. User [A] comes to the platform and mints 10 Assets each for 9.99 USD;
- II. The platform collects the entire fee amount of 99.90 USD;
- III. 1/5th (~20 USD), of the fees are used for buyback and LP (B&LP), and the remaining ~80 USD is used to fund TBH platform operations;
- IV. From the \$20 USD for B&LP, \$10 are converted so as to purchase BNRV at the current market price on ByBit (let's assume 0.10 USD) to obtain 100 BNRV tokens;
- V. The other \$10 USD are used to buy USDT from ByBit and thus ~10 USDT are obtained;
- VI. The resulting 100 BNRV and 10 USDT tokens are posted back as liquidity on ByBit, thus providing more BNRV tokens for people who want to buy them, and more USDT for people who want to sell BNRV
- VII. As liquidity is added, the resulting BNRV-USDT LP tokens are stored in the TBH treasury and are spendable only via a governance vote.

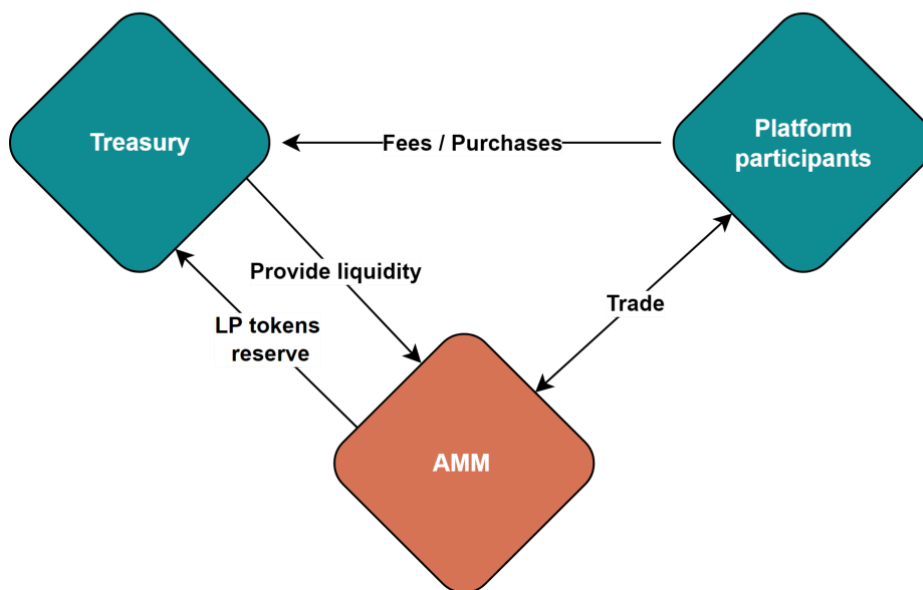
To mitigate costs, the TBH platform batches the buyback and LP operations (rather than execute them with each transaction), in order to keep these conversions and activities highly economically feasible.

In the case of BNRV, 20% of all fees collected will be used as funds for buyback and LP.

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<sup>1</sup>

<https://www.binance.com/en/blog/421499824684900763/Mythbusting-Token-Economics-and-SomeCommon-Fallacies>



## Liquidity Pool Setup

The initial liquidity for the TBH pool (self-funded liquidity), on ByBit or similar exchanges will be set up with the following parameters:

Pool Liquidity

USD equivalence	532,000
Tokens	3,377,778
Starting Price	0.158

Pool Sensitivity

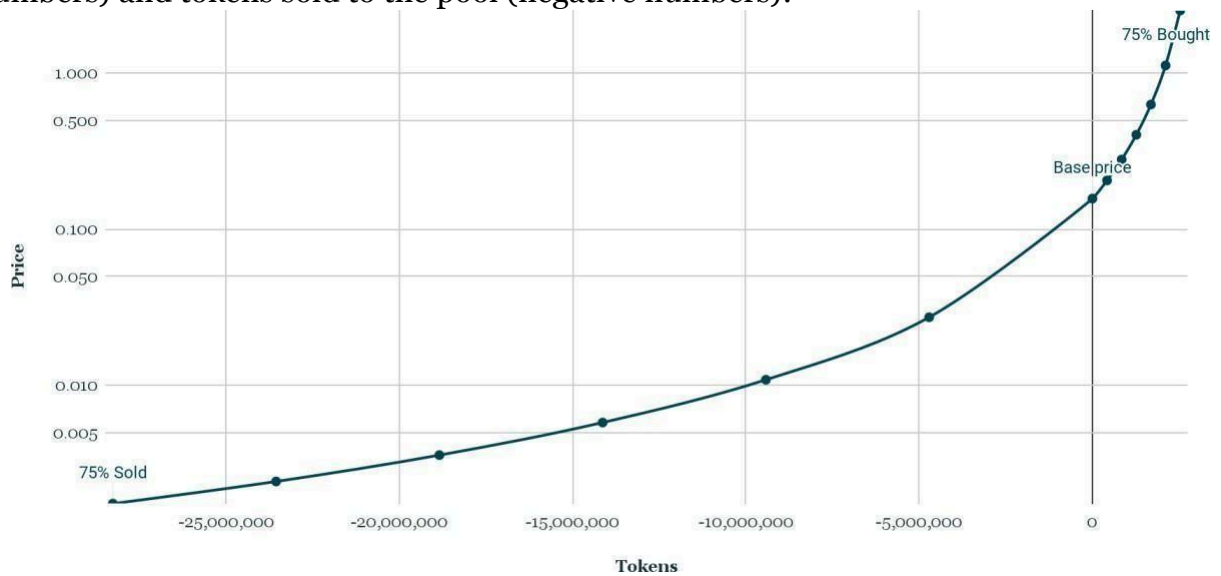
Action	New Price
75% Bought	2.526
75% Sold	0.002

The numbers are broken down as follows:

- The TBH pool is opened for the BNR/USDT pair. With **USD equivalence** representing the liquidity posted in USD value, it is at an equivalence for or of USDT. This money will come out of the Exchange Listings allocation of funds raised.
- “Tokens” is the initial amount of tokens posted to the pool coming from the Market-Making token allocation
- “Starting price” is the initial price of the pool, set to 5% higher than the highest BNR token sale price, during the BNR token sale event.

- The parameters in the Pool sensitivity section represent:
  - What would the token price be if 75% of the tokens in the pool were bought (assuming no additional liquidity was posted to the pool in the meantime).
  - What would the token price be if 75% of the initial circulating tokens at TGE were sold to the pool (assuming no additional liquidity was posted to the pool in the meantime).

A more detailed breakdown of the price action on the pool can be found in the graph below, with the horizontal axis representing tokens bought from the pool (positive numbers) and tokens sold to the pool (negative numbers):



*Token price, based on token buy/sell action on the pool.*

## Fee Summary

In summary, the fees collected by the TBH platform and the re-distribution are as follows:

- B2B fees for minting, registrations, trx, SSDID & provenance, data storage:
  - 20% are used for buyback & RP or buyback & LP
  - 80% are used to fund the platform's operations

These expense proportions can change at the discretion of TBH, as may be needed

# DAO Governance

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The TBH platform initially operates as a primarily centralized entity, gradually evolving into a fully decentralized ecosystem maintained and governed by both its users and DAO members. This transition is facilitated in part by the dedicated governance token, derived from the BNRV utility token. Establishing such a distributed community and functional governance framework is a monumental undertaking, both conceptually and practically. To ensure the success of the platform, it is imperative that this structure is carefully crafted from inception, with robust and dynamic checks and balances in place.

## Governance

The decentralization of the TBH ecosystem will be structured in three stages, as follows:

1. **Early days (initiation)** - during this period, the TBH team retains full control over the platform, ecosystem operations, and structure. No outside participant voting is considered or counted. This is because there may be bugs and events that necessitate immediate hotfixes, which cannot be easily rectified or efficiently addressed through democratic voting.
2. **Semi-decentralisation (active feedback)** - during this period, the TBH team maintains fundamental control over the TBH ecosystem, enabling them to instantly deploy hotfixes, similar to the above scenario. However, for non-urgent decisions, TBH can solicit community input via forums and even conduct off-chain voting.
3. **Full decentralization (rule by the people)** - this phase is where the TBH implements processes of input and response that follow both unique GE2EE read-write capabilities as governed by industry best practices, as defined further below.

During phases two and three, user or participant voting is done via **vote escrowed (VE) tokens**<sup>2</sup>. VE tokens were first pioneered by Curve<sup>3</sup> and later adopted by multiple large protocols such as yEarn as well as Balancer<sup>4</sup>, and to great success.

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<sup>2</sup> <https://bowtiedisland.com/vote-escrowed-tokens-vetoken-the-good-the-bad-the-ugly/>

<sup>3</sup> <https://curve.readthedocs.io/dao-vecrv.html>

<sup>4</sup> <https://cryptobriefing.com/balancer-jumps-following-vote-escrow-system-launch>

In essence, VE tokens are locked for a substantial duration, granting a sizable increase in voting power(s) to the person viewing the tokens. The interesting or noteworthy affect about this system logic is that the locked VE tokens therein do not necessarily need to be the project tokens i.e., BNRV, themselves. Instead, they can be a derivative of the BNRV utility token. For example, when Balancer does VE, the tokens used are the LP tokens from the 80/20 BAL/ETH pool<sup>5</sup>.

