BitBay Treasury
Supply and demand solved

Protocol owned assets
User driven self governance
Liquid Mix and bonds

Introduction:
Supply and demand are what mostly determine the price of things today. It is natural for both investors and consumers to want the price of what they hold to not only remain steady but to increase against lesser assets. After all, currency is supposed to represent the work we put into things, and it is the work that is bartered in society. Cryptocurrency was meant to be superior to fiat; however, it has overlooked its most valuable virtue, which is the ability to program its own economy. BitBay is the only coin to show success in this regard with the invention of the dynamic peg—or the ability to control supply using inflation and deflation—while allowing users to trade their "reserve" savings in a different market.

The coin has shown that, despite adversity, it can hold any price its community wants, even with low trading volumes, while being in a period of quiet development for several years. Finally, the release of the BitBay bridge has allowed it to tap into other networks using the beautiful technique of mixing the coins due at different supply levels into different layers in order to reduce gas costs for such a complex coin. The intention is to get more users and tap into decentralized exchanges and decentralized finance.

That is good, but if there are no buyers, then how can BitBay—even with its supply controls—solve the issue of demand itself? After all, demand is based on free will and responds to what people truly want. So is there a way to drive demand anyway? To create a sort of price action machine to satisfy the users? That is what this paper seeks to explore.

Protocol owned assets:
The innovation of DeFi (Decentralized Finance) has changed things. Users do not have to rely on trust anymore to make financial solutions, and using DeFi they can trade, swap, and even take collateralized loans. It is not uncommon to see funds "parked" at a contract, especially with automated market maker decentralized exchanges. In these "AMM" exchanges, users will deposit both the buy and the sell side of a pair (such as BAY/ETH). However, if liquidity is too thin, the users are limited in how much they can buy or sell while keeping the price stable. Protocol-owned assets solve this situation in an elegant way. This is where coins, NFTs, real estate, bonds, and commodities are locked for a certain period of time, or even owned outright by the contract.

The idea proposed here is that because BitBay can match its supply to its demand, it does not matter how few funds are parked at the asset as long as they are consistently paying users. The small cash flow is enough to support the price at a chosen level if the two

match. Basically, on some level, deflation and inflation obviate the seller, and the owned assets obviate the buyer.

There is a saying in investing that goes, *"cash flow is better than cash."* This is because an asset that produces income is reliable, whereas cash doesn't actively produce anything. Farms grow crops constantly throughout the year with no concern for the financial situation of the outside world. Nature handles the situation without human intervention in most cases.

Unfortunately, the major governments have done more harm than good to the crypto industry, as they actively attacked projects that tried to pay dividends by claiming they were securities—when most of them were not. This actually caused scams and memes to outperform projects that were genuinely trying to better the world.

However, when a protocol owns an asset that is given voluntarily, it does not fall under the qualification of a security. This is because, when the system is permissionless, there is no common enterprise, and depending on how it is given, users do not expect profit from a centralized enterprise.

Can this be proven? Of course! A treasury can be set up to park funds and pay users of any smart contract or coin, even if it is not in that coin's design.

Let's take some examples of how the treasury can work on the deposit side.

1. **Locked Yield from Staked Ethereum**
   A user deposits Lido Staked Ethereum (stETH) into a smart contract that functions as a long-term HODL (hold on for dear life) vault. The current yield is ~3% annually. The benefit? The user actively supports the project they believe in, while also removing their Ethereum from circulation—reducing temptation to sell—for a fixed period, say 5 or 10 years.

   Think back to 2015. How many people wish they had locked up $2,000 in ETH and forgotten about it for a decade? This setup lets them do exactly that, but in a **trustless**, smart-contract-enforced way. The stETH stays locked, earning yield. The original deposit is guaranteed to be returned, while the 3% yield is automatically donated to the user's asset or protocol.

2. **Collective Time-Locked Pools**
   Using a similar mechanism, users can **collectively lock assets** into a shared investment pool for a fixed term. These pooled assets can then be directed into pre-agreed strategies—fully automated, with no governance—or voted on via on-chain coordination.

The investment goals might vary:

- Generate **price action** via coordinated market activity
- Provide liquidity to **stable-yield protocols** like real estate, tokenized bonds, or staking derivatives
- Back algorithmic pricing models or decentralized treasuries

This enables decentralized crowdfunding that doesn't rely on central planners or corporate structures.

