Gyrowin Tokenomics Audit

Audit Overview

Introduction

The aim of this document is to conduct a tokenomics audit for Gyrowin. Gyrowin is a decentralized cross-chain gaming and finance platform, which offers lottery games and enables users to invest their own assets through lending available within the platform.

The goals of this audit are to:

1) Test whether Gyrowin's economy is robust and sustainable.
2) Identify weak links and gaps in the current protocol economy.
3) Understand the buyback and burn behavior based on the liquidity of the pool.
4) Utilize empirical evidence from similar projects to understand the robustness and usefulness of the economic mechanisms in place.

In the following sections, we will dissect each of these mechanisms and incentive structures in detail.

Assumptions

1) The report scope does not include the technical capabilities and efficiency of the native DEX, as well as any technical and economical exploits due to price oracles.
2) This audit focuses on the internal mechanisms and operations of Gyrowin and does not include an analysis of external forces. Specifically, while Gyrowin interacts with various external entities, such as blockchains and various decentralized applications (dApps) on this network, the stability or reputation of these apps and other external forces are considered separate concerns and are not covered in this audit.
3) The audit is not concerned with SPAACE's business or marketing model. If, for example, the dApps chosen are not widespread, or specific blockchains face issues (for whatever reason), this is a completely separate concern. These are choices made at the governance level.
4) The overarching objective of the ecosystem is not clear. For example, the purpose of Bitcoin is to maximize security through its specific architecture and economic incentives. Therefore, when analyzing the economy, we will adhere to principles of sustainability and stability.

Tools of the analysis

1) Structural: System breakdown.
2) Numerical techniques and simulations.
3) Empirical analysis.
4) Questionnaire assessment.

Summary and Conclusions of the Audit

[After an audit]

About the Auditor

Dr. Stylianos (Stelios) Kampakis is a data scientist and tokenomics expert with more than 10 years of experience.

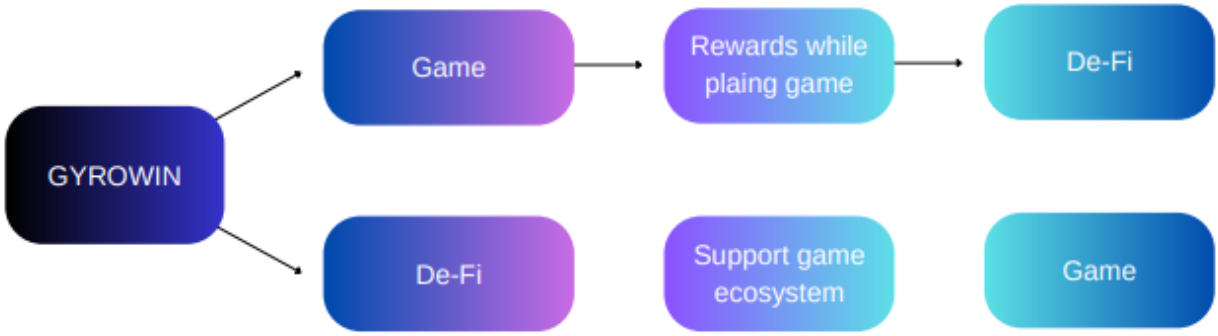
His seminal work in token economics has led to many successful token economic designs using tools such as agent-based modeling and game theory.

He is a member of the Royal Statistical Society, an honorary research fellow at the UCL Centre for Blockchain Technologies, and a data science advisor for the London Business School.