TBH will use a similar extrapolation and balancing system, whereby derivate tokens as are based on the user contributions (  $C_x$  ), are described in the reward section and can then be used for VE. For simplicity purposes, we will refer to all of those tokens as (  $C_x$  ), although they are practically different.

- $C_x$  from token staking;
- $C_x$  from LP staking;
- Assets represented as an equivalence of 500  $C_x$  .

Additionally, in order to avoid system centralization and collusion, the voting will be done via quadratic voting<sup>6</sup>. This means that the final voting power that a user has grows slower and slower, based upon the more tokens that they accumulate and hold. More formally:

$$VP = \sqrt{C_x \times M}$$

Where:

- VP is voting Power
- $C_x$  is the user contribution as defined in the rewards section, for each contribution individually;
- M is a duration based multiplier

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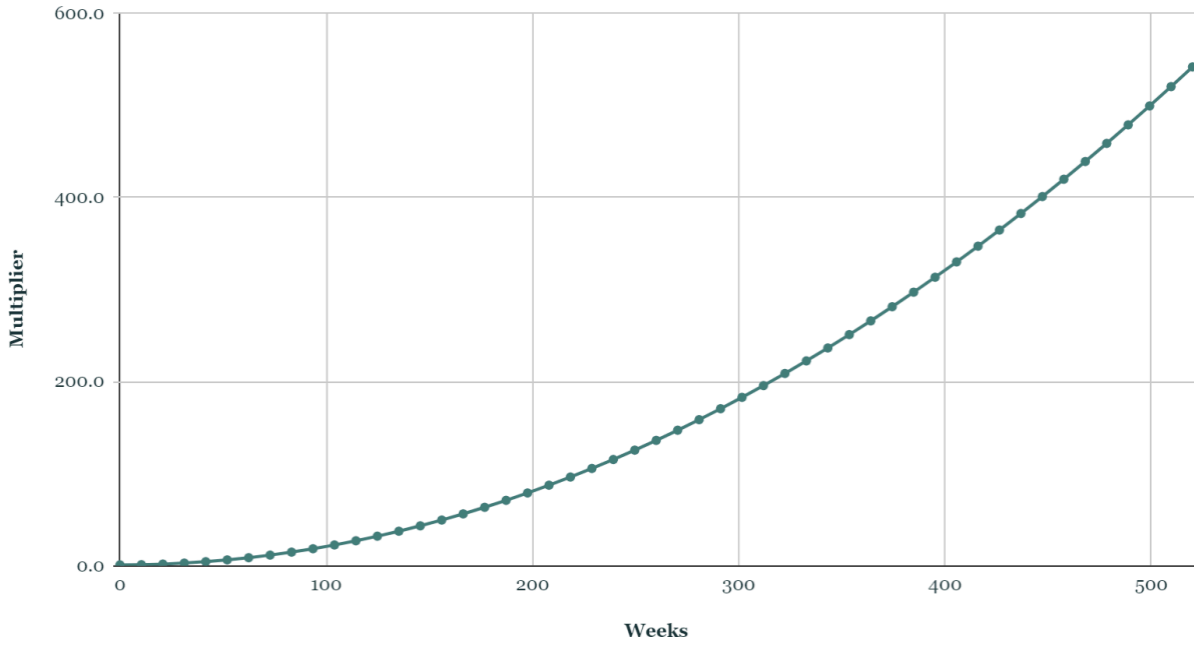
<sup>5</sup> <https://forum.balancer.fi/t/introducing-vebal-tokenomics/2512>

<sup>6</sup> <https://towardsdatascience.com/what-is-quadratic-voting-4f81805d5a06>

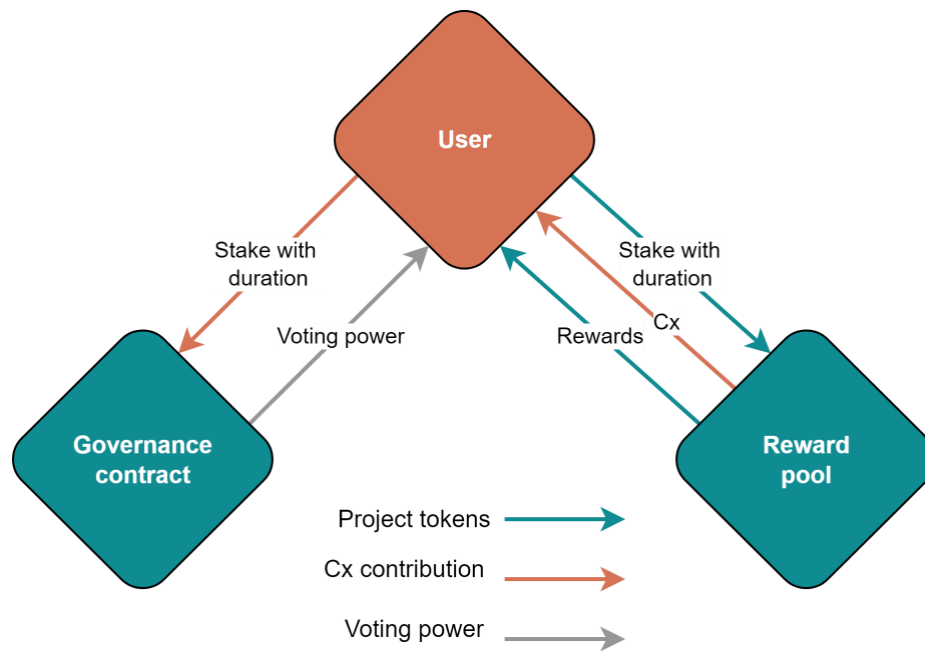
We can then define M as follows:

$$M = 1 + 0.002 \times D^2$$

Where (D) is the duration of the stake in weeks, this gives us the following multiplier curve based on duration



The following depicts a high level view of the complete process:



The above setup has several very desirable properties:

- Voting becomes an extension of regular staking, which means that stakers and voters are both awarded from the same pool.
- Voting does not provide any additional TBH or BNRV rewards compared to just staking, thus making sure that only people who are interested in governing the system would participate, since this action requires a longer token lockup.
- Voting tokens become “double-locked”. Once via staking and then locked again for a second time when used for voting, this is making sure the mediums used therein are taken out of circulation long(er) term.
- It allows TBH to have significantly more aggressive multipliers for voting, since they are not impacting the ecosystem rewards received.
- Loyal users (those who both lock their staking and their voting long term) benefit significantly from both multipliers.

During Phase three, suggesting and implementing a proposal will closely follow ByBit’s <sup>7</sup> governance process, with tweaked parameters and an additional **Tender** step.

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<sup>7</sup><https://gov.uniswap.org/t/community-governance-process/7732>

## Scope

The TBH DAO will be partially responsible for the platform and ecosystems' development roadmap alongside certain monetary policies. The technical improvements to the protocol will be reimbursed via the Treasury. The DAO has the authority to issue grants and allocate funds from the Treasury as decided through an unbiased governance vote. These funds may be allocated for community-building initiatives, competitions, technical improvements, and similar purposes. Fee rates, loan-issue policies, and new utility functionalities of TBH tokens will be proposed and voted on by the TBH DAO.

### Out of scope:

#### 1. TBH council members' individual mandate and relevant purview

## Roles and Responsibilities

The DAO comprises general community members, Stewards, and Council members - each of them fulfilling a unique role to drive the TBH protocol and ecosystem forward as well as to provide eclectic safeguards in the governance system.

**Stewards** - Stewards are elected, reputable members of the TBH DAO, responsible for facilitating proposal creation and voting. Any proposals without proper format or links of origin are to be removed by the Stewards, if not amended. Members can delegate their voting power to Stewards so as to vote in their name. Stewards can be implicated by Members in improper behavior and penalized by slashing their staked tokens. Systematic rule-breaking can lead to a Steward being voted out of their role permanently. Report cards are recommended for the role as well, these would be showing their voting activity, total Voting Power, and created proposals <sup>8</sup>. Stewards are responsible for ratifying off-chain votes by recording the decision on-chain and alerting the Council Members to execute the decision after a time-locked duration

**Council Members** - Council members will initially consist of three developers and four members of the project. Their primary responsibility is to audit proposals and code changes to ensure they do not pose a security risk to the TBH ecosystem or platform. Council members have the authority to pause or cancel proposals that they deem detrimental to TBH functionality and/or users. To cancel a voted decision, at least five Council Members must sign a multisig, on-chain contract to take action. In most cases, proposals are expected to be non-malicious and free from critical vulnerabilities. Additionally, the Council has two key prerogatives:

1. The Council can add options to submitted Change Proposals and back them - this is part of the approval process of pending Change Proposal drafts to ensure compliance with the requirements and the first-pass check for any irregularities. Hopefully, the additional check will help stop malicious proposals from propagating forward and getting canceled at a later stage as well as also provide more options to voters.
2. The Council can raise their own proposals on the Change Proposal level directly. All other standard rules of the governance process apply.

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<sup>8</sup> <https://www.daostewards.xyz/>



The Council Members will implement all voted proposals after they successfully pass the audit.

## Governance Process

The processes of proposal creation and voting will be facilitated by tools in addition to the special roles already described earlier. Every proposal will be conceptualized and discussed initially in the TBH community social channels, such as Discord, and its formal forum. While off-chain voting of proposals will happen in a customized ready solution - Snapshot, on-chain governance can be custom-made or leverage Aragon, in integration with Snapshot.