3. **Protocol-Owned Diverse Yield Portfolio**
   Over time, the protocol itself can accumulate a **diversified yield-generating portfolio**, consisting of:
   - Staked coins (like stETH, ADA, DOT, SOL)
   - DeFi products (lending, LPs, yield farms)
   - Tokenized real estate or physical assets
   - Affiliate fees from integrations
   - NFTs with revenue mechanics (e.g., royalties)
   - Commodities or synthetic commodity exposure (e.g., tokenized gold)

   These assets can generate continuous cash flow that feeds the ecosystem, stabilizes the price of the native coin, or funds permissionless incentives—**without selling the core token** or relying on external speculation.

Profits generated from staking or other yield-producing assets don't necessarily have to be pure donations. Incentives can come from the *other side* of the deal—rewarding those who interact with the system or support its stability. Let's explore the different ways users can engage with these parked assets:

1. Temporary or Long-Term Parking with Yield Redistribution

Assets can be parked either temporarily or long-term. If the value of the underlying asset increases, so does the size of the treasury. Staking rewards earned from these assets can be redirected to Automated Market Maker (AMM) pairs—essentially compensating them for doing economic "work" (i.e., providing liquidity).

This model is similar to yield farming, but instead of handing out inflationary tokens, it pays out in **high-value assets like Ethereum**, making the incentive more meaningful and sustainable.

2. Participation-Based Staking for Native Users

Users of the currency (e.g., BitBay holders) can stake either their liquid or reserve tokens in exchange for specific benefits. The staking contract can require **active participation** to

unlock those benefits—such as voting on the supply level, adjusting the peg, or influencing protocol parameters.

This introduces the concept of **"restaking"**—where users must periodically engage with the protocol to continue earning. It not only incentivizes action but also decentralizes governance in a non-custodial and trustless way.

These actions can be simple and programmable:

- Vote on supply or peg target
- Signal market sentiment
- Choose investment paths for treasury assets

3. Permanent or Gradual Asset Donation to the Protocol

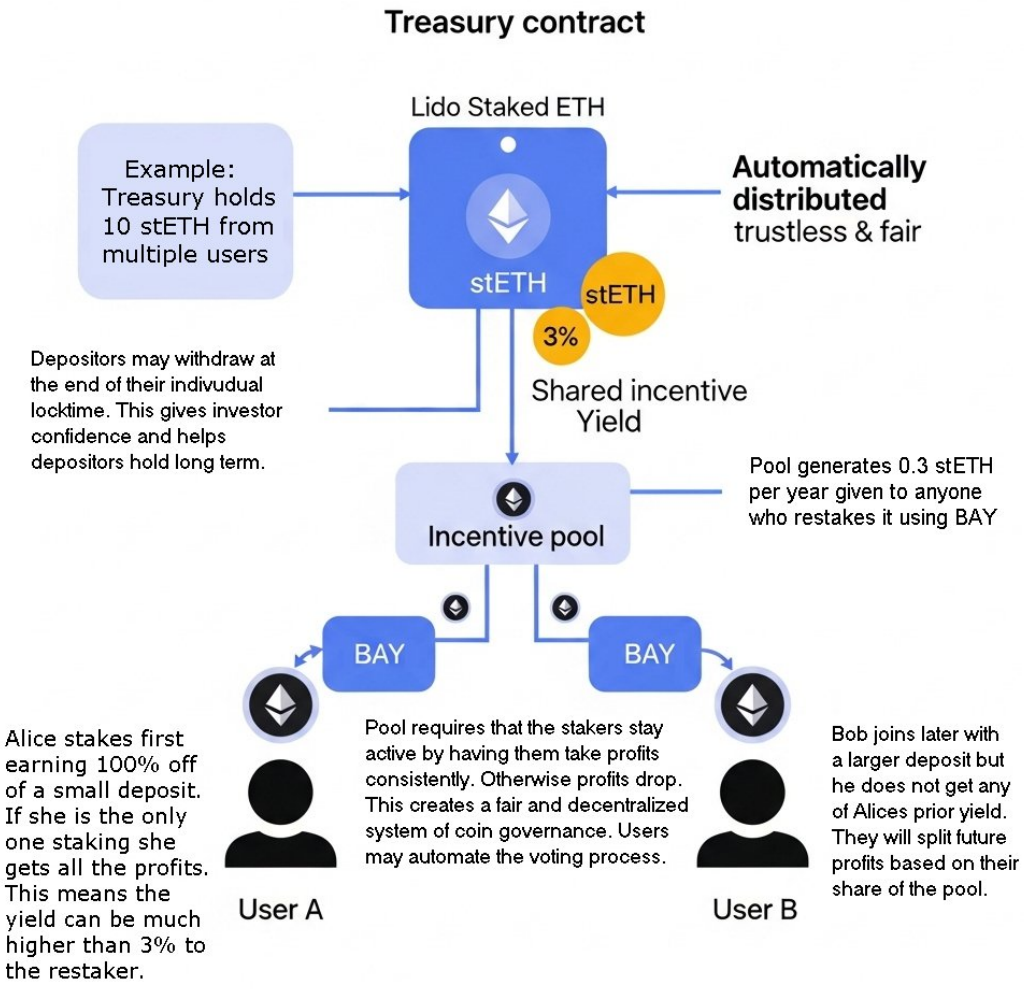
Assets can be donated gradually or in full to the protocol, allowing it to **own them outright**. This is powerful: as long as the underlying blockchain exists, the project holds real, on-chain value—completely independent of token hype or market cycles.