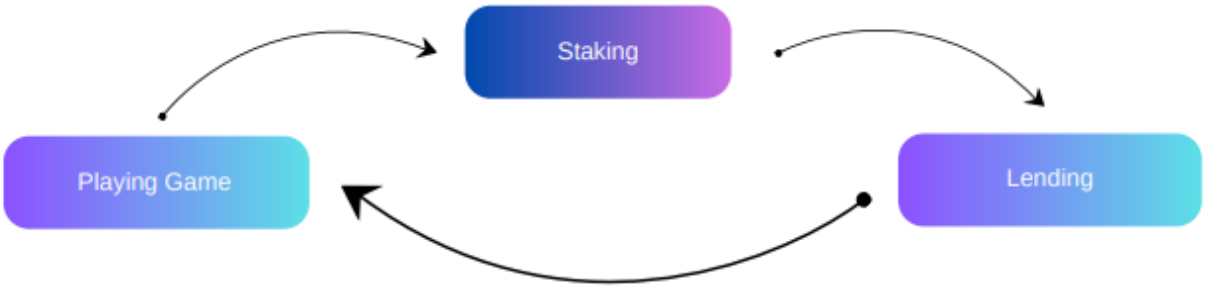
Audit Breakdown

Structural Analysis

Quick Overview



User Journey



Lottery

Gyrowin operates decentralized lotteries where all game ticket purchases are added to the Prize Pools. Players can purchase tickets using Gyrowin (GW) tokens natively supported by the platform. In addition to that, players are also able to purchase tickets off-chain using the point system (*Purchase the points at a fixed exchange rate of 1 USD = 1 Point, Automatically convert purchased Points to BUSD, and Pay for the lottery ticket via BUSD*). If Game Draws are closed without a winner, the Rollover Prizes are added to the Prize Pools for the next draw in the DeFi game.

Token holders can exclusively vote on new lottery drawing types that best match the majority of player preferences. However, Gyrowin will initially offer the following lottery types:

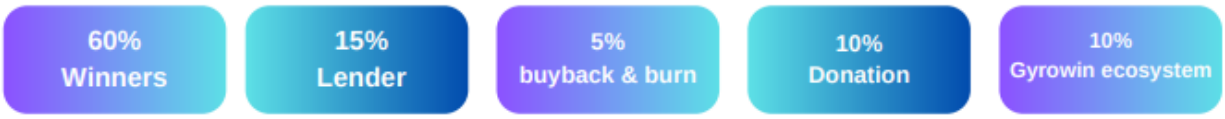
1) 6/41 Lottery (draw every week)
2) 5/9 Lottery (draw every day)
3) 10 min Lottery (draw every 10 minutes)
4) Random Game (instant draw)

VRF

Gyrowin utilizes Chainlink's VRF, which allows any lottery player to verify the generated lottery numbers on the blockchain. This mechanism ensures transparency and fairness for all participants in the lottery.

Lottery Rewards Distribution

Gyrowin's smart contract will process and transfer the prize payout to the winners after the draw, and players will be able to claim it instantly. Gyrowin will deliver the payout in BUSD. Winners will receive 60% of the total prize value. The remaining share of the prize will be distributed according to the chart below.



Staking

Stakers will receive 15% of the rewards from the 6/41 lottery pool. In addition, they will receive 1% of the rewards from the $GW/BUSD swap tax for each transaction. To support the value of $GW, Gyrowin will buy back and burn 5% of the rewards from the 6/41 lottery pool every week[1]. This will result in the minting of $GW for every block, which will be rewarded to stakers. Unclaimed $BUSD rewards will be lent out to earn additional rewards on the lending platform. Unclaimed $GW will be automatically reinvested in money plants.

Staking Rewards Summary

1) 15% rewards of 6/41 lottery pool prize every round.
2) Gyrowin imposes a token tax of 1% for both buying and selling per transaction and it will be distributed to stakers.
3) New GW tokens are minted every block after 5% of the weekly lottery prize pool is burned based on a specific algorithm.
4) Unclaimed $BUSD rewards are lent out to earn more rewards on the lending platform.
5) Unclaimed GW is automatically reinvested in the Money plant (compounded).

Lending

The players can purchase the DeFi game tickets (aka General Lottery Players) or borrow tokens from the Lenders pool to purchase the DeFi game tickets (aka Borrowers). To borrow tokens from Gyro's Lender Pool, the Borrowers choose to collateralize their base assets (BUSD and BNB) in exchange for the borrowed tokens (GW)[2]. The Borrowers later can use the borrowed tokens to buy tickets and contribute to the Prize Pools. To unlock the base assets, the Borrowers must repay the borrowed tokens plus the interests (at the flexible APY of the Lender Pool).

