The Buoy Model:
Solving the Whirlpool Problem via a Trustless Injection of Liquidity[1]

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1 This is an expanded and improved version of the original whitepaper which we published June 24th for Stacks token, the prototype of the TIL model (ILI) which never came to fruition.

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Abstract

Buoy is an ERC-20 token designed from the ground up to reimagine the way decentralized index funds are actually funded. In the abstract, index fund tokens like Buoy are not new. Over the year, we have seen a surge of these type of autonomous index funds. These funds are attractive both for their high APY pools and the fact they are treading new ground in the DeFi market. Since other tokens such as Statera have demonstrated proof of concept for these types of index funds, we won't spend our time exploring the value of an ERC-20 index fund as a whole. Instead this whitepaper will try and demonstrate a new model of backing these index tokens. One of the main questions which remains unanswerable by the majority of index tokens today, 'what is it exactly that makes your token valuable?' It's important to take this question seriously, as it is not always so trivial. Obviously, the token isn't valuable on its own, at it's base it is a rather standard ERC-20 contract. The automated pool[2] which these tokens are taking advantage of is a DAO, and not proprietary to any one token. Is the value from the token solely in the pool? Because if the token's value is reducible to the value of the pool, then that token can't itself add value to the pool. Worse, the index token may actually end up reducing the value of the pool as a whole. If the pool is more valuable without an index, why have one? Why not use WETH as a makeshift index? Or, even the Balancer pool ownership tokens themselves. Buoy was designed differently. Buoy takes advantage of a 15 day public offering to raise capital which is in turn locked into the asset pool, providing both substantial liquidity, and a real source of value backing the index tokens before a single person even decides to pool. A Trustless Injection of Liquidity (TIL), unlike a traditional ICO, is not a way to raise millions for a development team; a TIL is a method of crowd-sourcing the value of an index token itself.

2 balancer.exchange

Proof of (Spread) Liquidity

The idea of Proof of Liquidity (PoL) comes from Unipower, a token designed to be decentralized via Uniswap. This is how Uniswap's PoL worked: on token creation, 100% of the supply is put on uniswap. This means in order to purchase Unipower, you give ETH to the liquidity pool rather than the devs. This is a trustless way to sell the token, and it provides real liquidity for each coin purchased through Uniswap, meaning Unipower becomes backed by the liquidity provided by buyers.

This is a unique approach to token sales which did not exist before these DeFi trading platforms were created. It is unique because it helps provide backing which is accessible by the user. For instance, imagine a stable coin backed 1:1 by the US dollar. If there is no way to exchange that stable coin for a real US dollar, then regardless if the stable coin is pegged 1:1 by physical supplies of money, there is no way to access that supply via your stable coin. If the backing is the very liquidity pool however, every sale is in turn taken out of liquidity, meaning a PoL token does in a very real sense give direct access to the supply backing it. When you sell Unipower on Uniswap, you get back some of that ETH which is backing it.

There are a couple limitations here however. Since 100% of the supply is provided as liquidity, the initial price of the token is naturally much smaller than the inevitable price after discovery, meaning people who bought extremely early end up with a much larger % of supply than they should have. This can result in what is called Uniswap sniping, where a coin is purchased via a bot the moment it is listed, meaning people can enter into coins at a fraction of the price the rest of the market does, creating whales and an unhealthy distribution. Another limitation is that 50% of the liquidity backing the token is the token itself. This is just how Uniswap works, it isn't an issue necessarily, but it does limit the potential for how this liquidity is arranged.

These limitations have been taken into account for the Proof of Spread Liquidity model, which:

- Avoids Uniswap sniping via a public sale which ensures a fair model of raising ETH to back the liquidity pool.

- Avoids the limitations of Uniswap liquidity pools by using Balancer for the liquidity injection, meaning the 50/50-token/ETH issue can be avoided entirely, and liquidity can be arranged in radically new ways.

Proof of Spread Liquidity (PoSL) can then be used to avoid some of the pitfalls that the current models of Proof of Liquidity suffer from, while remaining a trustless method of providing an initial offering. A detailed example of how the initial offering could operate (the Buoy model) will be provided below.

