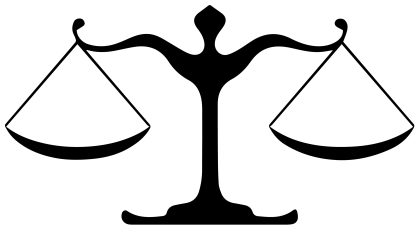
white book

Themis DAO

DeFi2.0 upgrade protocol based on THS token



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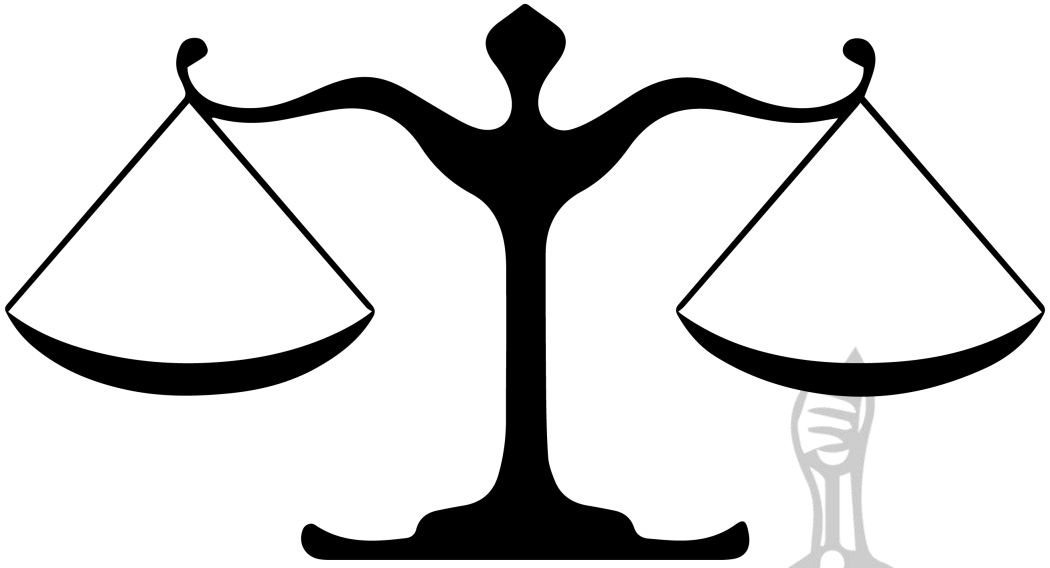


I. Overview

Themis is the symbol of fairness and justice in Greek mythology, the creator and guardian of order.It symbolizes the equality of all beings and the highly decentralized characteristics of Themis DAO.

As an early decentralized protocol deployed on the BSC chain, Themis DAO will expand to other high-performance emerging public chains in the future. The protocol provides two tokens, namely the protocol governance token Themis, or THS for short. The protocol contribution value token Scale Code, referred to as SC. Both THS and SC are BEP20 tokens based on the BSC chain.

Each THS token is backed by a basket of assets in the Themis treasury (e.g. USDT, THS-USDT LP, etc.) . Additionally, Themis DAO brings unique economic and game-theoretic dynamics to the market through THS staking.

The goal of Themis DAO is to build a currency system controlled by the protocol, in which the minting and issuance of THS tokens are controlled by the protocol algorithm. In the long run, we believe that the system can be used to optimize stability and consistency, making THS a more widely used medium of exchange currency,

giving liquidity to more pairs of decentralized digital asset trading platforms. At the same time, it will be able to incubate and empower other high-quality emerging blockchain projects. In the short term, Themis DAO will become a continuously self-optimizing and wealth-creating system.

Ⅱ. The economic theory of Themis DAO

1. Internal coordination theory

Themis DAO is an organization that enables and implements a major transformation in the application of economic theory. This shift can be expressed in the following way: In the digital economy, the economic forces of demand and supply are summarized as the forces of internal coordination and price coordination. Among them, supply and demand are only related to price coordination, while entrepreneurship/self-organization (not part of neoclassical price theory) is related to internal coordination. Since the internal coordination theoretical framework can explain the economic productivity and intrinsic value in the digital economy, it is different from the more specific material economy.

As a form of economic productivity, internal coordination remains undervalued, especially in relation to the digital economy. Internal coordination is a generalization of needs by incorporating labor value, utility value, and focus into digital productivity. Internal coordination is a generalization of demand as it is balancing or regulating supply and demand. As such, it is the driving force for market participants themselves to self-correct and self-govern naturally from within the market. The market needs a person, an entrepreneur, to recognize and solve existing coordination problems outside the price mechanism, which is achieved through the negotiation of social norms. Markets can self-regulate and self-correct only to the extent that everyday actors negotiate and share common-sense norms through internal coordination.

2. The relationship between material economy and digital economy

In a material economy, tangible, discrete, and limited supplies of goods are produced. The price mechanism can determine the optimal allocation of material

goods because these goods are adequately measured by a price-quantity criterion.

In the digital economy, ideas, incentives and infrastructure are produced. Price is not a sufficient measure of these commodities. These commodities are not purely tangible, discrete or finite, and so cannot be quantitatively measured. In fact, price is only one of the many competing forms of coordination that the digital economy produces, and by no means the most decisive one.

The economic commodities produced by the material economy are material commodities, while the economic commodities produced by the digital economy are the focus commodities. In the absence of direct communication, focal points are the best solution to fewer and fewer coordination problems, which means that communication must be largely tacit or implicit. The optimality of the focus is measured by the criteria most relevant to the particular problem it is trying to solve. However, all specific coordination problems and their specific criteria require a general and objective view of human affairs to coordinate all aspects of the problem.

We can treat the digital economy as a focus market, which is very different from a meme or a viral market. As a matter of fact, a meme is defined by imitation - its effectiveness in imitating, simulating, and replicating. In contrast, it can be found that focus is defined by originality - how effective it is to create an absolutely, unique shared organization in the absence of direct communication skills. The focus is the origin of the meme; the latter is a temporal derivative of the former.