Lenders can supply capital by lending the tokens (GW) for a minimum of 2 weeks and collecting interest at the flexible APY of the Lender Pool. Lenders can also opt for the special incentive plan as they buy one or more DeFi game tickets to contribute to Prize Pools. If Prize Pool has a winner after the draw, a maximum of 15% value of the winning Prize Pool will be distributed based on the contribution percentage of the lenders in the pool total supply and lenders must hold a valid ticket(s).

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[1] Gyrowin will use AI to determine the number of $GW to be minted, taking into account the supply and demand of $GW in the current market.
[2] Or collaterlize GW to borrow BUSD

Gyrowin implements a transparent credit report for Lenders. The protocol provides access to the Borrowed Balance, which details the status of the borrowing request, locked assets (collateral amount), and collateral ratio. Our level of transparency allows Lenders to evaluate the collateralized position of the Borrowers and proactively match their risk positions to the corresponding rewards (APY). In addition, it enables the liquidators to earn rewards through liquidation, which is a process of liquidating the risky borrowed accounts that are under-collateralized.

Summarized

1) GW lending with BUSD/WBNB collateral assets.
2) BUSD lending with Gyrowin collateral assets.
3) Zero liquidation on borrowing.
4) Rewards from Borrower's interests.
5) Rewards from the games pool.

Governance

Process

There are two stages for deciding on proposal voting. The first stage is the governance forum, where users can discuss the proposal. The second stage is the governance portal, where the final voting takes place on the blockchain.

Initially, most proposals will be created by the Gyrowin team before the Gyrowin forum is fully established. Once the forum is established, the community will vote for a representative. This representative will be responsible for representing the Gyrowin community and its proposals. In addition, Gyrowin team members will also have the forum proposal.

Before posting a proposal in the forum, it will be screened by the Gyrowin team and community representatives. The proposals posted in the community forum will have their priority levels marked by the community representative and Gyrowin representative in the governance forum. Based on the priority level, a voting delay will be added to the governance portal if passed. If the proposal is marked as critical, it is immediately added to the governance portal for voting without any delays. For the normal or low-priority levels, community members involved will set the voting period, vote and discuss whether the proposal is adequate or not for the Gyrowin ecosystem.

Once the community approves the proposal, it will undergo a final screening process by both the community and a Gyrowin representative. This process will also finalize the voting period as discussed by the community.

Power Dynamics

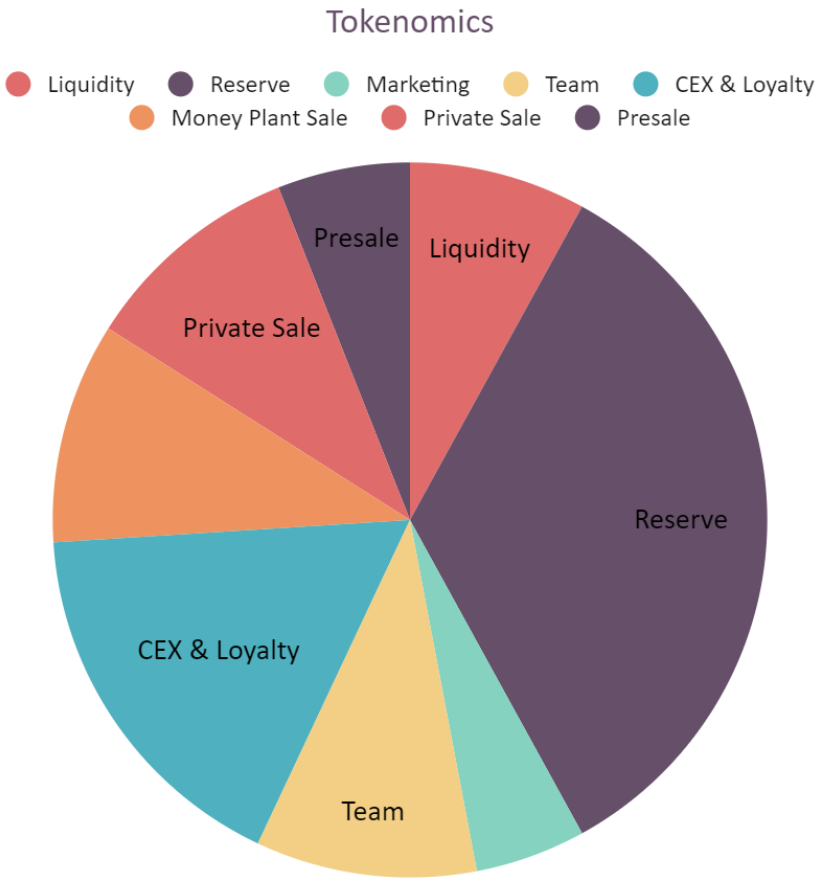
Token holders receive voting power on a 1-1 basis corresponding to the amount of GW tokens held. This voting power can be delegated to any address and used to vote on proposals. It is based on the Compound Protocol delegation voting system. To ensure a fair distribution of power between users, we will also integrate quadratic voting.