### Phase 1: Signaling Proposal

1. For example, a user starts a thread in the Discord community of TBH. If they are eligible, they draft a signaling proposal on Snapshot with an adequate title containing [Signal] at the start or end of the title. The proposal should adhere to a comprehensive draft standard, which illustrates the proposal, its benefits, technical feasibility (if applicable), and potential downsides. The poll post should also contain a link to the forum discussion and any other applicable resources. Signaling proposals require a minimum of 0.01% of delegated VP to be created. If the author of the thread does not meet the requirements to create signaling polls, another community member with enough VP can do it for them or delegate their tokens to the author. Stewards can also assist authors in this, but it is not a mandatory part of their role.
2. The user is responsible for promoting the proposal and facilitating productive discussion. Concerns are addressed and improvement suggestions are gathered. A signaling post should be linked in the forum discussion by its author.
3. The community votes on the signaling proposal and if an option other than “No/Make no change” has a plurality (highest number of votes), it can move on to the next stage. Voting lasts for up to 3 (three) days. The proposal will need to gather a quorum in order to be considered valid. A quorum for a signaling proposal is 1% of voting power available on Snapshot. If that threshold is not reached, the proposal is considered rejected regardless of votes cast among options. This type of voting is suitable for Yes/No votes <sup>9</sup> as well as multiple options <sup>10</sup>.

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<sup>9</sup> <https://signal.curve.fi/#/proposal/0x15fae2fb5f07ef6b94db2496a5a26ba8cd331a0460365b15a648eac2726c11>

## Phase 2: Change Proposal

1. After a successful signaling proposal, the creator of the proposal takes the most popular feedback left on it to enhance the final version of the proposal.
2. A change proposal is posted for community vote with a [#TAG] of the type of proposal - [#GRANT], [#UX], [#TOKENOMICS]. The categories can change as the community evolves - more categories can be created and others removed. The proposal should explain the value it will bring, in brief, the technical feasibility, all resources needed for the implementation (e.g. developers, days, budget), any potential downsides, and links to the forum discussion and signaling post. Any change proposals, which do not contain all mandatory elements will be flagged by Stewards and removed within 24hrs, if not corrected.
3. The change proposal needs to pass a quorum requirement of 5% of delegated VP cast in total, so it can be considered valid. A proposal is considered “passed” if it garners the support of 50%+1 of the cast VP for trivial changes and 67% of the cast VP for major changes. A major change is any item that critically impacts the project’s monetary policy and security measures, e.g. new reward structure for stakers, an increase of fees, integration of a partner.
4. Voting lasts for 5 (five) days. Proposals that are improperly indicated will be removed by the space admins. If a proposal passes, depending on the change it presents, it will be actioned by the senior community members or the respective group hired to do the change, in case of development or other changes which cannot be executed fully by the community<sup>10</sup>.

## Phase 3: Execution

1. Off-chain: Stewards pick up the winning option and ratify the vote by recording it on-chain in the governance contract. It enters a timelock of 2 (two) days, allowing Council Members time to review it.
2. After the security review is passed, Council Members implement the decision voted on by the DAO.

# Tokenomics

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## Token sale setup

Stage	Price (USD)	Token MM	Raise MM (USD)	FDV (USD)
Early Investor	0.01	100MM	1.0 MM	100MM
Seed Sale	0.03	150MM	4.5 MM	300MM
Private Sale	0.08	115 MM	9.2 MM	800 MM
Public Presale	0.15	15 MM	2.25MM	1500MM
Public Sale	0.20	20 MM	4 MM	2000 MM

## Vesting schedule, per token allocation

Stage	Allocation	Tokens	TGE	Cliff	Vesting	Weighted Average TGE
Early Investors	1.00%	100,000,000	00.00%	12 months	48 months	0.000%
Seed Sale	1.50%	150,000,000	00.00%	12 months	48 months	0.000%
Private Sale	1.15%	115,000,000	00.00%	12 months	48 months	0.000%
Public Presale	0.15%	15,000,000	50.00%			0.075%
Public Sale	0.20%	20,000,000	50.00%			0.100%
Treasury	38.45%	3,845,000,000	0.00%			0.000%
Market making	2.00%	200,000,000	2.00%	3 months	12 months	0.040%
Marketing	3.50%	350,000,000	2.00%	3 months	48 months	0.070%
Team	17.00%	1,700,000,000	0.00%	6 months	48 months	0.000%
Advisors	1.50%	150,000,000	0.00%	6 months	48 months	0.000%
Reward Pool	33.55%	3,355,000,000	0.00%		48 months	0.000%
Total	100.00%	10,000,000,000				

# Token Valuation

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**The sections that follow should be presented to ACCREDITED INVESTORS ONLY.**

This section will outline the valuation methodology used to determine the TBH utility token's future price as well as apply a series of assumptions in order to produce an estimate of the fair token price (should those assumptions hold).

## The quantity theory of money

The most widely used valuation methodology for utility tokens is the quantity theory of money <sup>11</sup> and, more precisely, the equation of exchange <sup>12</sup>. Several models <sup>13 14</sup> based on those principles have been developed and widely accepted by the cryptocurrency community. In a nutshell, the equation of exchange is:

$$M \times V = P \times T$$

### Where:

- I. M is the amount of money in circulation within a specific system
- II. V is the velocity of money, or in other words: how often money changes hands within a predefined period (most commonly - annually)
- III. P is the price at which transactions are happening within the system
- IV. T is the number of transactions for a predefined period (same period, as the velocity)
- V. P \* T in this regard is essentially the total economic output of the system for the selected period, sometimes referred to as the GDP of the system.

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<sup>11</sup> Friedman M. (2008) Quantity Theory of Money. In: Palgrave Macmillan (eds) The New Palgrave Dictionary of Economics. Palgrave Macmillan, London  
[https://link.springer.com/referenceworkentry/10.1057%2F978-1-349-95121-5\\_1640-2](https://link.springer.com/referenceworkentry/10.1057%2F978-1-349-95121-5_1640-2)

<sup>12</sup> Bordo M.D. (1989) Equation of Exchange. In: Eatwell J., Milgate M., Newman P. (eds) Money. The New Palgrave. Palgrave Macmillan, London  
[https://link.springer.com/chapter/10.1007/978-1-349-19804-7\\_17](https://link.springer.com/chapter/10.1007/978-1-349-19804-7_17)

<sup>13</sup> Chris Burniske (2017) Cryptoasset Valuations <https://medium.com/@cburniske/cryptoasset-valuations-ac83479ffc>

<sup>14</sup> Brett Winton (2017) How to Value a Crypto-Asset — A Model  
<https://medium.com/@wintonARK/how-to-value-a-crypto-asset-a-model-e0548e96>

The above formula is not directly applicable to cryptocurrencies (and is a commonly encountered error). In a token/cryptocurrency economy, the two sides of the above equation are denominated in different units. When talking about the system's GDP, the expected Revenue is generally used; on the other hand, the equation's left-hand side is still denominated in the native utility token. We can solve this by introducing an additional parameter representing the exchange rate between the token and USD (or any other FIAT currency based on the denomination of the system's GDP). The equation then becomes:

$$M_T \times E_{T/USD} \times V = P_{USD} \times T$$

This enables us to solve for  $E_{T/USD}$  and get the expected token exchange rate (or token value), provided we can come up with adequate estimations for the other variables. We can now solve for the token value as:

$$E_{T/USD} = \frac{P_{USD} \times T}{M_T \times V}$$

Another component in our system is FIAT-based token staking. Since, as explained previously, this is correlated with the token price, we can estimate the USD value of staked tokens (recall that they are % of registration fees and operational fees). However, this begs the question - how do we estimate the staked TOKEN equivalent?

Let's first take a look at a simple example - how staking would affect the token price. Here, we refer back to the expanded equation of exchange from above, as follows:

$$M_T \times E_{T/USD} \times V = P_{USD} \times T$$

Here, we can represent the staked amount as a temporary reduction in the token supply,  $M_1$ . Then we can subtract this amount from the total supply, as follows:

$$(M_T - M_1) \times E_{T/USD} \times V = P_{USD} \times T$$

Following the same transformations we did previously; we can simplify this equation to:

$$E_{T/USD} = \frac{P_{USD} \times T}{(M_T - M_1) \times V}$$

$$M_1 = \frac{S_{USD}}{E_{T/USD}}$$

To define  $M_1$ , we take the FIAT amount of the staked tokens ( $S_{USD}$ ) and divide it by the token price  $E_{T/USD}$  as follows

This approach however has a significant issue: the process of purchasing utility tokens in order to stake them, increases the price itself. While this is likely negligible for small amounts of tokens, it can have a significant impact for larger amounts. As such, we need to discount the amount of utility tokens that are purchased.