The digital economy is related to the physical economy because the former produces the distributed autonomy layer of the latter. An efficient material economy with optimal distribution of goods cannot be achieved without the self-regulation of the internal market. A company cannot function without effective and sound corporate governance. These can only be achieved through distributed negotiation of objective social norms as focal points.

3. Game theory of Themis DAO protocol

The Themis DAO protocol is an innovation in the way people interact with financial protocols.

Through internal coordination between different stakeholders within the protocol, we believe that Themis DAO is solving the problem of creating new currencies without resorting to any policy enforced by a central entity. In essence, this is an example of the Prisoner's Dilemma. The Prisoner's Dilemma refers to a situation in which individuals' personal interests conflict with a common goal, causing players in a game to not cooperate, even though cooperation is in their best interests.

In the first place, we will outline the basic elements of game theory and analyze the Prisoner's Dilemma from a purely abstract perspective. Then, we'll dive into specific components of Themis DAO. In fact, Themis DAO is a complex protocol that deserves a deep and thorough analysis.

3.1 Prisoner's Dilemma

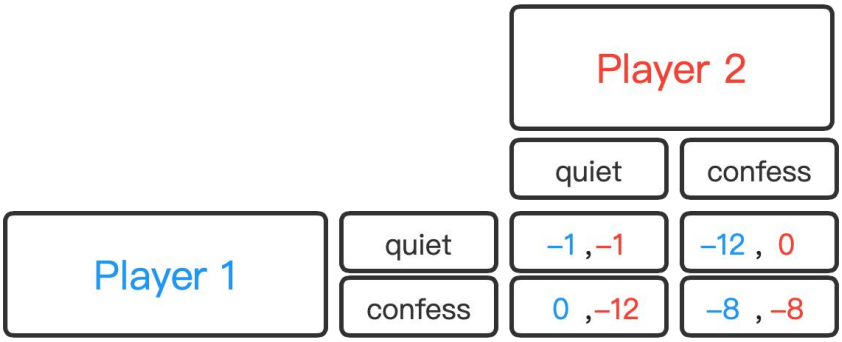
The first game a game theory student learns is the Prisoner's Dilemma, because it's a simple game that works in a variety of strategic situations. Once you see and understand it, you will see it everywhere.

The story follows two thieves who plan to rob a store and as they approach the door, police arrest them for trespassing. Police suspect the couple planned to rob the store, but they lack evidence to prove it. As a result, they asked for a confession to charge the suspect with a more serious crime. The interrogator separates the suspects and tells them:

"We charged you with trespassing, which will put you in jail for a month. I know you intended to rob the store, but I cannot prove it without your testimony. If you confess to me now, I will dismiss your trespassing charge, set you free. Your friend will be charged with attempted robbery and face 12 months in prison. I'm offering the same deal to your friend. If you both plead guilty, your personal testimony will no longer be valuable, which means you will both be sentenced to 8 months in prison. "

Both players are self-serving and want to minimize jail time. What should they do?

The return matrix allows us to condense all the information into an easy-to-analyze graph:



Player 1's available strategies are rows (silence or confession), and their corresponding payoff is the first number in each cell. Player 2's available strategies are columns, and their corresponding payoff is the second number in the cell.

The blue number is the income of player 1, and the red number is the income of player 2;

-1: Imprisonment for one month; -8: Imprisonment for 8 months; -12: Imprisonment for 12 months; 0: Acquittal;

****Assumptions and conclusions:**

• We assume that both players' preference is to minimize their jail time

• We assume that both players are selfish (ie they don't care about the fate of their friends)

• We assume only one interaction

• We assume players cannot interact and plan their reactions ahead of time

These assumptions lead to suboptimal outcomes in the game (confess, confess), i.e. (-8, -8). We can see that if both players stay silent, they will get less jail time, which is a precarious equilibrium. If both parties believe the other will remain silent, they will volunteer to confess.

Therefore, (confess, confess) is the only Nash equilibrium. A Nash Equilibrium is a state in a game where no player wants to deviate from their strategy given what the other players are doing.

However, if both players can cooperate with each other and keep quiet, they will achieve better results. This is an important conclusion because it shows us

that two people may not work together, even though this seems to be the best strategy for both parties.

How to break out of the Prisoner's Dilemma has important implications for the wider society and for Themis DAO. We are often told that in a capitalist economy, individuals only care about their own interests. Therefore, selfish and competitive behavior is the norm, but cooperation is actually the best way to win.

3.2 Explanation of Themis DAO Game Theory

In the simplest Themis mode, there are two players and three possible actions:

When the THS staking income increases, the THS price rises, and players are more willing to staking THS. Players are most likely to sell THS when they predict that staking yields will decrease and the price will drop. When players have not been significantly negatively affected and have no obvious inclination, they are more willing to buy bonds (bonds have discounts and there is room for arbitrage. Bond contracts in the third part of the white paper will elaborate on bond discounts).

Staking THS can push the price up by +2, and selling THS can push the price down by -2. Players who operate the THS band can get 50% of the income. Buying bonds without staking THS has no effect on price. The bond has a discount, so the profit is +1.

	stake	bond	sell
stake	(3, 3)	(1, 3)	(-1, 1)
bond	(3, 1)	(1, 1)	(-1, 1)
sell	(1, -1)	(1, -1)	(-3, -3)

It can be seen from the above table that the optimal strategy is two players cooperate, and the result of both parties' staking is 6. One buys the bond and the other stakings the result is 4. Sell/Staking, Sell/Buy bond mutual hedge is neutral 0. The worst outcome is two players distrusting each other and vying to sell, resulting in a -6.

Player behavior depends on premiums, market outlook, macro environment, and a host of other factors. There is also no need to take the numbers and positives and

negatives too seriously, because the table is just to show the positive environment created by cooperation.

Working together will produce the best results. If you're not going to stick with it for the long term, we recommend that you don't get involved. We don't need the kind of guy who sells BTC for $50,000 and buys it back for $30,000. Maybe the THS you hold is a better BTC.