ERC-20 Index Funds

The recent rise of ERC-20 index funds is largely a result of the development of autonomous balancing pools, which allows trustless management of assets based on predetermined ratios of holdings. The most popular and well used of these pool platforms is Balancer. Using Balancer you can quite easily create a pool of assets, and use a token to track the movement of that pool of assets. This peg between the assets and the token is what they call in finance an index. Index funds are a way to invest in a collection of assets, using a stock, or in this case, a token, as the index. At its most basic, each BPT[3] received is already a direct index in that BPT is equivalent to a share of the real assets that can be accessed at any time. Another proposition arises however: since Balancer pools are made such that investing in the pool means necessarily investing in all the tokens, there is some grounds to think that a new token could be created and included in the pool to be used as a makeshift index. There are some attractive reasons why this would be done. For one, it means that pool, insofar as it automatically trades the makeshift index based on the value movement of the other tokens in the pool, could be seen as being pegged in some sense to the value of the pool (albeit much more loosely than the BPT). This looser form of an index actually serves a real advantage however, it means that price action is much more volatile, and that the index itself has the chance to outpace the growth of the rest of the index fund, in turn raising the other total assets in the pool and the index fund as a whole. This is as far as today's ERC-20 Index funds have come in pegging these makeshift indexes to the pools they are in.

As of September 4th 2020 (the date of writing), Statera[4] has a market cap of roughly $11,400,000 backed by an asset pool of around $240,000. But let's ask that pesky question: why is Statera valuable? The problem is that by and large, the value of the token is only backed by the

3 Balancer Pool Tokens, the ownership token for any given Balancer pool. They can be traded back the pool at any time for a proportional share of the assets.

4 Considered the first mover and brand standard of ERC-20 index funds.

value of the pool, and the value of the pool is backed by people's confidence in the token. Statera does not have a particularly interesting asset spread, being backed in large part by Wrapped Ethereum and the index[5]. It has a deflationary transfer function, meaning supply is continually reduced, which has been suggested as an alternative source of value for Statera, but of course this is nothing more than financial legerdemain. Supply never determines price on its own, and deflation, in the long run, only obfuscates the material realities of demand, realities which can render even the rarest of junk worthless. So after we look past the smoke and mirrors, we see Statera's confidence is backed by a pool whose confidence is backed by Statera. The value isn't the token, it isn't in the pool, it isn't in the coin burn. It is a whirlpool, with plenty of momentum, and nothing at the bottom. This bottomless circular speculation of value that the ERC-20 index fund suffers from is what we will call the whirlpool problem. Since the value of the index token is always chasing its own tail through speculative poolers, it can almost be thought of as if Statera is, as a token, inherently valueless. If everyone were to pull out of the pool tomorrow, what use would Statera be? It would be dead in the water till other people decide to pool once again. In this sense, the current ERC-20 index funds become a strange experiment in the kindness of strangers, that is, when the economics change, and there is a more valuable pool somewhere else, how many of those poolers will choose out of the goodness of their heart to settle for a reduced income in exchange for keeping that index fund alive? The best proposition for value in Statera, as of the writing of this whitepaper, is the "first mover advantage", which, while certainly a powerful factor in the world of crypto, never gives carte blanche advantage when it comes to real world economic developments (such as the rise of index funds with a superior pool size, or tokenomics), and can never guarantee to stave off pool bleed to future competition.

5 Paradoxically, due to problems integrating deflationary tokens with Balancer, the index here is no longer Statera, but the ownership token for the Statera/Eth pool from Uniswap.

Solving the Whirlpool Problem

So then, what, other than the kind strangers lending their capital to the pool, provides an advantage from one index token over another? What prevents an ERC-20 index fund from getting stuck in the whirlpool problem? The trick is providing some real and significant backing of value to the index token, so that the confidence in the pool is not simply reducible to confidence in strangers. As it stands now, the best method for index investing with Balancer is to go out of your way to actually pool your capital yourself in one of the many pools and use something like Wrapped Ethereum as your own personal index.

So how does Buoy provide real and significant backing to the index token? Through a brand new form of crowd-sourcing based on proof of liquidity, elaborated below. As of today, ERC-20 index funds remain in a bind; the index fund gives you something, but since the value of that fund is based on other people pooling, it is something which can be taken away on the whim of those other people. The contemporary Proof of Liquidity coin provides real unalienable value for a token, but other than that abstract value, the token gives you nothing. The idea behind Buoy is to merge an ERC-20 index fund with Proof of Liquidity via a trustless crowdsale. By combining these ideas, the index token, which is inherently valueless, could instead be backed by a fixed portion of its own liquidity pool, while still fully functioning as an index for that very same liquidity pool. The circular speculation of confidence which we have called the whirlpool problem provides advantage alongside it's traps. It allows index funds their potential for growth, as a confidence feedback loop can open tremendous movements of capital. Where Buoy is different is that the feedback isn't based on a token as an index, it's based on a token as an index and your right to a share of the fixed liquidity. Because the initial liquidity cannot be removed, the initial injection directly backs the value of Buoy, before a single person chooses to pool. It provides a bottom to the whirpool, in the form of fixed liquidity. With Buoy, you are never just

buying an index token, you are buying an index token backed by the very capital that minted the tokens themselves. It isn't just an index token loosely representing a class of assets, and it isn't just Proof of Liquidity, where a token is backed by liquidity of it's own token; Buoy is an index token which represents a pool of assets, but whose value is already backed by Proof of Liquidity which is held in the asset pool itself (Proof of Spread Liquidity).