Token Allocation and Release Schedule

Description	Balance	Price	Vesting
Liquidity	8%	na	Freeze lock
Reserve	34%	na	Freeze lock
Marketing	5%	na	Freeze lock
Team	10%	na	1 year cliff, 5% every month
CEX & Loyalty	17%	na	Freeze lock
Money Plant Sale	10%	$0.0027	30% TGE, 5% every 2 months. Given priority to Money Plant. (only available for 80% balance of Money plant sale GW amount)
Private Sale	10%	$0.0012	20% TGE, 5% fortnightly
Presale	6%	$0.003	Softcap 50,000 BUSD

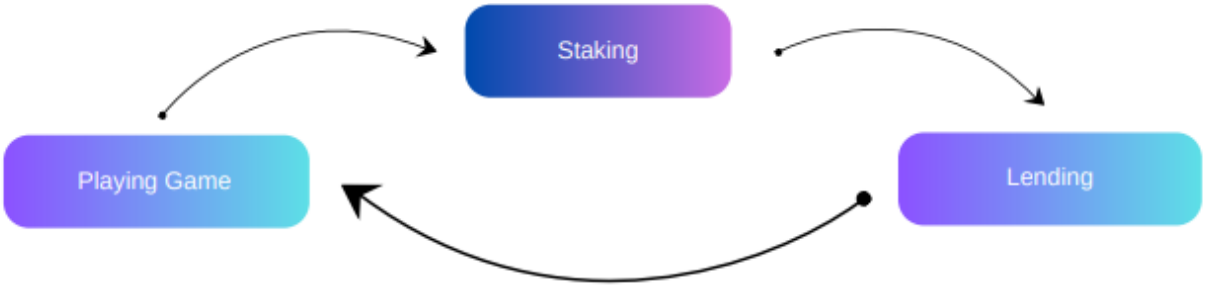
[3]

[3] Developed by Gyrowin dev team, freeze lock means when team unlocks tokens for adding liquidity or any platform related task, it will have cooling period before it gets unlocked for use. For now team set it to 7 day (can be changed through governance). So what this means is that team would be able to use those token only after 7 days of request made to lock smart contract. The contract function emits events details about unlocked token amount, which will alert our token holders. And also give them enough time to react on the situation.



Breakdown

Project Loop



Highlight
Blockchain digital economies are complex socio-economic systems, and even if elements of the system are well-known and easily identifiable, the main complexities and surprises arise from the interactions between those elements.

In the example above, the project expects that users will follow this journey: playing lotteries, earning, staking, earning, lending, and then repeating the process. This is the most rational assumption, that economic agents will win, save, and repeat. However, in reality, we know that not all people are rational.

Also, the nature of highly speculative crypto users, coupled with a lack of earning sustainability, may disrupt this loop. For example, users may win a few lotteries and then leave the platform, or they may not win any prizes and have no capital to stake or lend. So, in reality, it is most likely that only a small portion of players will choose or will be able to follow the full intended user journey.