4. Internal coordination theory applied to the Themis DAO protocol

The idea that internal coordination is as important as price coordination is implemented in the Themis DAO protocol. The ruleset of the Themis DAO protocol essentially has three aspects:

• Staking (internal coordination)

• Bonds (price coordination)

• Treasury (reserve)

This ruleset is governed by three main levers:

• Reward rate and APY (internal measure of internal coordination)

• Bond control variables (internal measure of price coordination)

• Premium over RFV (internally coordinated price measure, RFV: Risk-free value. This will be detailed in Part 3 of the White Paper: Introduction to Protocol Contracts)

Policy levers are the primary way that DAOs self-regulate irrational, runaway reflexivity under market conditions. Policy levers act as focal points, either offsetting or cooperating with external market forces to maintain internal productivity.

Staking (internal coordination): (3, 3) is a win-win situation where both players stake their THS tokens. In return for taking them out of circulation, stakers receive compound rewards based on the rate of return, which is controlled by the DAO's policy team. The focus of (3, 3) basically states that internal coordination—general protocol, positive-sum, cooperative behavior—is more economically productive than price coordination—zero-sum, competitive behavior. Internal coordination creates a demand synchronization that absorbs economic value proportional to network effects. Price coordination is also a win-win equilibrium, but the degree is lower than that of

internal coordination. Internal coordination is a generalization of economic demand, and price coordination is a generalization of economic supply.

Bonds (price coordination): (1,1) is also a win-win situation, but to a lesser extent. A bond is when a buyer buys THS tokens from the protocol at a price below the market price. The buyer offers another asset (stablecoin, LP token, etc.) to the protocol treasury in exchange for THS tokens. The discount is determined by market forces and bond control variables controlled by the policy team. The bond control variable sets a certain bond capacity or target limit for the majority of a given asset that the Treasury wishes to receive within a specified time. Bond sales approaching capacity limits will lead to a reduction in the bond's discount to ensure that the Treasury accumulates the appropriate amount. Price-coordinated equilibrium is a generalization of economic supply.

Treasury (reserve backing): The funds from the bond sale go into the Treasury Reserve, these are reserve assets that back the value of each THS token. Risk-free value (RFV) is a stablecoin quantity that supports each THS token minted and sold through a bond or reward distribution. For each THS token it mints into circulation, the treasury must contain this RFV amount of stablecoins. The market capitalization metrics backed by each token are backed by treasury reserves consisting of other treasury assets other than stablecoins, and thus may be more volatile.

4.1 Policy levers

Staking Reward Rate: This metric determines the amount of new THS minted for stakers; the percentage of THS staked determines the Annual Percentage Yield (APY); the bond sales volume and reward rate together determine the supply growth rate. Each minted THS token must be backed by a value-at-risk unit. The reward rate is combined with the percentage of the total supply of THS staked to arrive at APY. APY is the primary internal measure of internal coordination, and it is an inverse measure of the health of the DAO. When the DAO is doing well, APY will be lower because the reward rate will be lower (meaning the protocol has been around longer).

At the same time, there will be a high-stake percentage (meaning there is a long time), which means long-term internal confidence.

Bond Control Variable: This measure is partially controlled by the policy team to incentivize the precise treasury composition that the DAO wants. What kind of reserve assets DAO needs to consider in order to support the value of THS, such as liquidity provider assets and stable currency assets. Each asset has different reserve backing attributes that must be weighted in aggregate to achieve healthy growth and sufficiently stable reserve support. The bond control variable is an internal measure of external price coordination because it sets the discount rate for purchases directly from the protocol rather than from third-party market makers.

Premium over RFV: This is not a policy lever, but a market measure. The transaction value of each THS token is higher than the value of the stablecoins backing each token. That's a multiple, comparable to the price-to-earnings ratio familiar to value investors. Premium is an external/price measure of internal coordination. The reason why THS trades at a higher price than RFV is what external markets perceive as effective internal coordination of Themis DAO contributors. This external perception reflects investor confidence that THS will remain high, contributors will continue to work for the DAO, the protocol will continue to expand its network to form new partnerships, and demand for THS will continue to remain high Increase. Therefore, the premium relative to RFV is a measure of the DAO's economic productivity and its expected future cash flows, a measure that is set by the market rather than directly by the DAO's policy team, but can be influenced by policy levers.

5. How these mechanisms create an economic flywheel

This is an idealized prototype of an economic flywheel mechanism designed to teach rather than be precise in detail. It visually illustrates how the protocol self-regulates and adjusts the incentives of three main parties - market/bonds, stakers, DAO policy team. The model shows how implementation can generalize the

economic forces of supply and demand to complement or offset reflexivity in the market.

The combination of the reward rate and bond sales determines the supply inflation rate.

• Supply increases → price decrease

• Price drop → low premium

• Low premium → price increase (as price returns to standard multiple of RFV)

• Price rises → more bonds/sells

• More bonds/sells → higher APY

• Higher APY → more demand/staking (3, 3)

• More demand/staking → price increase

Why is this economic flywheel a virtuous circle?

The fundamental question of decentralized finance (DeFi) economics is: Where does the value creation in decentralized finance come from? What constitutes economic productivity in decentralized finance? What economic benefits does decentralized finance produce?

**The essential issues are:

a.) How to break the cycle of capital flow in DeFi?

b.) How to connect DeFi to the wider financial system?

c.) How to clarify the source of economic value in DeFi?

Only by answering these questions can decentralized finance become more than a degenerate art form, but elevated to the status of a legitimate, economically productive activity.

The treasury model of reserve assets or "protocol-owned liquidity" model (DeFi 2.0) initiated by Themis DAO gives the first answers to these questions through the risk-free value or intrinsic value familiar to traditional finance. Although it takes a different form in decentralized finance.

The basic value basis for creating a flywheel is internal coordination, which can be summarized as:

• Significant returns due to internal coordination (staking);

• Then price coordination (bonds) will pay off significantly;

• Treasury assets (income) will grow significantly;

• This ensures that internal coordination will pay off significantly.