Following the equation of exchange, which we defined at the very start, a reduction in the token supply of 50%, would translate into a doubling of the token price. A further reduction of another 50%, would again double the price, or if we look at this cumulatively, a 75% reduction would mean quadrupling the price. It quickly becomes apparent that we can express this process by a constant product function as follows:

$$(1 - R) \times P_I = 1$$

Where:

- $R$  is the % reduction in token supply
- $P_I$  is the % increase in token price

From the above we can define the increase in the cumulative price ( $I_{CP}$ ) as the area under the curve of the function of the reduction in net circulation supply based on the purchase amount as:

$$I_{CP} = \int \frac{1}{1 - R} dx$$

Solving the above integral gives us:

$$I_{CP} = |\ln(1 - R)| + C$$

Plugging this back to our original formula we get:

$$\left(M_T - \frac{S_{USD}}{E_{T/USD} \times I_{CP}}\right) \times E_{T/USD} \times V = P_{USD} \times T$$

And finally we can simplify the formula to:

$$E_{T/USD} = \frac{P_{USD} \times T + \frac{S_{USD} \times V}{I_{CP}}}{M_T \times V}$$

Not surprisingly, we can think of **locking** in similar terms. The main difference is that we cannot calculate locking cumulatively (based on USD equivalence), but we need to calculate it on an annual basis. This is because the utility token price would be different for each year at the time of locking. In other terms, if  $B_{USD}^1$  is the USD equivalent of tokens locked in year 1,  $B_{USD}^N$  is the USD equivalent of tokens locked in year N, and  $E_{T/USD}^N$  is the price of the token in year N, we can estimate the price after locking as:

$$\left(M_T - \sum_{i=1}^N \frac{S_{USD}^i}{E_{T/USD}^i \times I_{CP}^i}\right) \times E_{T/USD}^N \times V = P_{USD}^N \times T^N$$

The calculations above will be used to determine the token circulation and price.

## Cashflow facilitated through the token

The Binary Token (BNRY) is engineered to be the financial backbone of TBH's Web3 telecommunications infrastructure, enabling efficient, secure, and scalable economic transactions within the digital communication realm. The token's utility is designed to support the seamless flow of value, facilitating various transactions that underpin the telecommunications ecosystem's operations and services.

**Microtransactions and Billing:** In the Web3 telecommunications landscape, BNRY enables microtransactions for a wide array of services, such as data usage, access to decentralized applications (dApps), and digital communication services. This capability ensures users can engage in frictionless, real-time transactions with minimal costs, enhancing the user experience and enabling flexible billing models for service providers.

**Incentive for Participation:** BNRY serves as a powerful tool to incentivize ecosystem participation. Users, developers, and telecommunication operators are rewarded in BNRY tokens for contributing to network growth, engaging in social platforms, creating content, or deploying new services. This model not only stimulates active participation but also ensures a direct alignment of interests among all stakeholders, driving the ecosystem's expansion and utility.

**Cross-Chain Liquidity and Interoperability:** Acknowledging the importance of interoperability in the Web3 space, TBH leverages BNRY to facilitate cross-chain transactions and liquidity. This approach allows seamless value exchange across different blockchain networks, ensuring TBH's infrastructure can easily integrate with and support a broad spectrum of telecommunication services and blockchain protocols.

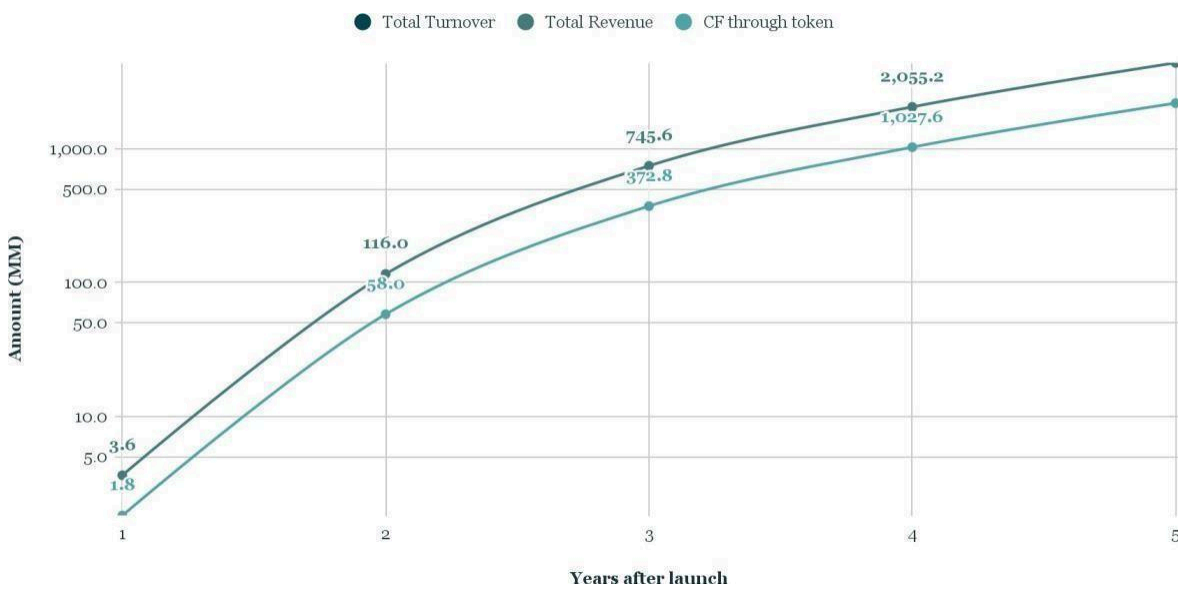
**Governance and Decision-Making:** The BNRY token grants holders governance rights within the TBH ecosystem, allowing them to participate in decision-making processes that shape the platform's development, monetary policies, and strategic direction. This democratic governance model ensures the platform evolves in response to the needs and preferences of its user base and stakeholders.

**Staking and Network Security:** By staking BNRY tokens, participants contribute to the security and stability of the TBH platform. In return, stakers receive rewards, which may

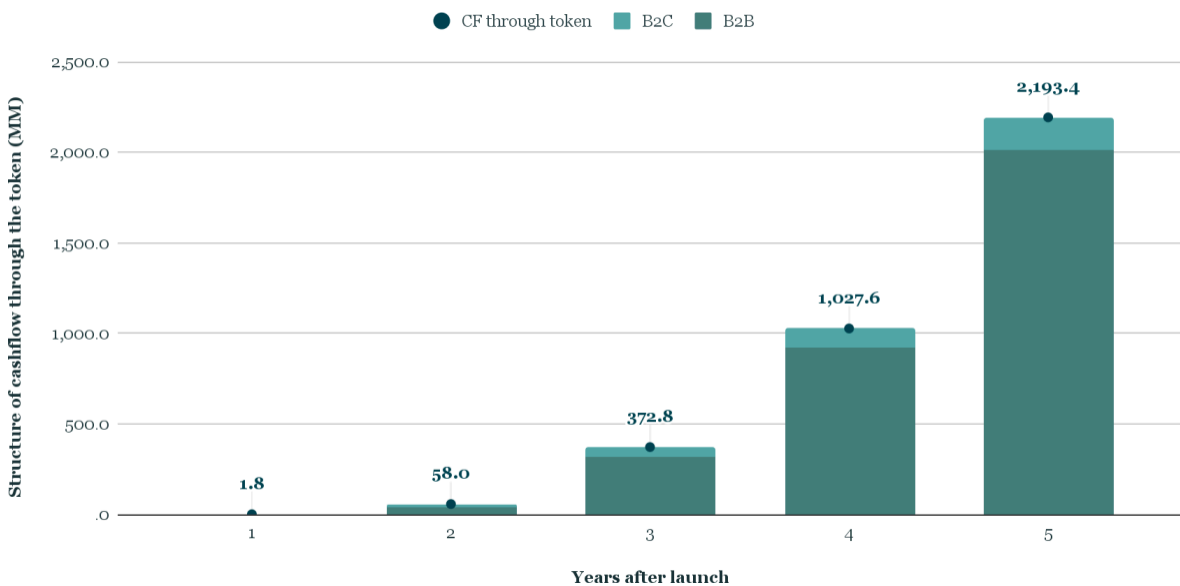
include reduced fees, enhanced service access, or additional governance rights. This mechanism encourages long-term holding and investment in the platform's success while ensuring a robust and secure infrastructure.

**Funding Future Innovations:** A portion of the transactions facilitated by BNRV is allocated to a development fund dedicated to supporting ongoing research, platform enhancements, and the integration of cutting-edge technologies. This ensures TBH remains at the forefront of blockchain and telecommunication innovation, ready to meet the future demands of the Web3 world

The company revenue projections are reflected in the graph below:



*Projected company performance & growth based on financial assumptions provided as-is by the company. The chart shows the company revenue and their part, facilitated through the token (cash flow through the token).*



*Structure of the cashflow facilitated through the token (in MM).*

For the figures above, we have assumed that **50%** of all payments on the platform would be carried out in the BNRV utility token.



## Circulation

There are several factors that we assume are going to impact the total number of BNRV tokens in circulation.

**Lost tokens.** Inevitably some tiny % of tokens are going to be lost each year (lost private keys). We have done a conservative estimation of 0.5% of the circulating tokens (vested tokens which are not permanently taken out of circulation) being lost per year. This is a conservative estimate, as studies have found that approximately 4 MM Bitcoins have been lost (about 25% of the available bitcoin supply as of 2017) over ten years<sup>15</sup>. Other estimates show this to be closer to 11% for probably lost coins<sup>16</sup>.

**Token staking.** As described previously in this document. Includes XD tokens as part of a staked LP token pair.

**RP tokens.** Tokens are dedicated to replenishing the reward pool via the buyback program. More details are available in Replenishing the reward pool.