Lottery

What We Like

1) The situation in which the demand for lotteries directly influences the prize pools is both sustainable and beneficial for the protocol. Using inflationary native tokens as rewards to enhance the prize pool would create additional selling pressure. Also, the system could become more prone to manipulation. For example, in the early stages of lotteries when demand is low, a small number of participants could be awarded disproportionately large prize pools. However, the current state of lottery rewards avoids the aforementioned problems.
2) Considering the highly speculative nature of crypto users, paying rewards in stablecoins helps to protect the project from sell pressure. This approach fosters a symbiotic relationship where the native token has a value driver (for purchasing game tickets) and a sink (creating a deflationary effect).

What Could Be Better

1) Game tickets should be denominated solely in the native token, as this would create a stronger value driver. Currently, players have the option to purchase tickets using either BUSD or the native token. Naturally, this option may reduce the demand for the native token (GW), since BUSD is a well-known currency and has a stable value.
2) If the decision is made to denominate all tickets in GW, it might be wise to soft peg it to USD, ensuring that it holds a stable value regardless of market downturns and other market behaviors. The fluctuating price of GW could lead to unsustainable demand waves, where a low price attracts many users to participate, while a high

price could cause speculative ticket purchases to collapse. Soft pegging to the USD value can help mitigate these fluctuations in demand.

3) The details of the reward distribution are unclear. It's indicated that 15% will be distributed to stakers and another 15% will be allocated for lending incentives. However, this breakdown is not emphasized in the rewards distribution scheme.
4) The minting mechanism lacks a clear algorithm and defined parameters. While it's stated that AI will govern the minting process, the complexity of the mechanism does not actually require this. What's needed instead are concrete and transparent parameters. Without clarity and transparency, platform users might assume that manipulation of the mint function is possible, hidden behind the narrative of AI.
5) If the prize pool of BUSD is funded through an ongoing GW swap using GW/BUSD liquidity pool, it will exert downward pressure on its price.

Staking

What Could Be Better

1) The same pattern used in lottery game rewards could be repeated in staking, i.e., GW is needed for staking, but all rewards are translated to BUSD. Locking up tokens would reduce their velocity within the system, but later on, it wouldn't lead to additional sell pressure. Currently, there is a portion of rewards paid in GW.

Lending

[Waiting for information from the team]

Governance

What Could Be Better

1) We believe that, in its current state, the project doesn't naturally require widespread community governance, as that might create more friction than benefits. Governance might be needed for treasury management or the setting of complex parameters. However, the protocol requires neither of these, and governance could be easily substituted with sentiment temperature checks and simple discourse with the community. This approach would avoid wasting considerable time and resources on governance management and maintenance.
2) Although the project will utilize Quadratic Voting, which reduces the effects of plutocracy, it doesn't entirely eliminate them. Wealthy users can still capture the governance system and influence major proposals. Along with wealth inequality, this may lead to other problems:

Wealth Inequality: Since votes can be bought with financial capital those with more resources can still have an undue influence, potentially leading to majority or oligarchic control.

Collusion and Strategic Voting: If the majority can coordinate their voting in a specific way, they might be able to disproportionately influence the outcome.

Design and Implementation Flaws: The effectiveness of QV in reducing majority takeover also depends on the precise rules of the system and how well they are implemented and understood by the voters.

Holders vs Real Contributors: Token voting favors holders, rather than other constituents such as core contributors, and evangelists. If token holders have more control over the future of the protocol due to token voting governance, then the only focus may be to raise the price of the token no matter the consequences for other stakeholders.[4]

Vote Bribery: There are two main rights in token governance: the right to vote, and the right to be economically interested in the protocol's revenue/the right to participate financially in the protocol. With token voting, voting power, and economic power combine. The more money users have, the more control they have over the protocol's future which is decided through voting. When these two rights unbundle or separate, it creates the conditions for vote bribery to occur[5].