This virtuous circle relies on internal coordination as the basis for economic productivity and within a given digital economy. A third element beyond supply and demand—internal coordination (generalization of demand)—allows DAOs to exercise policy levers and control the composition of the treasury to counteract the runaway irrational reflexivity of market forces. This leads investors to believe that THS staking will continue to be a profitable financial strategy. It is this third element that paradoxically breaks the vicious circle and sets the stage for a virtuous circle and substantive (rather than irrational) reflection that benefits the market. DAO has the ability to self-regulate and autonomous market conditions for themselves and the entire ecosystem of interdependent, interoperable protocols through internal coordination.

In order to have an adequate theory of economic productivity in the digital economy, we must have a good description and explanation of what internal coordination (3, 3) is, like economic productivity, and a good explanation of why it is better than Price coordination is more important (1, 1).

Created through internal coordination or entrepreneurship, the Themis DAO protocol is an innovation in the algorithmic stablecoin model. The algorithmic stablecoin model is essentially having an overcollateralized basket of reserve assets. It ensures that the stablecoin will maintain its peg to the US dollar by always correcting the market when the value is above or below its price peg. Themis DAO's innovation to this model is that instead of a stable currency, it creates a floating-price reserve asset backed by the value of a risk-free treasury asset, not pegged to the US dollar. Therefore, the price of THS can be higher than the risk-free value of its treasury-backed assets. This premium to risk-free value can be thought of as a measure of economic productivity in the digital economy.

Ⅲ. Introduction to the operating mechanism of the Themis DAO protocol

Themis DAO V1 is mainly composed of 6 main contracts, namely:

- Treasury contract
- Sales contract
- Bond contract
- Staking contract
- Time weighted average price contract
- Protocol contribution value contract

The above six contracts constitute the basic operation logic of Themis DAO V1.

1. Treasury contract

The treasury contract is a simple vault that holds all the funds collected by the protocol. For example, if a user buys USDT bonds, the USDT will be fully received by the treasury in exchange for the equivalent value of THS. The new THS will be minted based on the treasury's risk-free assets (RFV). (RFV will be detailed in the bond contract)

Total treasury assets: The total amount of various assets entering the treasury through bond sales, including the total value of USDT, THS-USDT LP, etc.

Total treasury risk-free assets: The total risk-free amount of various assets that enter the treasury through bond sales. Among them, USDT bond value = USDT bond no-risk value; LP bond total value > LP bond no-risk value.

Therefore, the total treasury assets may decline with the decline in the price of THS, but the total treasury risk-free assets show a unilateral upward trend.

Themis DAO V1 sets each THS minting to be backed by a treasury risk-free asset of $1. More THS will be minted as risk-free assets in the treasury increase.

2. Sales contract

According to the treasury contract, the minting of each THS is anchored at 1 USDT. When 1THS>1USDT, the protocol will add and sell THS; when

1THS<1USDT, the protocol will buy back THS. It is mainly anchored through an inflationary or deflationary model. At the same time, the Themis DAO protocol can benefit from whether the THS price is higher than 1USDT or lower than 1USDT. The protocol will give 90% of the profit to the stakers of THS (the staking contract will be described in detail), and 10% will be allocated to the Themis DAO .

The THS additional issuance and repo equations are as follows:

Increase: epochMint = (TWAP–IV) *supply * ICV * Discount

Recycle: epochBurn = (TWAP – IV) * supply * DCV * Discount

TWAP: time-weighted average price; IV: THS support price; supply: treasury risk-free capital increment;

ICV: inflation coefficient value; DCV: deflation coefficient value; Discount: Discount (The increase in treasury risk-free funds relies on bond sales, and bond sales have discounts. Bond contract will be introduced in detail)

When 1THS>1USDT, or 1THS<1USDT, the Themis DAO sales contract takes effect, and the protocol will issue or repurchase THS. Users can buy or sell THS to the protocol.

The Themis DAO protocol checks to see if the latest epoch has ended, and each epoch has a period of about 7.5 hours. If it ends, the protocol will send a transaction request (additional issue or repo) to Themis DAO's treasury based on the TWAP price of THS.

If the protocol does not have enough THS or USDT to satisfy the user's transaction, the remaining transaction will be completed through the THS DEX pool.

3. Bond contract

Themis DAO mainly sells two types of bonds: liquid bonds and reserve bonds.

3.1 Liquid bond sales

The process of Themis DAO V1 users using THS-USDT LP to trade with the Themis DAO protocol is called buying liquid bonds. The protocol gains the ownership of the LP, and the user loses the ownership of the LP. As compensation, users will buy more THS tokens at the transaction price.

If users want to buy liquid bonds, they first need to add THS-USDT trading pair liquidity to obtain LP tokens, and then use LP tokens to buy liquid bonds.

The protocol obtains the ownership of the LP, and the protocol calculates the risk-free value (RFV) of the LP. The RFV of LP is measured in THS quantity.

RFV=(LP/Total LP)*2sqrt(Constant Product)

{Constant Product is the constant product of this LP}

The protocol then calculates the executing price of the bond, and the executing price is measured by the amount of THS.

Executing Price=RFV/Premium

{Premium≥1}

Among them, Premium is the bond premium. The premium is determined by the total system debt and a scaling variable that links the price of the bond to the number of bonds outstanding (each bond has a 5-day exercise period).

Premium=1+(Debt Ratio*BCV)

Debt Ratio=Bonds Outstanding/THS Supply

{BCV is the inflation rate adjustable by the protocol}

{Bonds Outstanding: number of bonds outstanding}

Liquid bonds give users a corresponding percentage of discount, that is, users have a corresponding percentage of ROI when they buy bonds. The bigger the discount, the higher the rate of return. The bonds have an exercise period of 5 days. After the exercise period ends, the user gets THS tokens, and this process is irreversible.

$$\text{ROI} = \frac{\text{THS transaction price} * \text{Executing Price}}{\text{LP actual price}} - 1 = \frac{\textit{THS transaction price} * \textit{RFV}}{\textit{LP actual price} * \textit{Premium}} - 1$$

Bonds outstanding determine the bond premium. The fewer bonds outstanding, the lower the bond premium. The higher the bond executing price, the higher the return rate (higher discount) for the user to purchase the bond, and the stronger the user's motivation to purchase the bond.