Initial Liquidity Injection

The key innovation which Buoy provides is a trustless injection of permanently fixed liquidity, and the following will be a detailed breakdown of how the initial offering is set to function, followed by a detailed example. The sale can be thought of as taking place in 3 stages: the presale stage, the public sale stage, and the liquidity injection.

Presale Stage:

To begin, 40 tokens are minted upon creation of the contract. These tokens are used to create the origin pool. Until the public sale starts, no more tokens will be minted. To keep track of everything as we go, we will start assigning variables. The total supply of tokens, written t, is at this stage, 40.

$$t = 40$$

Public Sale Stage:

When the public sale begins, the price will be fixed to ETH. The first stage of the sale will sell tokens for 225 tokens per ETH, decreasing to 200 and 175 as the stages continue. Tokens at this stage are only minted upon ETH being put into the contract. The total supply will be largely decided here, based on the amount of Buoy created by the public sale. The amount of Buoy minted during the sale will be written as s. This means by the end of the public sale:

$$t = s + 40$$

Liquidity Injection Stage:

After the public sale ends, the token supply is arbitrarily increased by 50%. These “liquidity tokens” will be written as l. These tokens are only to add liquidity to the asset pool, meaning none will be sold, and post injection, not a single liquidity token will be held by private hands. The amount left over from the liquidity injection which is not used is automatically burned. The leftover tokens to be burned will be written as b. This means as of this stage:

$$l = (s + 40) * 0.5$$
$$t = s + 40 + (l - b)$$

Example:

Now let’s use these formulas to explore an example. We will break down stage by stage exactly what a fully funded public sale would look like. First, the pool tokens are minted

$$t = 40$$

Then, the public sale begins. For ease of example, we will say all tokens are purchased at the rate of 200 per ETH, and the token sale sells the maximum number of tokens. (note, this would mean roughly 5000 ETH is raised)

$$t = s + 40$$
$$t = 1{,}000{,}000 + 40$$
$$t = 1{,}000{,}040$$

Next, liquidity tokens are minted.

$$l = (s + 40) * 0.5$$
$$l = (1{,}000{,}050) * 0.5$$
$$l = 500{,}020$$

Now, liquidity equal to 90% of the raised ETH value is injected alongside the liquidity tokens. Assuming for ease of example that Buoy is trading at $2.00 a token following the public sale. This means the estimated value of the liquidity tokens is around $1,000,000. Since we raised just over 1.8 million USD worth of ETH (assuming $360 per ETH), 90% of that, or around $1,600,000 worth of ETH, is used to back the assets. Because 20% of the value injected must be Buoy, we will add $320,000 worth of the liquidity tokens as well. This means total liquidity injection would be more than $1,920,000 in real assets. Whatever surplus liquidity coins which are left over are burned, meaning the team gets zero token supply. Finally, this is how supply would look:

t = s + 40 + (l - b)
t = 1,000,000 + 40 + (500,000 - 340,000)
t = 1,000,000 + 160,000
t = 1,160,000

Assuming the valuation of public sale price of roughly $2.00 a token, this gives us a total marketcap of

*mc = supply * price*
*mc = 1,160,000 * $2.00*
mc = $2,320,000

Let's look back at Statera's stats vs our hypothetical stats:

	Statera	Buoy (max funds raised)
Market Cap	$11,400,000	$2,320,000
Liquidity	$240,000	$1,920,000
$:$ ratio	95:2 = 0.021	29:24 = 0.828

With a possible value ratio almost than 40 times higher than Statera, all while at a fraction of the price, it becomes extremely clear when looking at the numbers just how valuable a proposition the Buoy model can provide for ERC-20 Index funds, and the potential value created by an offering like this is obvious.