If these assets are yield-generating (e.g., staking, rent, royalties), the protocol gains a **long-duration financial backbone**.

- Users could stake into these pools to receive a share of the yield.
- Governance (if desired) could determine how funds are used or reinvested.
- Treasury holdings could be categorized into:
    - Permanent core holdings
    - Active investment pools

These scenarios only scratch the surface of what's possible when combining treasury-backed yield with supply control mechanisms. The real power of such a system lies in the ability to **dynamically influence returns through the peg itself**. Because the BitBay dynamic peg protocol can algorithmically expand or contract the supply of liquid tokens (e.g., BAY), it can **amplify the effective yield** received by participants—far beyond the base staking rate. Especially since not all of the liquid or reserve coins would be staking in treasuries, when it becomes less competitive to stake, returns could be well over 50% a year in theory even from a small payout.

For example, if the treasury is earning 3% annually in ETH, that yield can be **trickled down into a supply-restricted environment**. If the community decides to **aggressively tighten BAY's supply**, those ETH rewards become disproportionately valuable when denominated in BAY. This is not just a matter of fixed percentages—it's a function of math and market psychology. A **supply crunch combined with cash flow drives up demand** for the remaining circulating tokens, magnifying perceived and real returns.



BitBay is the ideal coin to test this new class of DeFi instruments because BitBay is structured with **two tokens**:

- **BAY** (liquid)
- **BAYR** (reserve)

The reserve tokens (BAYR) operate with a built-in delay—typically around one month—similar to a bond. This mechanism slows their movement and shifts value toward liquid BAY, which exists at a **supply level determined by the community itself**.

In this way, BitBay can finally **match supply to demand in real time**, a feat that other cryptocurrencies simply cannot accomplish. Most coins, including Bitcoin, are supply-rigid. Bitcoin, despite its reputation, inflates via mining rewards—making it far from truly "hard money." If Bitcoin is granite, **BitBay's dynamic peg is diamond**.

This is not a stablecoin. BitBay is not pegged to the dollar or any fiat currency. In fact, BitBay users have historically voted to **track Bitcoin's peak prices**, and remarkably, they succeeded—even with **almost no liquidity**. This proved that a determined community, armed with a supply-controlled asset, could **hold a desired price level without needing deep order books**.

Recently, the community adopted new algorithms that respond to trade volume and target prices, allowing more **price flexibility**. This introduces an element of speculation and market excitement, while still keeping the system anchored. It opens the door for **new users to enter**—not because they're promised a stable dollar peg, but because they can participate in a system where supply, value, and trust are collectively programmable.

User driven self governance:
Projects often fail due to weaknesses in consensus. This can result in hacks of governance contracts or unfavorable changes in management. The ideal outcome is for a protocol to control itself. But how can this be achieved on a blockchain in a way that is entirely voluntary, open, free, and fair?

The treasury appears to solve this problem. Because the protocol can create open and voluntary contracts—and also own assets within those contracts—users who stake for it can participate in decision-making on important issues. The major reason this hasn't been possible in the past is that it's difficult to pay users with speculative tokens. If those tokens lose value, the consensus mechanism breaks down.