****The benefits of the large sales volume of liquid bonds to the protocol:**

1) Permanently lock a large amount of liquidity in the THS-USDT trading pair;

2) THS-USDT liquidity is positively correlated with THS price;

3) The higher the liquid bond premium, the lower the bond discount;

4) Increase the treasury balance sheet by assessing the LP's free value at risk. Any time the equilibrium value is greater than 1$, it means that THS has an inherent support price of 1USDT;

5) The liquid bond exercise period is 5 days, and the guarantee protocol can distribute profits to users who staking THS.

****The "problem" of liquid bond sales:**

Users use THS-USDT LP to buy liquid bonds, LP is owned by the treasury, and the treasury believes that the value of LP is very different from the market price of LP. The treasury mints THS against the acquired LPs while ensuring that it has sufficient funds to support the THS. Therefore, the treasury evaluates the LP to its minimum value, which is the Risk-Free Value (RFV) described above.

The higher the premium, the larger the gap between market value and risk-free value. For example, if an LP consists of 10THS and 1000USDT (market value is $2000), and the LP ratio is 100%, then the risk-free value of the LP is 200THS. (2sqrt(10*1000)).

The existence of risk-free value brings the problem of THS minting volume. In the above example, the protocol requires $5 to mint a THS (the treasury received 1000USDT and minted 200THS), instead of minting at the support price of $1. This THS minting method is feasible if the protocol needs to lock in more liquidity. However, its efficiency of casting THS is relatively low, which cannot meet the market's rapidly growing demand for supply. Therefore, the protocol will sell reserve bonds to solve the "problem".

3.2 Reserve bond sales

Users use USDT to buy reserve bonds, and USDT is owned by the protocol. As compensation, users will get more THS tokens than the market buys. Reserve bonds give users a proportional discount, and the bonds have an exercise period of 5 days. After the exercise period ends, the user gets THS tokens, and this process is irreversible.

When users use USDT to buy reserve bonds, the protocol does not need to evaluate its risk-free value, and the protocol mints 100% of the THS according to the funds it receives. Going back to the previous example, LPs worth $2000 bought liquid bonds to mint 200THS, while USDT worth $2000 bought reserve bonds to mint 2000THS (THS support price $1).

The protocol supplements LP bonds through USDT bonds, and the protocol captures the full value of USDT bonds to significantly increase the amount of THS minting to meet the needs of market development.

3.3 Bond summary:

1) **Bonds do not rely on market data.** The bond market is self-regulating; bond prices are determined by the number of bonds remaining in the exercise period. When the number of outstanding bonds is small, the bond execution price is high and the bond unit price is low; otherwise, the execution price is low and the bond unit price is high. Market participants choose to buy bonds at what they think are reasonable prices, keeping the price of bonds in a constantly changing dynamic.

2) **Bonds delay the impact of new THS supply on the market.** THS becomes the user's disposable asset after 5 days from the bond property, thus expanding the distribution scope of the new THS supply. The sale of the bond creates a quick arbitrage opportunity (buying at a discount and selling to the pool), which will increase the volatility of the THS price.

3) Bonds require less management. Bond sales are designed at an protocol-controlled discount rate that needs to be high enough to attract buyers. The discount rate is also affected by the premium, so the Inflation Coefficient Value (BCV) is a parameter that needs to be micromanaged.

However, the discount on USDT bonds is more market-determined and requires less intervention.

4) **Bonds are a more market-driven way to achieve the goals of the protocol.** After USDT is exchanged into the treasury, the protocol mints new THS. The volume increases with the increase in the transaction price.

4. Staking contract

The logic of staking is relatively simple. Staking is the main source of revenue for users to participate in Themis DAO. It is designed by participants to reward Themis DAO consensus holders and THS token holders.

For participants, the best way is to hold THS for a long time. The protocol will automatically distribute and compound interest.

4.1 Staking and Unstaking

After entering the official website and selecting "staking", the participants will send the THS they hold into the staking contract, and at the same time they will get sTHS at a ratio of 1:1. sTHS is a credential for users to participate in staking, and it has no other purpose other than holding.

When the user releases the mortgage, they will send sTHS to the staking contract and get THS at a 1:1 ratio.

4.2 Rebase

The protocol allocates tokens directly to the staking contract without reclaiming sTHS, which will increase the ratio of THS to sTHS and cause the difference to be rebalanced.

Example: When there is 100,000THS staking and 100,000sTHS remains unsettled, the protocol will issue 1000THS as a staking reward per day. The protocol sends these THS into the staking contract. At this time, the staking contract has 101,000THS, and 100,000sTHS remains unsettled. The supply of sTHS will increase by 1000, or 1%, to reach the same number of THS and sTHS. Therefore, sTHS's rebase return on the day is 1%.

Themis DAO conducts a Rebase every 8 hours, that is, staking rewards are issued every 8 hours.

The protocol will distribute the profits to all stakingrs fairly through sTHS, and everyone will get the same percentage of profits. The protocol automatically compound interest, no staking is required to harvest, just keep staking.

5. Agreement contribution value contract

Themis DAO has added the protocol contribution value Scale Code, or SC for short, to the protocol, which is the BSC chain BEP20 token.

The Scale Code holds the weight of the scale for Themis to measure fairness and justice. In the Themis DAO protocol, the greater the user's contribution to the protocol, the more Scale Code rewards they get.

The user's staking THS principal can be unstaked at any time, and then sold or staking again. The income will be gradually released, and the release speed will be based on the user's agreement contribution value SC.