**LP tokens.** Tokens are locked from the TBH-run buyback & LP program. More details are available in Replenishing the reward pool.

**Token vesting.** As described previously in this document.

**Gradual release of tokens from the reward pool.** As described previously in this document.

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<sup>15</sup> JEFF JOHN ROBERTS and NICOLAS RAPP (2017) Exclusive: Nearly 4 Million Bitcoins Lost Forever, New Study Says <http://fortune.com/2017/11/25/lost-bitcoins/>

<sup>16</sup> Coinmetrics: <https://coinmetrics.substack.com/p/coin-metrics-state-of-the-network-d2e>

## Velocity

The BNRV utility token velocity is possibly the most challenging and most sensitive assumption to make out of all. To get a fair estimate of the expected velocity, we have used Bitcoin's <sup>17</sup> and Ethereum's <sup>18</sup> on-chain velocity, as well as the velocity of USD M1 and M2 money supply <sup>19</sup> as benchmarks.

We are using only the **on-chain** velocity as any actual transfer of value within the blockchain is eventually recorded on the chain. Transaction volumes from exchanges, on the other hand, are largely speculative and can be manipulated. It is interesting to point out that based on a more detailed study, totalling 12 months, <sup>20</sup> the actual velocity might be even lower than observed.

**M1** is the money supply of currency in circulation (notes and coins, traveler's checks (non- bank issuers), demand deposits, and checkable deposits)

**M2** component includes M1 in addition to saving deposits, certificates of deposit (less than \$100,000), and money market deposits for individuals.

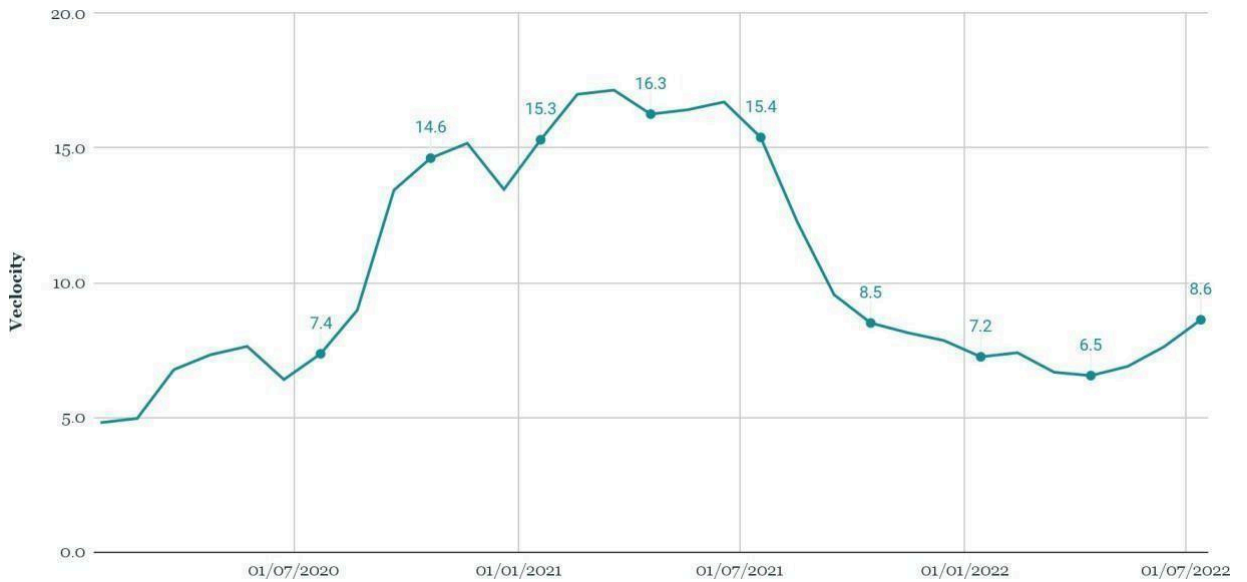
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<sup>17</sup> Data for Bitcoin's on-chain velocity <https://www.blockchain.com/charts>

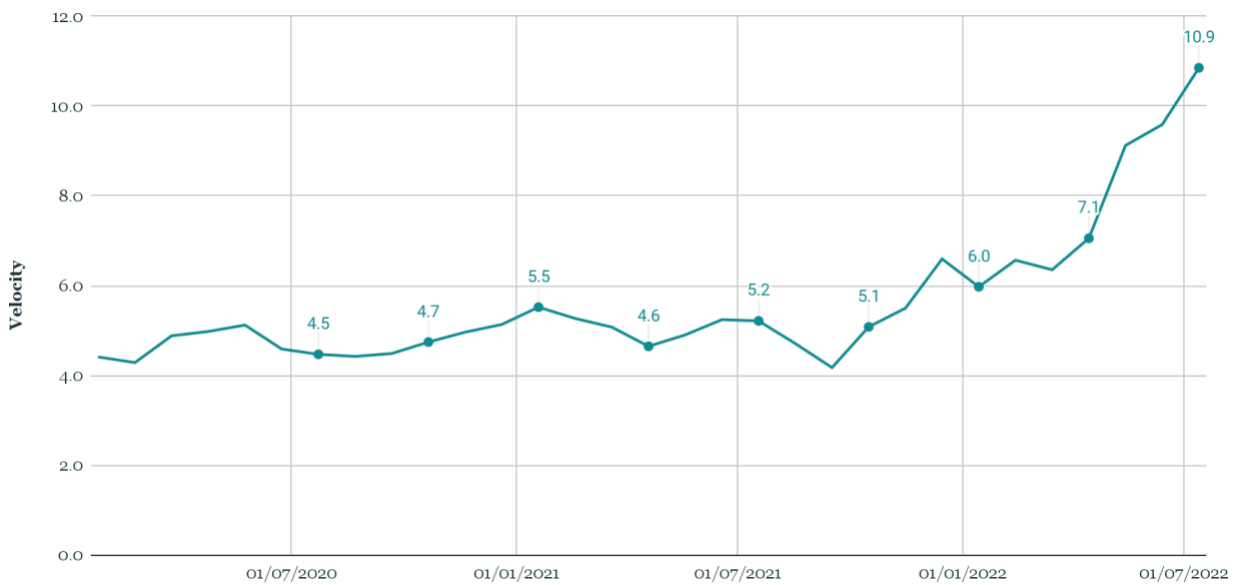
<sup>18</sup> Data for Ether's on-chain velocity <https://coinmetrics.io/data/>

<sup>19</sup> Data for M1 and M2 USD velocity <https://fred.stlouisfed.org/series/M1V>

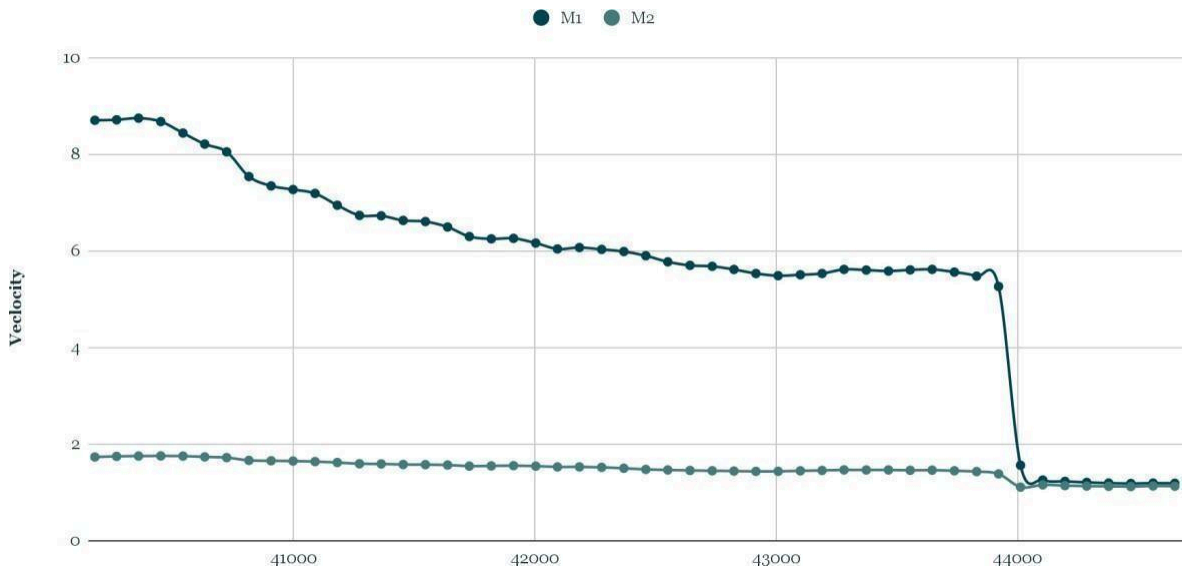
<sup>20</sup> Harry Kalodner, Steven Goldfeder, Alishah Chator, Malte Möser, Arvind Narayanan (2017) BlockSci: Design and applications of a blockchain analysis platform <https://arxiv.org/pdf/1709.02489.pdf>



*Ether's velocity of on-chain transactions. The calculation is based on an annualized 90 average transaction volume.*