But, the initial liquidity isn't the only advantage to this method. With traditional ICO models (which Buoy's public sale is largely based on) the ETH is raised, and token supply reserved, for the sake of development funds. In order to keep supply small, it can be in people's best interest to keep a hot ICO to themselves, or worse, actively FUD it to keep supply for the investors in the know who can see through the smoke and mirrors. With a trustless injection of liquidity, the funds raised can't be dumped, and instead they directly contribute to the value of the coin. The more people participating in the public sale, the more value will actually back the index token. This shift in tokenomics encourages a healthy and honest approach to the public sale. When you buy from the public sale, you aren't just buying an index token, you are buying a stake in the spread liquidity itself, transparently and fairly. Maximizing the size of the liquidity pool maximizes the spread liquidity. We must remember that these numbers are proposing value which is completely independent from the actual function of the index, namely, investing in the pool. The greater this initial liquidity is, the more value to be generated by the pool itself. The index is no longer a drag to the pool but instead a major player in it, as it is supported by its own unique proof of value. This means the larger the initial liquidity injection, the higher the ceiling for growth in the pool. As we can see, a sold out sale would provide a token with an inherent value proposition some 40 times higher than Statera, but this number scales with the total funds backing the index. A smaller crowdsale may result in a smaller market cap, but it will reduce the value proposition as a whole. This is a rather simple, and admittedly incidental, solution to some of the issues with traditional ICOs, because of this economic rationale: the larger the initial injection, the higher the total value ceiling of the token.

A raw breakdown of the stats:

- First two days are a flat rate of 225 BUOY per ETH, the next four days are a flat rate of 200 BUOY per ETH, and the last 8 days are a flat rate of 175 BUOY per ETH.

- Max 1,000,000 tokens minted during public sale

- Max 500,000 tokens injected as liquidity (the actual amount of liquidity tokens used will be much less than the allocated amount, and will be determined by the amount of ETH injected. Since any remainder is automatically burned[6] there will only be a fraction of these liquidity tokens deposited).

- A private sale equivalent to 12,000 Buoy tokens took place to raise funds for a contract audit, to be redeemed via the public sale contract. This money is allocated for the third party audit of Buoy.

- The only tokens which will be minted are either a) previously allocated via the private sale, b) sold in the public sale, or a) put into liquidity.

- There is an emergency halt function to protect against major errors during public sale. If there is an issue, sales will be halted, and assets will be refunded 100% where possible.

- The only currency used during this sale will be ETH, and all payment will immediately reserve tokens on-chain which can be withdrawn once the liquidity injection takes place. This was done so that the tokens would not be traded before liquidity was injected. As we have explored, the basis of value in the Buoy token isn't just the fact it is an index, it also lies in the liquidity injection, which can obviously only happen after the public sale concludes.

6 *t = s + ((s * 0.5) - b)*

- 10% of ETH raised will be held for the dev team. This is the only compensation/funds reserved for the team. There is absolutely zero token supply reserved for the developers. The remaining 90% of ETH will be injected into the 7 pooled assets, matched by the liquidity funds. Since no team funds are awarded in Buoy, there is no chance of a centralized coin dump or exit scam.

- Once liquidity is injected, and the excess liquidity tokens are automatically burned, there is no central leadership of Buoy. The contract was hard coded such that not even the developers have special privileges. The only people who will control the price of Buoy are the people buying/selling the token, and the people pooling capital. This focus on fair distribution is the essence of creating a properly decentralized index fund.