5.1 Destroy SC to accelerate the release of THS staking income

Users' released THS staking income can be withdrawn to the blockchain wallet at any time, sold or re-staking (re-staking has the same effect as the agreement's automatic compound interest). When the user increases the release speed, the corresponding amount of SC will be destroyed. The number of SCs that need to be consumed for different release speeds is shown in the following table:

SC	Release rate (day)
0	180
15	150
30	120
60	100
100	80
150	60
210	45
300	30

Remark:

The release rate is 150 days (level 2), and on this basis, destroying 15SC can increase the release rate to 120 days;

The release rate is 120 days (level 3), and on this basis, destroying 30SC can increase the release speed by 100 days;

.....

And so on.

5.2 THS single currency staking and staking invitation can obtain SC

1) THS single currency staking to obtain SC

If the amount of staking THS is less than 1000USDT, 0SC can be obtained every day;

If 1000USDT≤staking THS amount<2000USDT, 1SC can be obtained every day;

If 2000USDT≤staking THS amount<3000USDT, 2SC can be obtained every day;

If 3000USDT≤staking THS amount<4000USDT, 3SC can be obtained every day;

.....

And so on;

The upper limit of SC users can obtain by staking THS is 300. After reaching this value, the account cannot obtain SC by staking THS.

2) Staking invitation to obtain SC

User A is a valid user (the value of staking THS is more than 1000 USDT) and invites user B to staking THS

If B's staking THS amount is less than 1000USDT, A can get 0SC every day;

If 1000USDT≤B's stakingTHS amount <2000USDT, A can get 0.3SC per day;

If 2000USDT≤B's stakingTHS amount <3000USDT, A can get 0.6SC per day;

If 3000USDT≤B's stakingTHS amount <4000USDT, A can get 0.9SC per day;

.....

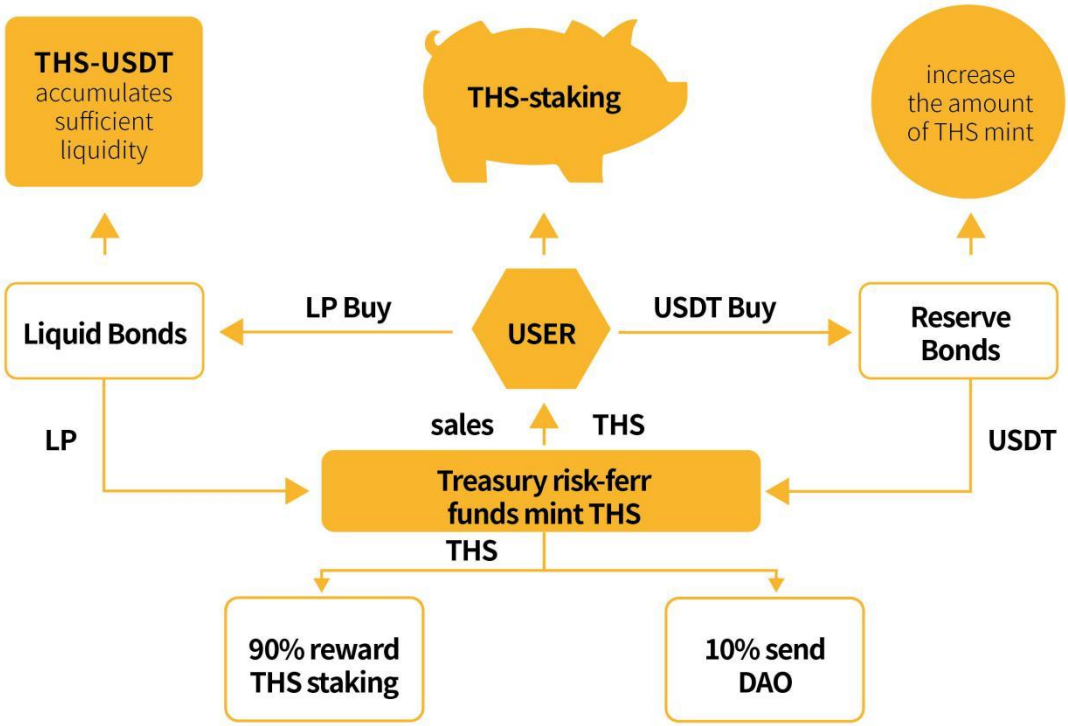
And so on;

User A can get up to 365 SCs due to user B staking.

5.3 Other uses of SC

In Themis DAO V1, the only purpose of SC is to accelerate the release of THS single currency staking income. In Themis DAO V2 and subsequent versions, the more SC you hold, the more contributions you will make to the protocol and community building, and you will receive airdrops of high-quality assets (Tokens and NFTs). At the same time, using SC can also cast NFT badges of different levels. NFT badges are a status symbol in the community. Holding the badge will enjoy a variety of benefits, and high-level NFT badge holders will be eligible to participate in the governance of the protocol.

6. Diagram of the operation mechanism of Themis DAO V1



Ⅳ. Initial Digital Assets Offering (IDO) of THS

The protocol wants Themis DAO to be owned and operated by its true contributors. The most powerful projects start with providing THS to community members. The protocol needs to raise funds to support the initial supply, and the liquidity mining output THS scheme is not adopted.

• A total of 360,000THS as the genesis supply of the protocol.

• Genesis provides THS usage: IDO, adding two pools of THS-USDT liquidity, angel investment and ecological construction. Among them, IDO sells a maximum of 180,000THS, and The initial liquidity is expected to be 100,000THS, and 80,000THS is reserved for angel investment and ecological construction.

• IDO time: April 2022.

• At the end of IDO, the agreement will deposit 360,000 USDT into the treasury for the creation of THS (each THS needs 1$ in the treasury).

• More IDO details will be announced through Themis DAO Official Twitter.

For IDOs, the protocol doesn't care how much money participants put in. Participants can use the funds when the transaction starts. The protocol prefers to sell the genesis supply to people who are genuinely interested in Themis DAO and willing to get involved, and wants to be widely broadcast and distributed among these people.

The one-time purchase of LP bonds by LPs with initial THS-USDT liquidity is a huge waste, and at the same time brings serious inflation of THS supply, which is harmful to the protocol. To avoid this situation, we purchase LP bonds in multiple batches. This will ensure that the initial APY of THS staking is > 10000% to start, and help the protocol to have APY > 8000% in 1~30 rebase.