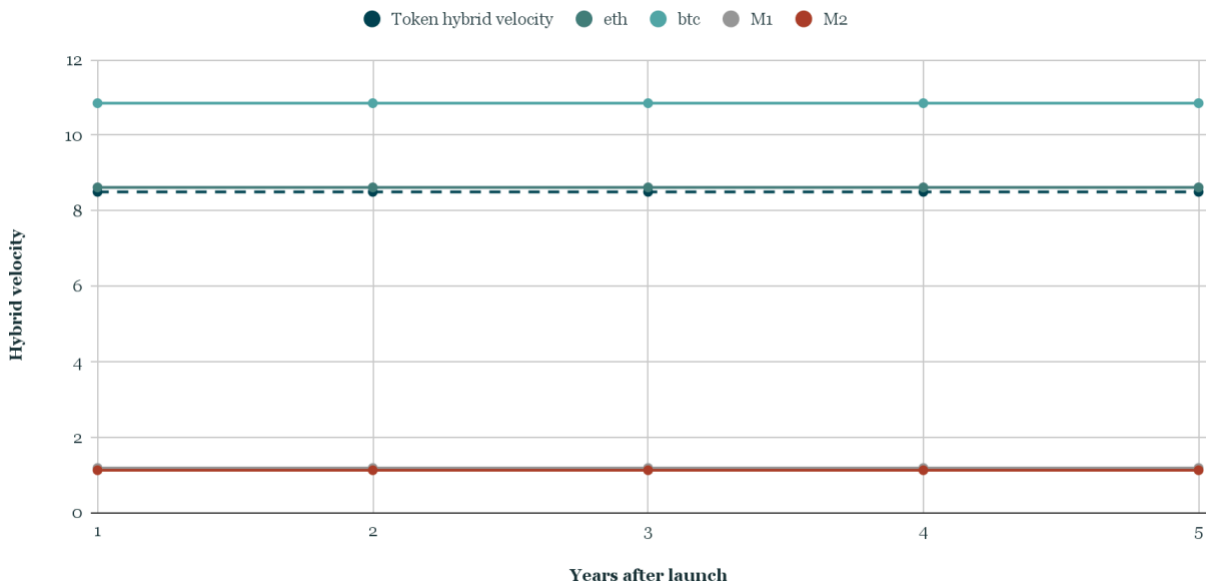


*Bitcoin velocity of on-chain transactions. The calculation is based on an annualized 90 average transaction volume.*



*The velocity of US Dollar M1 and M2 money supply.*

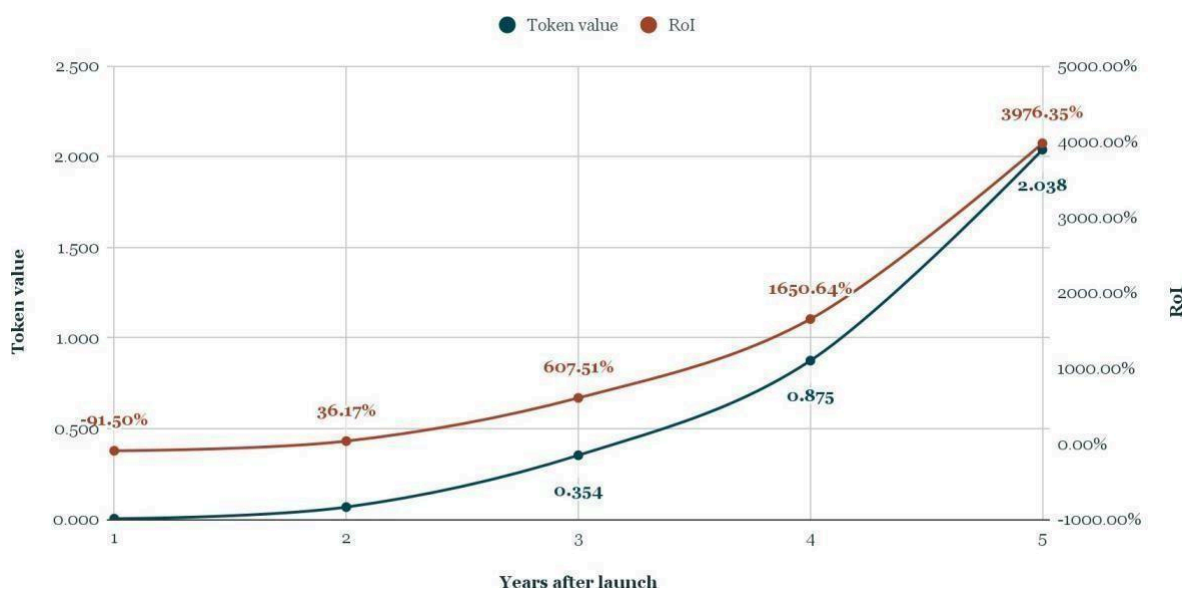
Based on the assumptions above, we have made a very conservative assumption for a velocity of BNRV, which the staking and burning would further reduce. The thus estimated hybrid velocity can be seen below:



*Token (hybrid) velocity compared to benchmarks*

## Token Value

Having all the components outlined above, we can now solve for the fair token value using the equation of exchange. We can also estimate the expected return on investment (RoI) using the lowest token sale price (taking into account all offered bonuses).



*Projected fair token price and estimated return on investment (vs the lowest token sale price), based on company performance assumptions.*

The figure above instantly begs two questions:

- Why is the price in years one and two lower than the token sale price?
- Why would anyone purchase during the token sale if the price afterward is lower?

This is a common fallacy, driven by the confusion of fair price and actual price. The reasonable price (scope of this document) aims to estimate the BNRV token price solely based on its utility. The BNRV token's actual price is likely to include more speculative action (as with most financial assets). It will factor in the expectation from investors for price appreciation.

It would also be unreasonable to expect that token sale participants would be looking to sell their tokens below the purchase price, as early as years one and two.

As Ray Dalio (American billionaire investor, and founder of investment firm Bridgewater Associates, one of the world's largest hedge funds) recently said <sup>21</sup>:

*“As you know, market pricing reflects expectations of the future; as such, it paints quite detailed pictures of what the consensus expectation of the future is. Then, the markets move as a function of how events transpire relative to those expectations. As a result, navigating markets well requires one to be more accurate about what will happen than the consensus view built into the price. That’s the game.”*

In other words, given that BNRy token’s fundamental utility value is expected to appreciate **above the token sale price, we do not expect that at any given point in time, the token will be traded below this price** unless the financial projections change.

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<sup>21</sup> Ray Dalio (2019) Paradigm Shifts - <https://economicprinciples.org/downloads/Paradigm-Shifts.pdf>

# Uncertainty Models

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## Secondary pricing via NVT

A multiple measures some aspect of a company's financial well-being, determined by dividing one metric by another metric. Metrics are quantitative tools that measure a company's performance<sup>22</sup>. For example, a multiple can be used to show how much investors are willing to pay per dollar of earnings, as computed by the price-to-earnings (P/E) ratio<sup>23</sup>.

Multiples from the standard financial world aren't generally applicable to cryptocurrencies, since the latter tend to be more complex in their financial structure than coin(s). One metric which has surfaced and managed to become a staple is the NVT Ratio. Network Value to Transactions Ratio (NVT Ratio) is defined as the ratio of market capitalization divided by transacted volume in the specified window.

$$NVT = \frac{MarketCap}{DailyTransactionVolume}$$

**If the value is too high**, it means the **network is overvalued** compared to the low ability to transact coins in terms of volume, implying the possible removal of the price bubble coming. This interpretation is based on the effect of mean reversion<sup>24</sup>.

For the purposes of this analysis, we have taken several of the most popular cryptocurrencies and split them into two categories:

- **Productive assets** - cashflow generating tokens or ones with strong deflationary mechanics.
- **Non-productive assets** - utility/governance/payment tokens without the features listed above.

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<sup>22</sup> Investopedia, multiples - <https://www.investopedia.com/terms/m/multiple.asp>

<sup>23</sup> Investopedia, EPS - <https://www.investopedia.com/terms/e/eps.asp>

<sup>24</sup> Wikipedia, mean reversion - [https://en.wikipedia.org/wiki/Mean\\_reversion\\_\(finance\)](https://en.wikipedia.org/wiki/Mean_reversion_(finance))

Then for each of them, we have extracted four data points over the last two and a half years as follows:

- **Low** - NVT at their lowest market cap during the observed period.
- **High** - NVT at their highest market cap during the observed period.
- **Start** - NVT at the start of the period.
- **End** - NVT at the end of the period.

As it is evident, the NVT of the token falls somewhat under the expected mean trendline of all examined comparable projects, meaning it is likely underpriced.

## Reward Pool Sensitivity

### Reward pool balance

Based on all of the assumptions outlined in the document, we can now construct a prediction on how the reward pool would behave in terms of:

- Inflowing tokens from revenue.
- Outflowing tokens for rewards.
- Tokens dedicated for buyback & LP based on the set threshold.
- Net reward pool balance at the end of the year based on all operations.

If our assumptions hold, the reward pool maintains a steady balance which ensures reasonable rewards as well as constant cash flow towards token buyback & LP.