Trustless Tech

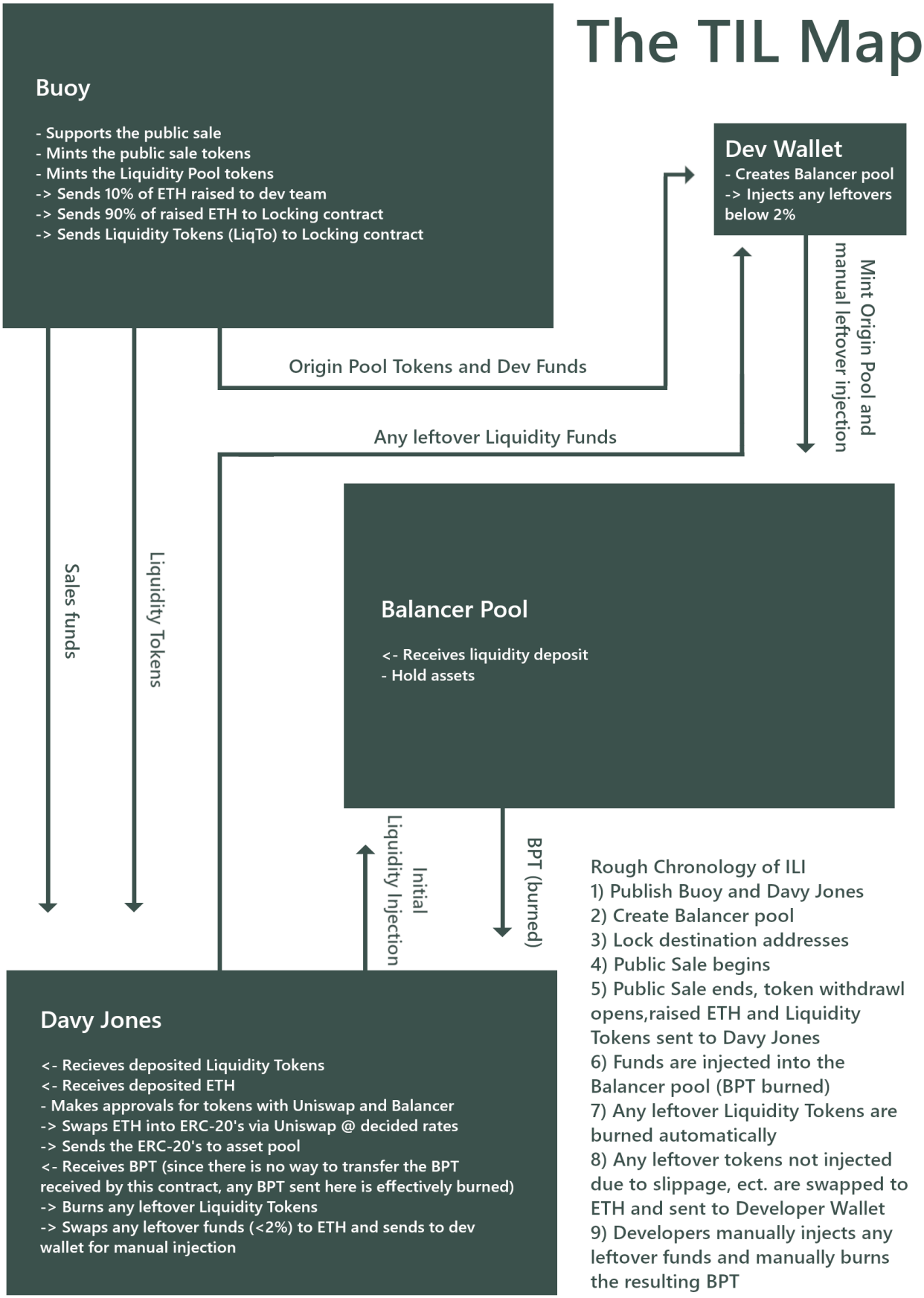
The most difficult part in creating the TIL model was designing around the limitations of a smart contract such that the sale could be run without any possibility of developer interference. This was achieved using a few simple but clever solutions.

The main innovation in the sale comes in the form of Buoy's locking contract, Davy Jones. Davy Jones is designed to be a trustless bridge between the token sale and the Balancer liquidity pool. Rather than rely on the developers to act as a trusted party, Davy Jones acts as a middle man which guarantees that more than 98% of sale funds can be moved trustlessly. These two contracts must be linked to one another in order for the sale to operate properly, meaning that the destination for funds are set publicly before the sale even begins.

The key feature Buoy has strove to achieve is the elimination of developer privileges. Although liminal developer privileges must be held during the public sale, such as the ability to call an emergency halt in case of sale errors, we have strove to limit those privileges wherever possible. For example, the emergency halt function has an added security measure in the form of an emergency refund, meaning should the sale ever need to be halted, any user who has participated has the option to take their ETH back whenever they like. The only grief the developers can cause during the public sale is simply refusing to start the sale, which certainly isn't a vector for abuse in any meaningful sense.

We also had to limit the access the developers have to funds. This was done by designing the contract such that the only way for developers to access their funds is to deposit the assets into Davy Jones. Because these functions are tied together, and can only be used after the sale has been completed, there is no way for developers to touch a penny without doing their duty and depositing the funds into the locking contract. These

The TIL Map



Rough Chronology of ILI

1) Publish Buoy and Davy Jones
2) Create Balancer pool
3) Lock destination addresses
4) Public Sale begins
5) Public Sale ends, token withdrawl opens,raised ETH and Liquidity Tokens sent to Davy Jones
6) Funds are injected into the Balancer pool (BPT burned)
7) Any leftover Liquidity Tokens are burned automatically
8) Any leftover tokens not injected due to slippage, ect. are swapped to ETH and sent to Developer Wallet
9) Developers manually injects any leftover funds and manually burns the resulting BPT

functions are also tied to the withdrawal function, meaning no funds can be touched without releasing tokens to the public. Sending dev funds is the last function of the public sale called before closing out all of the sale functionality permanently.