V. Ecological construction plan of Themis DAO

1.A brief history of Token economic development

The blockchain and digital virtual economy are developing rapidly, and the Token economy is also constantly evolving. Token is produced from the original POW mechanism (represented by BTC). After that, the rise of ICOs. Backed by Ethereum smart contracts, new projects are starting to sell their tokens publicly. The closest to Themis DAO is LP liquidity mining under the DeFi1.0 mechanism. Through users providing liquidity to the pool, the protocol directly rewards Token.

The POW mechanism is still used in a small range, such as Filecoin, and ICO has basically been abandoned by the market. At this stage, most Token sales use the LP liquidity mining of the DeFi1.0 mechanism.

2.Dilemma faced by DeFi 1.0

LP liquidity mining has the same disadvantages as POW mining: mining output is a permanent expense with no ongoing benefits. LP liquidity mining is equivalent to leasing. In the initial stage, the leasing cost is high (large output * high currency price), and the protocol is easy to obtain liquidity. However, as the rental fee

decreases (lower output * lower currency price), it becomes more and more difficult to lease liquidity by the protocol, and then the protocol temporarily has less and less liquidity. The correct thinking should be to always lead and accumulate long-term controllable value, not to always pay high interest on hired capital, because high interest can never be sustained.

Bonds change everything. Through the bond mechanism, the protocol itself can exchange its native tokens for assets. Instead of leasing liquidity to third parties, it buys liquidity directly. Once the bond is established, the protocol owns the assets while allocating a new supply of tokens.

3.Themis DAO plays an important role in the Token economy

At its core, Themis DAO will be a professional services agreement, leveraging the bond mechanism to expand its reach and influence. We will provide our partners with infrastructure, expertise and exposure.

We will help partners to accumulate critical infrastructure liquidity through the sale of bonds, instead of leasing third-party liquidity as before, and then paying high leasing costs through liquidity mining. Ultimately, it helps partners to convert value-exhausted permanent expenditures into income-generating assets, so that partners can develop healthily and rapidly.

Themis DAO V2 and subsequent versions will be dedicated to providing personalized services to partners, providing partners with an integrated front-end solution. This will allow partners to quickly and easily create bonds and manage their positions on a familiar, unified user interface. Partners can spend less time driving token economics and more time building great products. Of course, the premise is that Themis DAO V1 is time-proven and healthy.

The bond mechanism is much more complicated than traditional liquidity mining. It is important that the project executes correctly and gets the job done correctly on the first try.

This is the key element of the partnership between partners and Themis DAO. The Themis DAO team has a Stuttgart professional blockchain technology team and

an experienced financial management team. Themis DAO will gain valuable experience in multiple explicit and countless implicit data during the operation of the protocol. These experiences will help partners achieve passive, self-regulating bond programs.

When Themis DAO incubates multiple high-quality projects, it will build a unified bond market with multiple protocols. The market will be the default destination for investors. This unified market of bonds will be as priceless as the value of being listed on an exchange.

The benefits of the Themis DAO protocol after completing the above goals:
(1) The agreed treasury obtains a handling fee of 3% for bond sales;
(2) Promote THS as a treasury asset and liquidity token for other protocols. Methods and steps: 1) Offer rebates to protocols that accumulate THS or THS-X LP; 2) Offer syndication opportunities to protocols that use THS as payment.

4.Themis DAO GameFi section launched

The first three months of Themis DAO's launch (March 2022 to May 2022) will focus on the DeFi 2.0 upgrade protocol to build communities, build consensus, and accumulate relatively sufficient treasury funds.

In June 2022, Themis DAO launched the GameFi section, and the high-quality P2E metaverse chain game is ready. The details of the game are commercial secrets. This white paper will not be released for the time being, hope to understand!

The protocol contribution value SC will assume the responsibility of the bridge between GameFi and the DeFi2.0 upgrade protocol. Users can use SC to cast game NFT roles and participate in games that earn while playing. In this way, the application value of SC will be comprehensively enhanced. The increase in SC value will feed back the DeFi 2.0 upgrade protocol, increase the enthusiasm of users to pledge THS, and further promote the establishment of Themis DAO consensus and community building.

5.Themis DAO treasury appreciation plan

Through the DeFi2.0 upgrade protocol and the development of the GameFi section, the Themis DAO community will establish a stronger consensus, and the treasury will also accumulate sufficient funds (expected to reach 200 million US dollars).

1. In the GameFi section, land NFT is sold, and part of the funds obtained from land NFT leasing is injected into the treasury.

2. As the current hot spot in the blockchain field, Themis DAO will build on GameFi at the right time to establish a fully functional NFT trading market that integrates one price, free auction, and Dutch style. Based on the development team With the advantages of NFT underlying protocol research and development, the NFT trading market will have greater innovation. THS will also serve as the governance token of the NFT trading market, and most of the NFT trading market fees will be injected into the Themis DAO treasury.

3. When Themis DAO treasury has sufficient funds, the stablecoin lending agreement will be launched, and the fee income of stablecoin lending will also be injected into the treasury.

6.The construction plan of Themis DEX

(1) The agreement continues to increase the amount of risk-free funds in the Canadian treasury through the sale of liquid bonds and reserve bonds. Sufficient treasury funds will first purchase mainstream digital assets, and establish a mainstream digital asset and stable currency trading pool.

(2) As 10% THS of DAO income, it will be used for liquidity mining incentives in each pool in the future. The output of THS in each pool is determined by voting. The transaction fee for each pool is 0.3%, and the full amount will be rewarded to voting users.