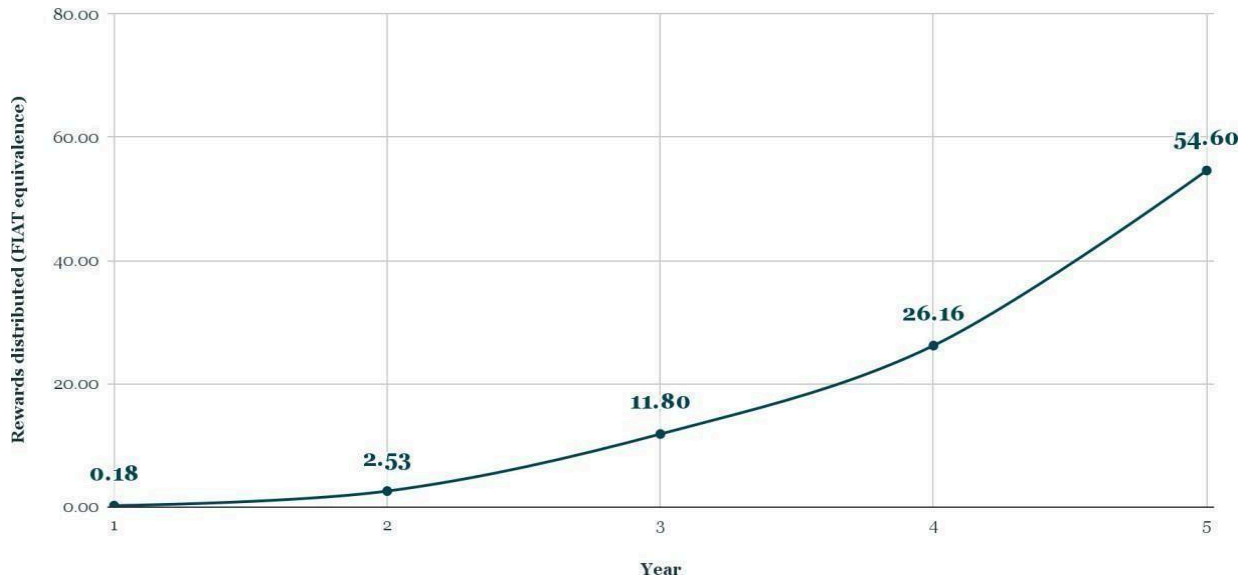
### Rewards Fiat Equivalence

Having constructed the expected reward pool balance and having the expected fair token value, we can now construct the following estimates:

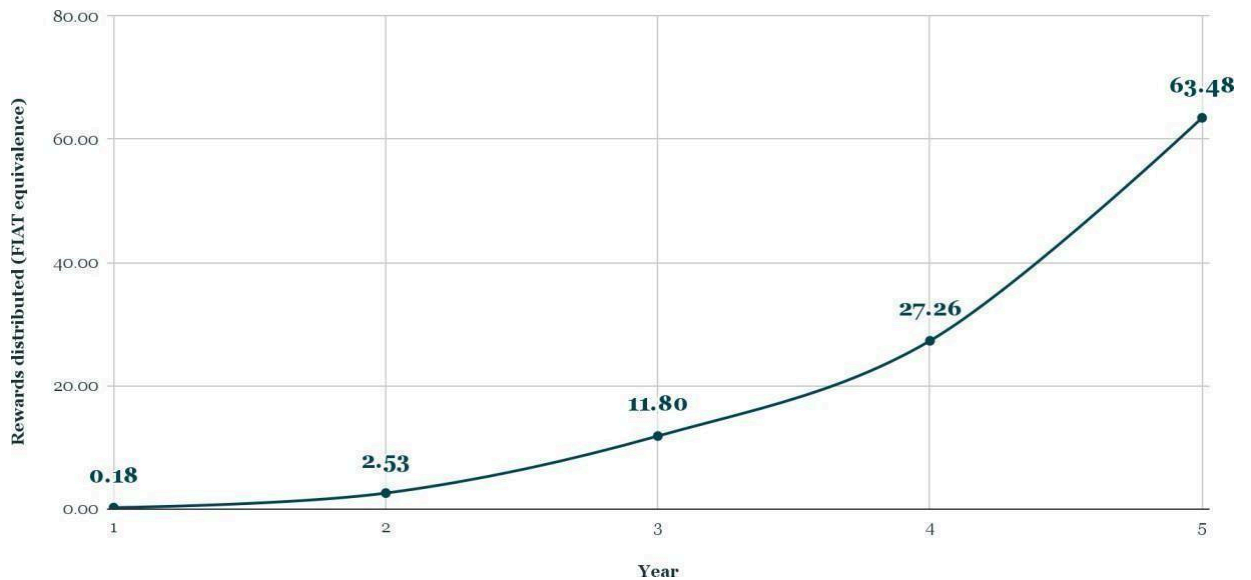
- Expected FIAT equivalence of the reward pool without replenishing
- Expected FIAT equivalence of the reward pool with replenishing

The reason why we are constructing both of the above, is since the second one is based on two other derived expected values and thus less stable and with less confidence in the final numbers





*FIAT equivalence of the rewards given (without pool replenishment)*



*FIAT equivalence of the rewards given (with pool replenishment)*

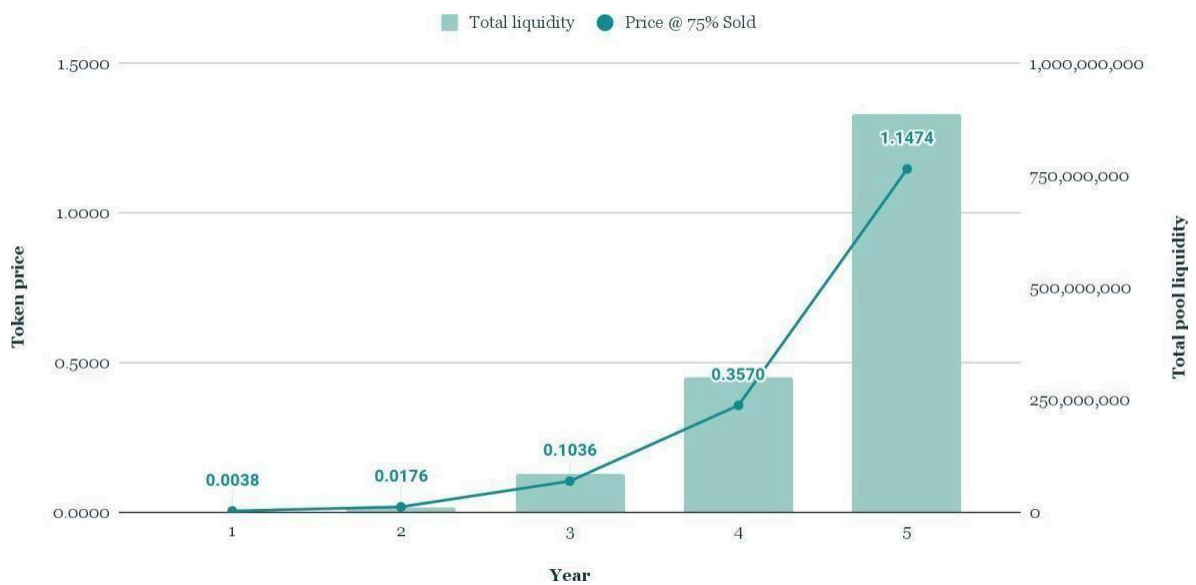
## Liquidity Pool Sensitivity

In this section, we will provide an alternative look at the liquidity pool for TBH and its sensitivity. In the liquidity pool section, we examined the initial setup of the pool, with the price set by the project and the impact on the pool only based on its original size and potential selling pressure. Here we will examine how the liquidity pool would behave over time, based on the following assumptions:

- Starting price of the pool at the fair price of the token as outlined in the respective section.
- Liquidity provided to the pool inclusive of all sources:
  - Buyback & LP
  - Starting liquidity provided by the project
  - Liquidity provided by liquidity incentives, based on the assumptions outlined in the sections above.

Based on the above, we will examine:

- Price impact, if 75% of the circulating tokens in the given year are sold (calculated for each year individually, not cumulative).
- The Circulating tokens to liquidity ratio for each year and the liquidity composition.