Next, we had to ensure that the locking contract successfully deposits the funds into the Balancer pool. The way adding liquidity works via the Balancer API is that the user inputs the amount of BPT (ownership pool tokens) they are looking to receive. This means some calculation needs to be done to determine exactly how many tokens the deposit is worth. This meant automating the deposit without relying on oracles to keep track of coin prices was simply not safe. Instead, what we have designed is a manual deposit. Because of this, we have chosen to keep the BPT manually entered for deposit. This is not a security risk because where the money goes is predetermined. The only input value given is how big the deposit is. This does open up another possibility for developer grief however, just deciding not to deposit the funds. So, we have made it so any functionality like this, where the developers could grief simply by not acting, has a corresponding time release public function which does the same thing. So, if we don't deposit the funds, say, 48 hours later, the same functionality is opened to the public, and you can calculate the BPT and deposit yourselves. Same with the closing out of public sale functionality. If at any stage, the developers decided not to do their job, or die in a car crash, or got raided by the SEC, the sale will still continue. This time-release public functionality is the final key which ensures the decentralization of sale powers. To avoid issues, the functionality is at first open to developers, who know how the sale runs, and don't have to worry about conflicting inputs with the public. But, since all this functionality is trustless, it is safe to open it to the public if the developers turn out to be bad actors who refuse to run the sale.

Lastly, there is the issue of leftovers. Because the prices of tokens change by the minute, there is no way to ensure that every token will be deposited. In fact, it is almost guaranteed there will be some change leftover from % slippages and price volatility. This is why we have a last

ditch manual deposit which will happen after the sale ends. When the TIL has been deposited beyond 98%, the developers can swap the remaining coins back to ETH and withdraw them to their wallet, where they will be manually deposited and the BPT burned. This last stage is not trustless. The developers are trusted to deposit the leftover change. The only reason this was done is because the automation of cycling between tokens and eth multiple times makes gas fees exponentially high, and even then we can't guarantee getting every token deposited. Because the amount the developers are trusted with is 1) minuscule compared to both the TIL and the developer funds, and 2) only takes place after the TIL is by and large completed and the token is backed, there is very low incentive for the developers to steal these funds. The developers would have already been rewarded for their work, and burning all the community trust over what would amount to a fraction of the funds already earned fair and square is not a rational economic decision.

This issue of fluctuating BPT tokens is one which I think could be solved eventually, either through some sort of oracle system, or perhaps using some sort of float of extra money provided specifically to prevent any one token balance of hitting 0 before the total amount of funds are deposited. As of now this remains the most straightforward solution to the issue, and one which, although trusted rather than trustless, is extremely minor compared to the amount of funds trusted to development teams in the traditional ICO model.

So, what we have built in practice is basically an ICO where both user tokens and dev funds are only released when the funds backing the token are deposited into the locking contract. The locking contract is a one way deposit into the index fund, with functionality for devs to withdraw the last couple percent of tokens as to get around slippages. This allows us to handle more than 98% of the sale funds trustlessly.

Tokenomics

Buoy is focused on providing real tangible value backing an index through a combination of different economic mechanisms. The public sale is the keystone of these mechanisms, and therefore it is the one which most deserves consideration. Since 0% of the token supply is allocated to the development team, we can instead offer a model of crowd-sourcing which allows every single token bought from the public sale to be backed directly by the capital which minted it. This could be a losing game, however. Imagine we were backing the token strictly with the ETH raised during the sale. Since 10% of the funds go to the devs, the tokens would be backed by 90% of the ETH, meaning your tokens are backed by 90% of whatever you bought them with. Using spread liquidity is different however. Since a % of the supply is reserved for liquidity and injected with the 90% of funds, and the liquidity tokens are equivalent to 20% of that 90%, you get something that looks like this:

ETH raised = 100
100 – 10 = 90
*90 * 0.2 = 18*
Liquidity Tokens deposited value in ETH = 18
90 + 18 = 108
Total backed value from a token sale of 100 ETH = 108 ETH[7]

If these liquidity tokens were owned by the team, and were for instance, simply locked for period of time, the value wouldn't belong to the token itself, rather the team would simply be renting this value to the token for that period of time. The liquidity tokens backing Buoy are not minted for private hands. The only way to access these liquidity tokens is

7 The specifics of this example have changed somewhat, as the team had to run a private sale to crowd-source the funds to run a third party audit. There are now 12,000 Buoy which can be claimed via the presale tokens, which means that there is a small amount (<1% of the total possible tokens) which are minted without contributing to the liquidity pool. As the amount of ETH raised climbs towards the maximum, the economic negligibility of these tokens increases asymptotically. Since the TIL model already strives for as wide and well funded public sale, a successful launch would mean these tokens sold via private sale are not a significant issue, and would bring the buffer down to around 7%.

to put trade their Buoy into the pool, meaning in a real sense, these liquidity tokens only belong to those who buy Buoy.