However, a treasury can hold high-value base assets like Ethereum—or even real-world assets such as real estate. This method becomes especially powerful when it involves staked assets, since their profits are both **trustworthy and consistent**.

When a user stakes their assets, the contract can define pay periods that require them to cash out periodically in order to continue profiting. This creates a cycle of engagement similar to what we see in proof-of-stake systems on Ethereum, BitBay, or Peercoin. However, this technique can be simulated without relying on randomness.

Traditional consensus mechanisms use randomness—through staking or mining—to secure their networks. But if staking profits are instead paid recursively into a contract, the effects of fairness are passed down to the users competing for those profits. This eliminates the need for governance entirely and allows users to vote on supply levels or other community issues purely at their discretion.

More importantly, this model helps **disqualify the project from being considered a security**. Staking has already been determined not to constitute a security contract, as it represents **mutual services rendered**. The same principle applies when treasury funds are donated to AMM pairs on decentralized exchanges, since **liquidity providers perform a service** in exchange for yield.

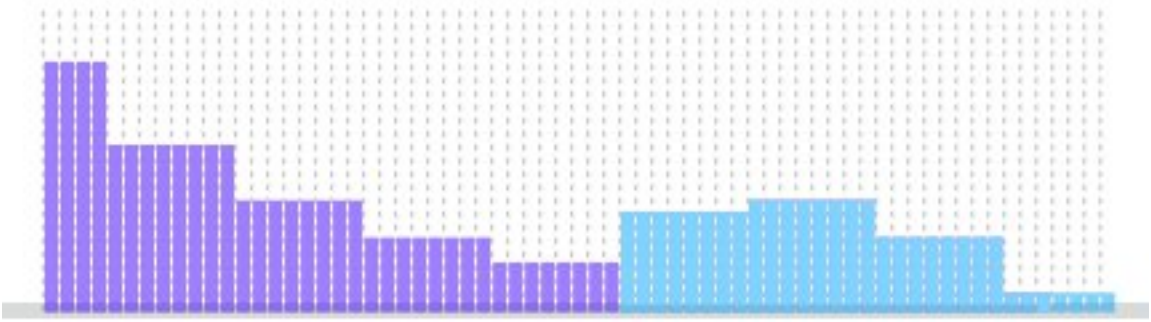
This creates the perfect crypto currency token that can offer both speculative and stable opportunities simultaneously.

Liquid Mix and bonds:
This part of the paper is a bit more technical, but it's important because it will show how BitBay can improve the feel of the peg itself while also driving more demand to the reserve assets. This paper assumes the reader is familiar with how the dynamic peg works; however, a brief description will set the foundation.

BitBay is able to achieve **true deflation** unlike any other asset in the world. If we compare gimmicks such as "elastic supply" coins, we know they do not result in a real change in equity (1/10 is the same as 10/100, so that is not true deflation). A change in wealth is required during periods of deflation and inflation for it to have meaning, and the only way to do this is to let users **own and sell their reserve tokens**—something elastic coins do not allow.

This is actually similar to how fractional reserve banks already operate, except that in times of deflation, governments take people's funds without their permission. The difference with BitBay is that funds are **set aside collectively and remembered**.

The result looks a bit like the following diagram:



A picture is worth a thousand words. BitBay balances are not a single number but an **array of numbers**. In the original Solidity contract, they are represented as multiple arrays—30 sections with 8 smaller sections each, representing 1% deflation applied five times. This three-way factor (30 × 8 × 5) was designed to match BitBay's 1,200 possible supply levels for its economy.

This structure shows that a user's balance consists of two assets: BAY "Reserve" (represented in purple) and BAY "Liquid" (light blue). The community can influence the **price of the liquid asset** by shifting the global supply rate. However, because every user has a different "chart," their liquid assets may be arranged under more or less favorable conditions.

In other words, even though the economy deflates by 1%, **individual users may experience faster or slower deflation** depending on their chart. For many BitBay users, this is acceptable—they tend to target and collect premium liquid coins, especially when the economy is highly deflated.

But for the average user who just wants to buy groceries, this level of complexity is too much to expect. How can Alice be made to understand that the coins she just bought had 10% set aside in reserve, while her friend Bob only had 2% set aside, even though the economy went down by 5%?