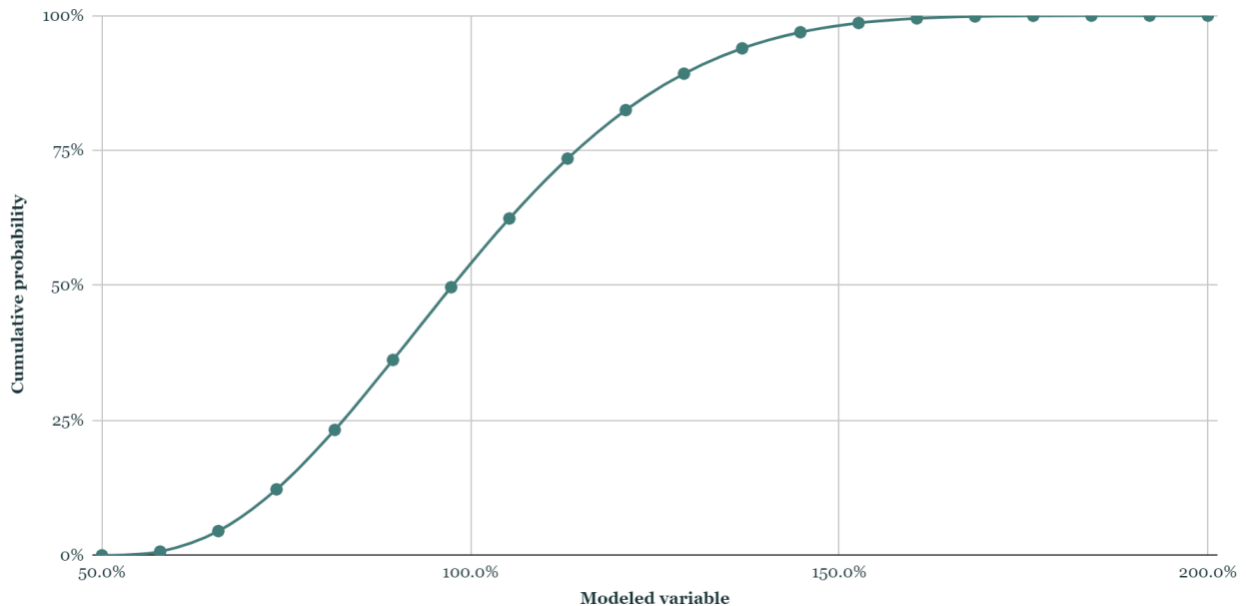
*Token price based on assumed pool liquidity and 75% of the circulating tokens being sold.*

## Revenue Variance

When doing any price estimation, the best or the “most likely” model is not enough to get a reliable benchmark of what can be expected. This section will explore how changes in some of our assumptions might affect the token price.

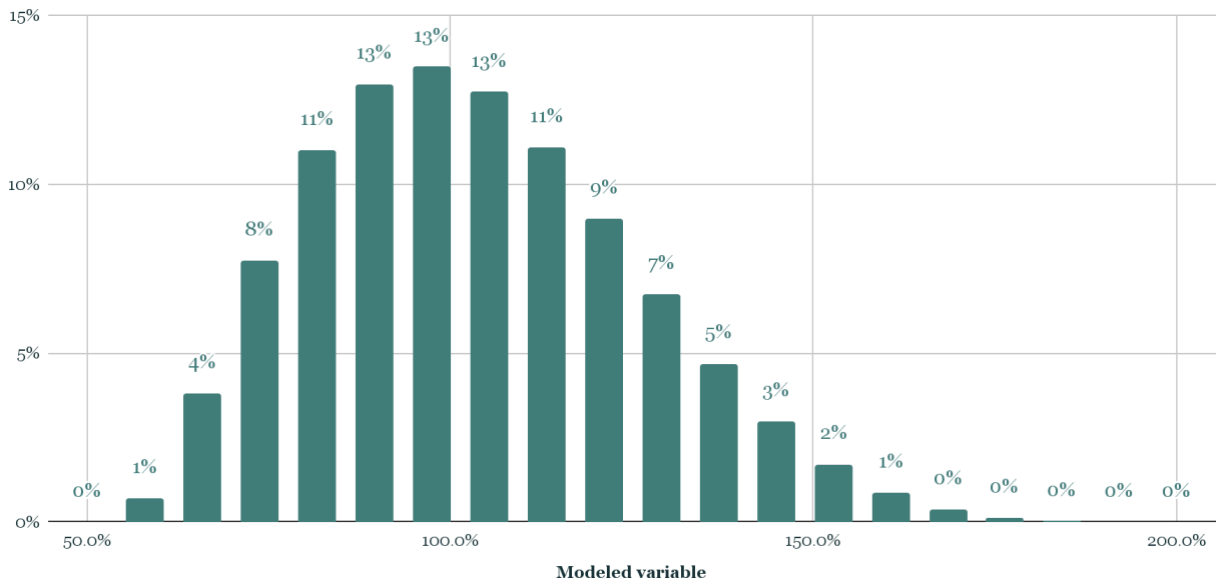
**Revenue estimations** are just that - estimations. We need to account that those numbers are likely to vary a lot when the real business commences. Using a beta distribution (a fairly standard approach for modeling uncertainty) <sup>25</sup> we will model the expected range of achieved revenue and, by extension the expected range for the utility token price.

We will operate under the assumption that the company will achieve 200% of its projected revenue in a best-case scenario. In contrast, it will achieve only 50% in the worst-case scenario while still keeping the most likely scenario at 100% revenue target achieved.



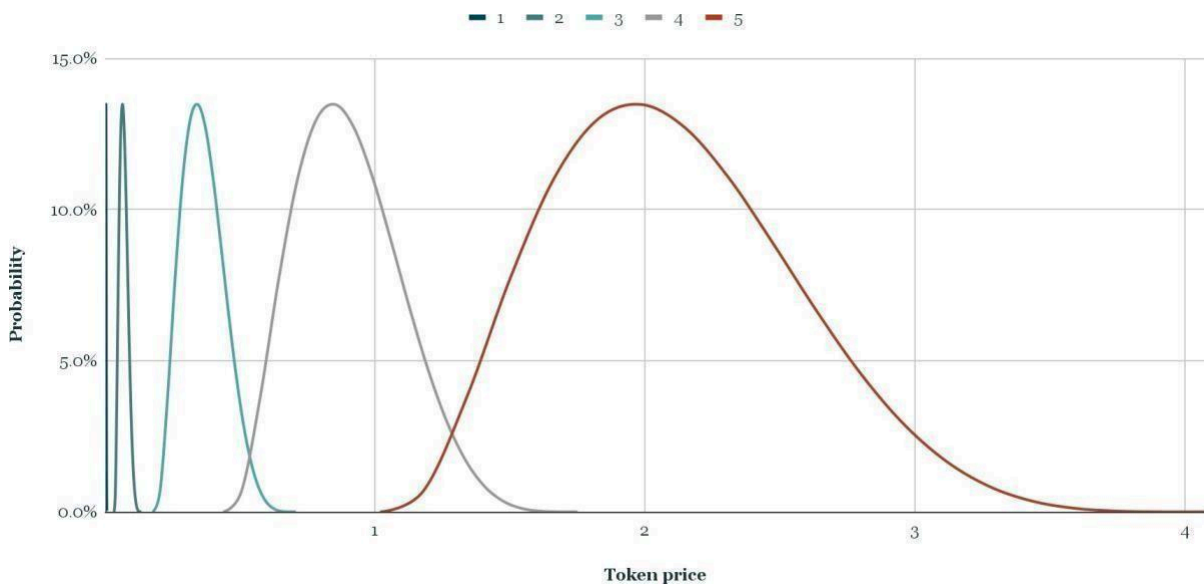
*Cumulative probability function, modeling the expected range of variation for the company's revenue.*

<sup>25</sup> JB McDonald, YJ Xu (1995) A generalisation of the beta distribution with applications  
<http://www.vcharite.univ-mrs.fr/pp/lubrano/atelier/McDonald1995.pdf>



*Discrete probability function, modeling the expected range of variation for the company's revenue.*

Using the above discrete probability, we can estimate the range in which we expect the token price to fall each year.



*Token price range by year, based on the projected token price (revenue-based) and the revenue sensitivity estimations*

# Limitations

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*“The only function of economic forecasting is to make astrology look respectable.”*

— **John Kenneth Galbraith (economist, bestselling author)**

It is important to note that the blockchain and cryptocurrency area is still very new. There is little to no historical data, past performance results, and academic research on the topic of cryptocurrencies, let alone on the tokenization, economics, and long-term valuation of those asset classes. Stocks (equity) have been around since the early 1600s, and it is only in the past 100 years that we have begun to have more comprehensive and widely accepted valuation models. However, they are still subject to bias and interpretation and suffer from their inputs' quality. On the other hand, Cryptocurrencies have been around since 2008, with a broader recognition around 2016 and an explosion in the number of tokens in 2017. As such, it is way too early to evaluate or comment on the performance, monetary policy, and models behind any of them. As a result, we prefer to rely on sound economic principles backed by data and reasonable assumptions.

Furthermore, any financial projections should generally be treated as a target rather than a prediction. Their purpose is to ensure that the project has sensible and achievable goals, and upon reaching those goals, the rest of the numbers would add up and make sense. On the other hand, they cannot predict the future nor account for all possible variables and scenarios with any reasonable degree of certainty.

## Conclusion

Throughout this document, we have outlined all setup, assumptions, and calculations behind the TBH utility token sale. The paper presented here is developed based on an evaluation method generally accepted by the cryptocurrency community (quantity theory of money and discounted cash flow analysis), and relies on a generally accepted school of economic thought (monetarist school of economics).

Hopefully, by now, it should be evident that the BNRV token sale is well structured, relies on solid economic principles, and can produce more than good results even in the face of uncertainty.

Our expectation is that the token has the potential to reach over 30,000 MM USD Market capitalization within five years.

# Disclaimer

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Given that the “regulations” for cryptocurrency in most countries at best are highly ambiguous or completely non-existent, each buyer is strongly advised to carry out a legal and tax analysis concerning the purchase and ownership of cryptocurrency and tokens according to their nationality and place of residence. The regulatory status of cryptocurrencies and digital assets is currently unsettled in many jurisdictions, varies among jurisdictions, and can be subject to significant uncertainty. It is possible that in the future, certain laws, regulations, policies, or rules relating to cryptocurrencies, digital assets, blockchain technology, or blockchain applications may be implemented which may directly or indirectly affect or restrict cryptocurrency token holders' right to acquire, own, hold, sell, convert, trade, or use cryptocurrencies.

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