3) Delegation voting system is not perfect either. Although it operates a bit differently than traditional representative democracy as it allows voters to remove tokens from a delegate who underperforms or misrepresents their values and positions, it still suffers from principal-agent[6] problems. Getting incentive alignment and the economies of attention right is really hard. Achieving a flawless scenario where every delegate is both knowledgeable and committed to the protocol's success is unlikely. In reality, financial capital and popularity often overshadow the expertise of delegates.

[4] https://blog.tally.xyz/whats-wrong-with-coin-voting-%EF%B8%8F-2dfcef1f7503
[5] https://blog.tally.xyz/whats-wrong-with-coin-voting-%EF%B8%8F-2dfcef1f7503
[6] Principal-agent problems refer to a dilemma that occurs when one person or entity (the "agent") is able to make decisions on behalf of another person or entity (the "principal"). This relationship often leads to issues of trust and responsibility, as the agent's incentives may not align with those of the principal.

Token Allocation and Release Schedule

What Could Be Better

1) The concept of a frozen lock may raise several questions within the community. Under this mechanism, you would be able to sell tokens every 7 days, or 4 times a month, based on the rules that you've established. While this might seem like a flexible option, it could be worth considering a simpler approach, such as a monthly linear unlock, where the tokens are unlocked only once a month. I understand that the goal might be to provide adaptability and the ability to use the allocation as needed. However, in an environment where we have smart contracts, algorithms, and clear parameters, and where transparency is paramount, the frozen lock approach could create confusion and concern within the community. They would be entirely dependent on your actions and would need to place full trust in you. Therefore, it may be prudent to consider alternatives that align more closely with community expectations and standards.
2) A frozen lock that can be altered through community voting may introduce certain risks due to misaligned incentives between the community and the project team. Crypto communities often operate on a speculative basis, seeking to buy low and sell high. The project team, on the other hand, may need to liquidate their allocation to sustain the business or promote growth. These conflicting interests might lead to what could be termed as 'governance attacks,' where the community might attempt to change a 7-day lock period to longer timeframe days. Such a prolonged lock-in period could be detrimental to an early-stage startup, hindering their ability to sell tokens and thereby sustain their operations.
3) Blockchains inherently provide a high level of transparency and public accessibility by allowing anyone to inspect specific allocation addresses and track changes. However, the use of frozen lock alerts may lead to unintended consequences. These alerts might foster negative sentiments within the community or prompt undesirable actions, such as selling off assets.
4) At the outset, projects will release 11% of the total token supply. The remaining portion of the token supply is under a frozen lock, making the speed of its release uncertain. Releasing the tokens too quickly could lead to hyperinflation. To mitigate this risk, it would be more prudent to have a clearly defined unlock schedule or to implement a dynamic and adaptable token release approach.[7]
5) The initial liquidity of 200K is relatively low, especially considering the possibility that investors may sell up to 20% of their holdings after the Token Generation Event (TGE). If investors choose to sell, the price could be significantly affected due to the thin liquidity in the market. Additionally, if there's a need to sell any part of the allocations, it could contribute to an overall downward pressure on the price.

[7] https://outlierventures.io/article/adoption-adjusted-vesting/

a) Setting up an initial token distribution requires careful balancing of the target initial price, liquidity constraints, inflation rate, and community ownership goals. For instance, with limited initial liquidity, say $250,000, a 10% initial token release would lead to a Fully Diluted Valuation (FDV) of $2,500,000, allowing a significant proportion of the token supply to be easily bought. Increasing the FDV by reducing the initial token release mitigates this risk but necessitates a strategy for releasing the remaining tokens, potentially leading to high inflation and price instability. Therefore, the project faces choices between surrendering early control to mitigate inflation, procuring substantial initial liquidity to manage inflation and maintain control, or maintaining control with limited liquidity at the expense of high inflation impacting early buyers.[8]

6) In the section detailing reserves allocation, it's stated that a portion will be dedicated to combating inflation. However, the mechanisms by which this allocation will be utilized are not clearly explained. A more detailed description would help in understanding how these funds are intended to be employed to effectively control inflation.

[8] https://crypto.nateliason.com/p/tokenomics-104-launch