The surplus buffer of value we have seen above is key to the value proposition of the sale. Whatever value of the deposit, it will always have this additional buffer of value (which again, we must remember, comes before any of the value propositions inherent to an index fund). This once again creates an economic incentive to have a widely spread and participated in token sale. Since the token itself has such a strong value proposition, it stands to reason that these pools can be highly lucrative, as even the index itself is a worthwhile investment. As the pool grows, the value of the index grows in tandem, as the value of the fixed liquidity injection moves alongside the pool. If Buoy reaches Statera's marketcap, even calculating in impermanent loss, the value backing the token will have increased several fold, which in turn keeps the value of the token in line with the value of the pool. This is because the pool will buy and sell Buoy on the market, but because the APY of the pool feeds directly back into the assets backing Buoy.

All tokens are minted during the TIL, there is no supply reserved for developers. The free market is the only thing which determines distribution. There is no pre-established total supply, only a limit on total tokens that can be sold, which means even the supply is decided by the free market. Since all tokens are minted during the TIL, the supply is fixed. This means that although Buoy forgoes any built in deflationary functionality, it is subject to natural deflation, that is, any tokens which are burned, lost, ect. will never be replaced. The number of tokens in circulation can only go down, not up. This provides a level of scarcity that will help foster healthy trading patterns while avoiding all the complications that come along with built in deflation.

The ETH allocated to developers is subject to its own locking procedures. 60% of developer funds are to be locked into a Uniswap liquidity pool. This means 30% of developer funds are spent on a buyback of Buoy. This liquidity will be unlocked periodically over a two year period

using a very straightforward smart contract. Locking these funds into liquidity will not only provide an easy on ramp for early buyers via Uniswap, as well as foster arbitrage opportunities between the pools, but also put the majority of developer funds in the hands of the Buoy price, which allows them to be financially invested in the success of the project without reserving developer funds.