Of course, one could explain that Bob had higher-quality coins because he bought at a better time and understood the system more deeply. But even so, this is not ideal for a currency meant to be reliable for everyday use.

Enter what the community has deemed the **"liquid mix contract."** This method basically "mixes" the liquid coins of the entire economy, in a sense socializing the deflation to an even 1%. This means that what a user had set aside is still an array of values, but what they have liquid is represented by a single number of tokens — just like Bitcoin or Ethereum! If the economy deflates 1% at supply index 520 and you hold 10,000 liquid coins, then expect 100 reserve coins set aside to be released (at supply 520) with 9,900 coins remaining liquid.

What are the advantages? Well, first of all, users can experience the fun of deflation with the predictability of fiat. Second, this creates much more demand for reserve. That is because when reserve funds mature, they convert to being liquid and experience the same "smooth deflation."

For example, let’s say the 100 reserve at 520 was transferred to Alice as a bond. Alice bought the coins at a discount, hoping that inflation would happen. In the previous version of BitBay, if the supply goes up 1% to index 520, she gets the 100 at that index categorized as liquid BitBay. But if the system deflates 1% to index 521, the 100 coins are reserve again! However, in the liquid mix system, her 100 coins would set aside 1 in reserve and 99 remain liquid. This made her purchase of reserve much more meaningful.

So then, how is all of this traded in a fair way on decentralized exchanges? This solution was already implemented in BitBay’s Solidity contract on their bridge. The bridge itself uses standard consensus with Merkle proofs, although there is the possibility BitBay could move entirely to a Solidity-based blockchain, forgoing its UTXO blockchain.

The method of trading fairly in pools with BitBay was done by making sure users match shards/arrays alongside whatever profits or losses the AMM pool experiences. It also required a lot of special techniques to detect when users deposit or withdraw liquidity versus a simple trade (since the Uniswap contract does not supply that information — it must be inferred).

However, another modification to BitBay is proposed in this paper: letting users send reserve columns individually. Originally, this was prevented, and payments were made to send similar charts because it was assumed users would always opt to send subpremium payments due to deflate soon if it wasn't done automatically. However, when the liquid balance is a single number — like in any other coin — the reserve coins behave more like bonds or futures, where each one has a different market value.

This makes BitBay even more fun to trade because a user can see what distance a reserve bond is from the current supply (for example, 100 coins due at +7%). This means every reserve bond is a separate spot market. The liquid coins for an AMM would then just require users to deposit precise ratios of all bonds left behind alongside their liquid coins. It's also possible to run AMM pools similar to spot exchanges and randomly pair sellers to buyers while funds are held at individually tracked accounts.

Currently, it is hard to pin a precise value on BAYR because the chart is different depending on what is on the exchange at any given time. Therefore, the rate at which coins become available during inflation changes depending on trades and deposits. But when you can isolate every reserve bond and sell it separately, users can know exactly how to price it.

If the price of liquid BitBay is $1, and there are 10 reserve coins set to mature if the supply increases 1%, then perhaps a seller would only sell them at a small discount — say 95 cents. This creates an exciting financial game of trusted futures.

The ramifications of all of this are not easily summed up by a single paper. This is just the tip of the iceberg of the opportunities that are created when a currency programs its own supply. We hope that this inspires the beginning of a new epoch in finance.

Summary:
This paper shows how all the parts work together in harmony. The dynamic supply of BAY, combined with the liquid mix and bonds, creates a user-friendly economy where prices are set by the users of the coin. The price can even appreciate over time or be synthetically pegged to assets like Bitcoin or gold's peak prices. Users can choose to let the prices run wild and use the peg only to curb volatility — the choice is theirs. The treasury allows people to voluntarily support the projects they love while taking less risk. This is all done without a common enterprise; instead, the contract itself becomes the enterprise, as it can produce or maintain value under whatever terms it was programmed by. If it allows people to hold funds and donate staking profits, it operates similarly to how banks invest the funds of depositors to pay interest in a savings account. When users are also allowed to reap these benefits using the funds set aside during periods of deflation it can eliminate the need for governance entirely. This lets the coin control itself while simultaneously giving the freedom of choice to the users. Perhaps the most beautiful part is that transparency, choice, fairness, security and freedom are all respected while maintaining intrinsic value.