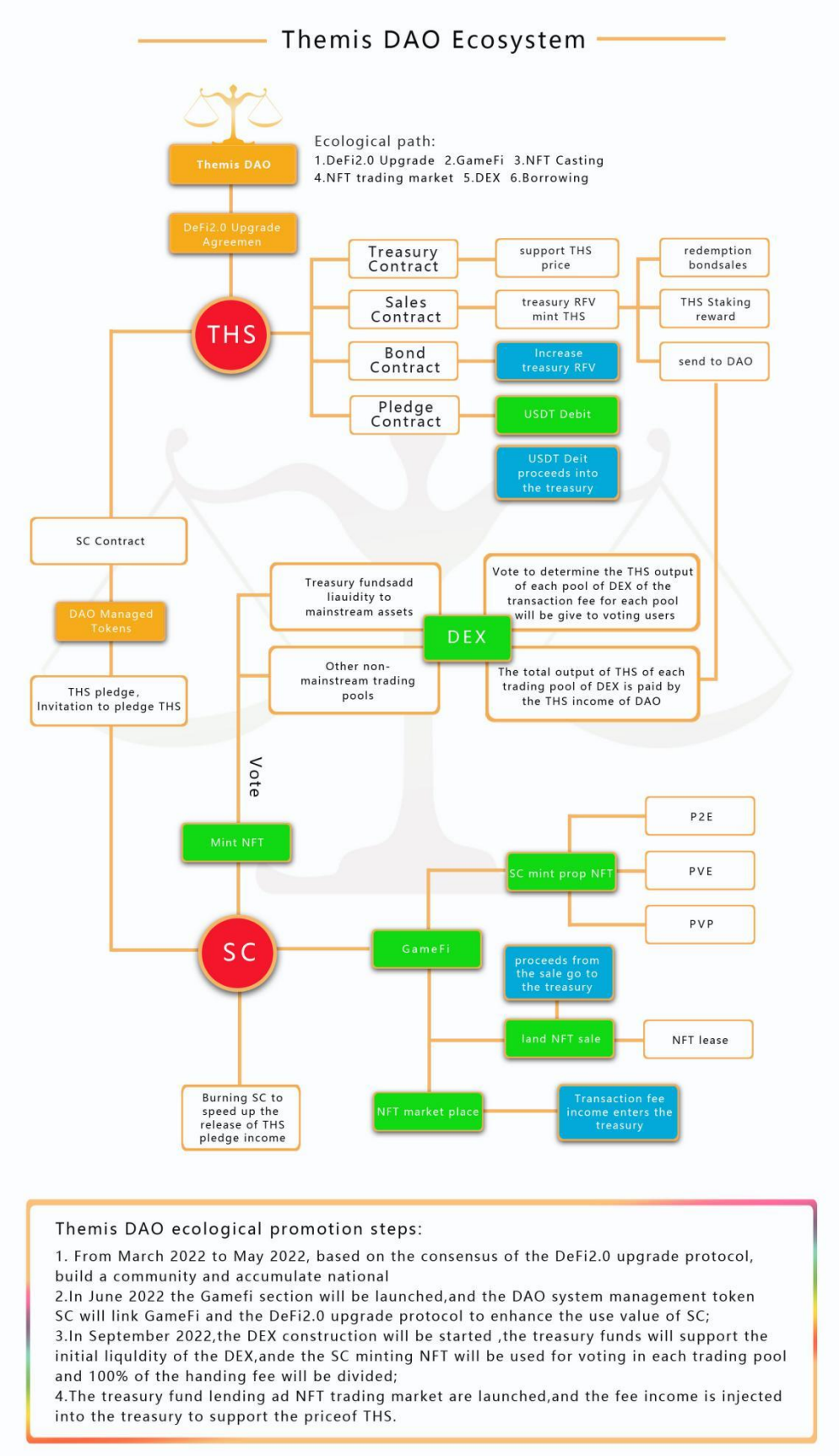
(3) Themis voting mechanism. Users can only use SC to mint the voting NFT, and vote for each pool. The more votes the pool has, the higher the THS output. The more users vote for a certain pool, the higher the transaction fee share obtained from the pool.

The NFT used for voting can be freely circulated, and the project party uses NFT to vote to obtain more THS output for the pool, and at the same time obtain a share of transaction fees. It not only ensures the benefits of LP providers, but also allows voters to self-optimize the entire protocol, thereby maximizing the benefits of the entire Themis DAO protocol.

7.Themis DAO

Themis DAO defines DAO as a decentralized investment institution and uses the DAO capital pool as an investment fund. All staking users can upload project information and obtain voting rights at the same time. After everyone votes, DAO invests. The investment income is distributed by all DAO members and the DAO fund pool, and a part can also be reserved for the repurchase of THS tokens. In this way, DAO will not become a consumption-only project, but a decentralized company organization that can benefit from the outside and continue to expand production.

8.Themis DAO Ecosystem diagram



Themis DAO ecological promotion steps:

1. From March 2022 to May 2022, based on the consensus of the DeFi2.0 upgrade protocol, build a community and accumulate national
2.In June 2022 the Gamefi section will be launched,and the DAO system management token SC will link GameFi and the DeFi2.0 upgrade protocol to enhance the use value of SC;
3.In September 2022,the DEX construction will be started ,the treasury funds will support the initial liquldity of the DEX,ande the SC minting NFT will be used for voting in each trading pool and 100% of the handing fee will be divided;
4.The treasury fund lending ad NFT trading market are launched,and the fee income is injected into the treasury to support the priceof THS.

VI. Themis DAO Roadmap

VII. Risks and disclaimers

1. The system of Themis DAO is experimental and has higher risks. Please don't invest more than you can afford, but invest with your spare funds. The economic models we design in theory have been rigorously actuated and are trustworthy. However, the results presented in actual operation cannot be guaranteed 100%. At least, Themis DAO is an interesting and valuable exploration.

2. If there is more supply of THS than its demand, everyone sells at the beginning of the transaction, and new demand does not come, then the price may be lower than the pre-sale price, or even lower than the floor price.

3. We have conducted thorough internal testing, but no formal audit has been conducted yet. We plan to complete the audit with PeckShield in February 2022. Once done, we'll add market operations. If this unaudited status doesn't work for you, wait until the audit is complete before participating.

4. All the logic and data ratios described in the white paper will be implemented 100% in principle, but if there is any fine-tuning during the actual operation of the protocol, please understand.