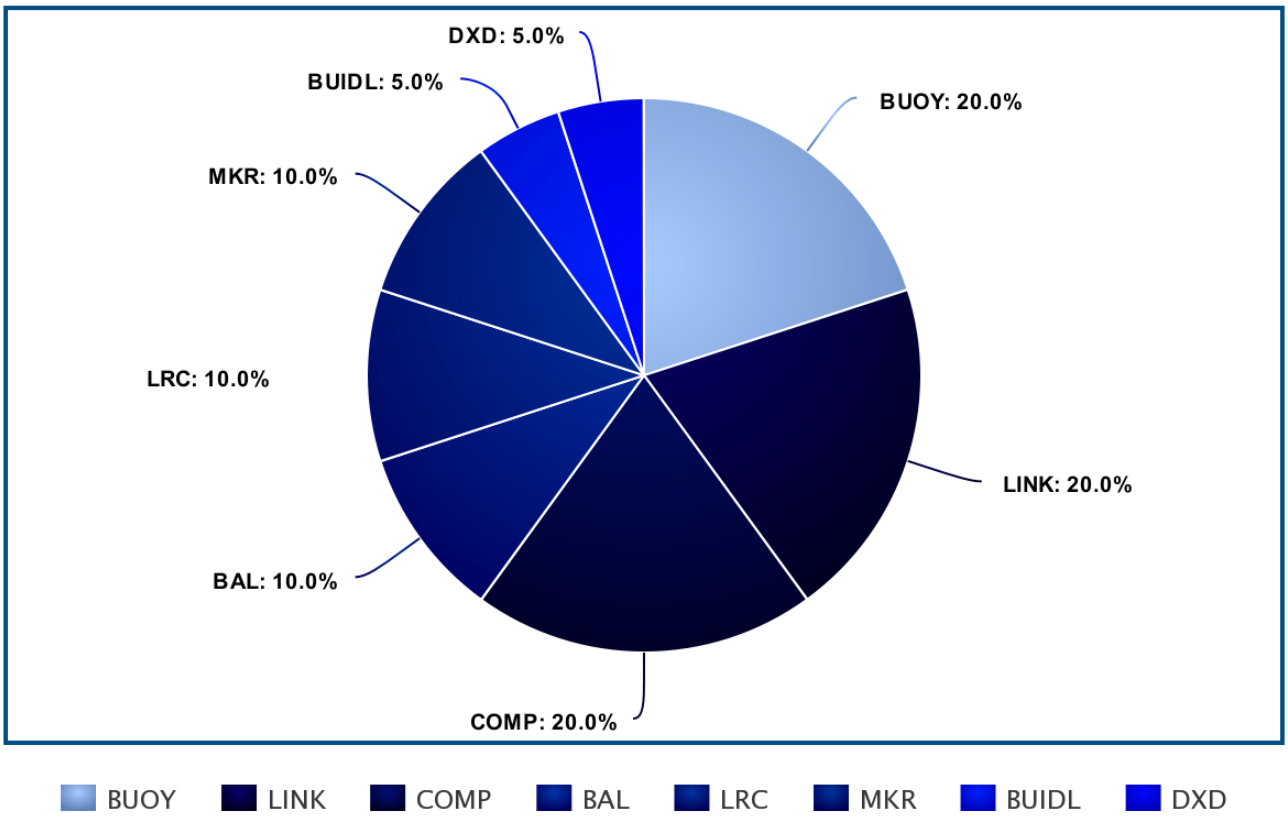
Asset Spread

The asset spread of Buoy's pool takes full advantage of the opportunities offered by ERC-20 index funds. Consider the limitations of the Uniswap pool we discussed above (limited to 50/50-BUOY/ETH). Since a Uniswap pool is simply an inevitability for any coin with decent volume, the liquidity of Buoy will always in some sense be supported by ETH. Not only that, anyone investing in ERC-20 index funds has plenty of opportunity to personally invest in BTC/ETH, and so the common additions of WBTC/WETH to ERC-20 pools seems redundant. If these are funds which take advantage of the volatility of ERC-20's, then put the funds in native ERC-20s. The spread was chosen as to cover a range of ERC-20 tokens which provide real utility in the crypto world.

Although Balancer pools have opened up some radically new options for liquidity pooling, they of course have some limitations:

- The asset spread is an attempt to index the ERC-20 token market as a whole. The projects are picked because they represent the best tech in the field of the ERC-20 protocol. This means eschewing a spread based on a specific class of ERC-20 token in favor of choosing the most promising tokens for long term holds.

- The asset spread is also the product of limitations of balancer. Since Buoy operates by means of a DAO, certain things, such as max number of holdings, the ability to change those holdings or the ratios, the ability to "one click pool", ect. are largely dependent on the development of balancer.exchange. While some limitations can be solved by means of a little smart contract trickery (such as one click pooling) for the most part, the evolution of the pool evolves alongside balancer.exchange.



90% of the ETH raised during the public sale will be injected by means of the following coins, such that they make up the following percentage of the pool:

20% LINK: Chainlink is a decentralized Oracle service designed to be a trustless source for off-chain data.
20% COMP: The product of years of research, Compound is an interest rate platform with solid tech and big partnerships.
10% BAL: The platform token for Balancer, the very thing which gave rise to the ERC-20 index fund as it exists.
10% MKR: Maker is one of the most important tools in to the Ethereum network, a DAO smart contract platform which backs its own (audited) stablecoin called DAI.
10% LRC: Loopring is creating an exchange and payment protocol using ZK-Rollups, a second layer scaling technology.

5% DXD: DXDao is a microcap DAO working to provide a host of decentralized protocols and suites to help support the future of DEFI development.
5% BUIDL: DFOhub is a microcap DFO platform, providing governance over an on-chain clone of Github to maximize flexibility and democratic input into decentralized organizations.

The final portion of the asset spread is the index, Buoy. This will not be covered by the ETH from the public sale, rather from the supply of liquidity tokens minted for this explicit purpose.

20% BUOY: Buoy is our index token, used to track the pool and allow access to the fixed initial liquidity injection.

Conclusion

Once the injection is complete, there is no owner of those funds. Both Buoy and the pool are completely decentralized, and you are free to pool, trade, develop, whatever you feel like. Buoy is a token which hearkens back to old school crypto. Limited supply, decentralized, transparent. We aren't here to trick people with promises of a mystical balancer, or play off flavor-of-the-month buzzwords like "deflationary" or "DEFI". We are here to compete in the free marketplace with a well designed product. Nothing less. Buoy provides a model of an ERC-20 index token which offers substantial and tangible backing independently of private poolers. It solves the whirlpool problem of circular value speculation common to ERC-20 index funds, and explores a novel application of Proof of Liquidity backing through decentralized index pooling. Buoy also creates a unique potential for investment, not only as a unique and early mover in a market ripe for expansion, but as the potential to buy into a large pool of fixed liquidity at a fixed and transparent rate. As this is a novel model of crowd-funding, micro-economic adjustments could be made in the future to better round out TIL tokenomics, such as raising or removing caps on fundraising, or changing length of sales dates, or any other number of things. We will see, based on the success of this model, if these sorts of trustless injections may serve as an example for future index funds, and DeFi crowd-sales as a whole.