2021-03-SH-Hackathon-EN

1. Introduction

MyBank Network is an inclusive finance platform based on blockchain, which aims to establish a blockchain network that realizes asset accretion and promotes asset flow through the trust transmission of social networks. We try to maximize the transmission and meet users' lending and hedging needs by using the self-propagation attributes of social networks. We will integrate the advantages of blockchain, social networks, and collective governance to establish a brand-new distributed collective bank to improve the utilization rate of funds to realize inclusive finance.

MyBank is divided into Platform Network and Social Network Bank.

- In Platform Bank, users can participate as depositors, borrowers, and guarantors. Depositors can obtain deterministic returns by injecting liquidity into the corresponding asset pool. Borrowers can borrow through excess collateral, or invite guarantors to guarantee them to make zero-mortgage loans.
- In Social Network Bank, MyBank serves as an infrastructure platform by providing corresponding tools, so that any individual and organization can directly create a collective bank that belongs to all members of a certain social network based on the tools we provide.

1.1 Platform Network

Most DeFi lending products are based on the mortgage system. Users lend related assets from the asset pool through mortgage collateral. We try to go further on this basis. While providing mortgage lending services, we will release the liquidity of the depositor's assets exerts its social value, and provides zero mortgage loan services. Depositors can use their deposit vouchers to guarantee loans for friends, and friends can make zero mortgage loans on the platform based on

the guarantee vouchers. In the process of guarantee, the guarantor's deposit will continue to generate income, but at the same time help friends solve the problem of capital turnover.

In Platform Bank, each user will also maintain a social network, and the confirmation of the friend relationship needs to be confirmed by both parties. When a user has a loan demand and wants to choose a zero mortgage loan, he can send the loan event to his friend's inbox, and the friend can choose to respond to the event to guarantee him. After the guarantee is successful, the system will issue a loan to his friend, and the deposit voucher will be locked by the system but will not affect the income of the guarantor. Before the lender repays, unless the guarantor chooses to pay a certain amount of money to redeem the deposit voucher, his deposit will not be withdrawn.

1.2 Social Network Bank

At present, many loans around the world require assets such as housing, automobiles, and companies as collateral, or loans to people with high-income and stable jobs. However, in real life, many extremely poor people have little collateral and no fixed jobs. The lending services provided by the existing financial are difficult to cover these people. If this group of people needs loans to start their own businesses, they can only choose informal usury. The financing cost of the poor is much higher than that of the rich.

The richer you are, the more loans you can get, and the poorer you are, the fewer loans you can get. Under the current credit framework, the gap between the rich and the poor has been further widened. At present, the credit of most financial institutions is profit-oriented and based on the premise of distrust. We believe that this premise does not apply to all scenarios. Because the loan is everyone's basic right, credit is equal to trust, and a lending relationship is established under the premise of mutual trust. Banks do not necessarily have to be profit-making commercial institutions. Banks can serve as a bridge to help their users create more value beyond finance.

Based on such a concept, we will provide users with digital infrastructure and governance tools to help users build their own collective "trust" banks. Combining the advantages of blockchain, social network, and collective governance to establish a new credit mechanism, so that any

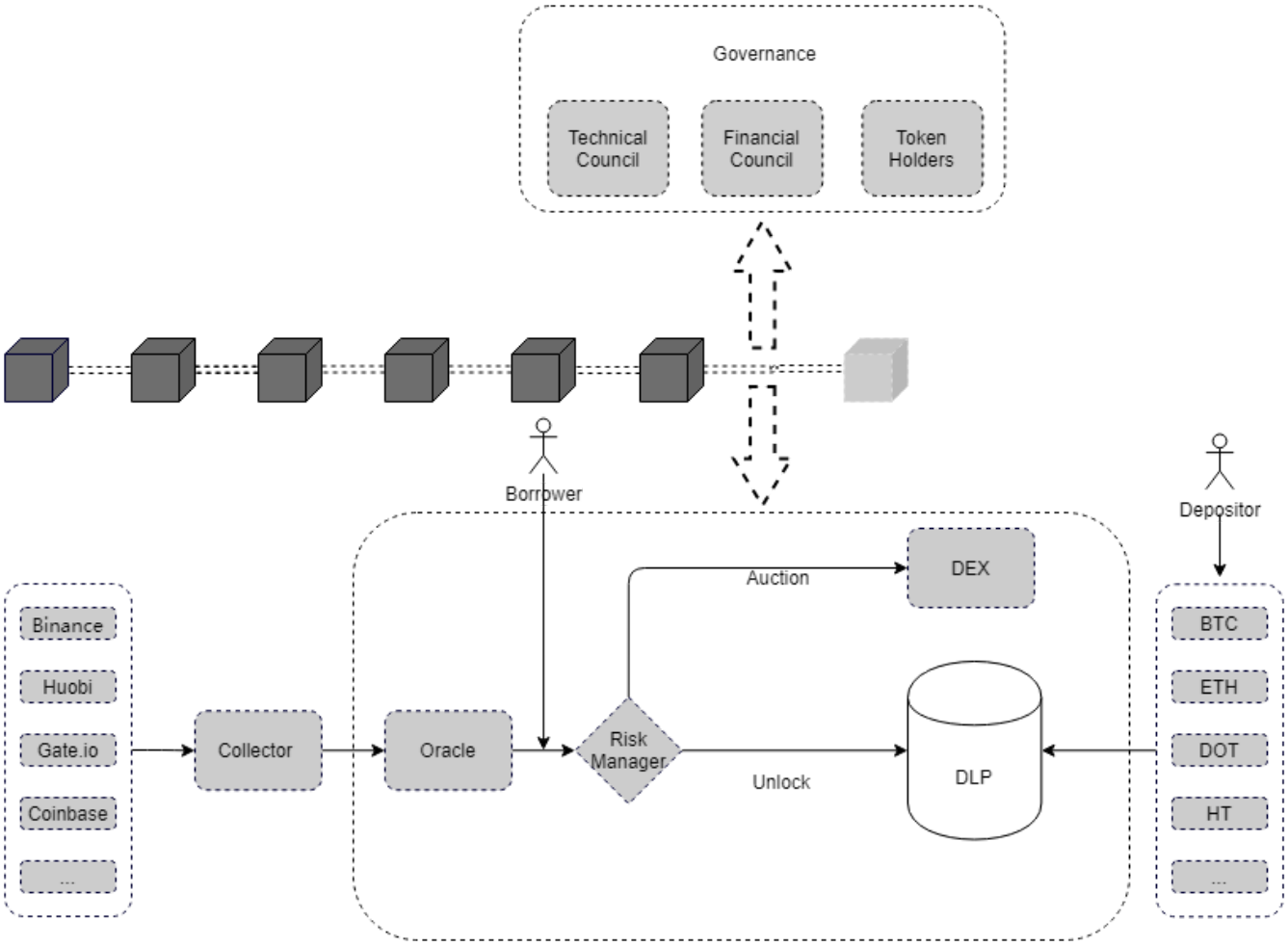
individual can enjoy the convenience brought by finance with dignity through his bank at a fair and reasonable interest rate when he needs loans.

Each bank corresponds to a real social network. The members of the bank have direct social connections in real life and know each other better than external third-party institutions. Each member is a shareholder of the bank and needs to fulfill relevant obligations while enjoying rights. The management of the bank will be decided by all members, and the governance method will become more transparent based on the blockchain.

Members can provide deposits to the bank, deposits can be put into channels such as Platform Bank to generate deterministic benefits, the more deposits, the greater the contribution to the bank. The deposit contribution will always be recorded on the chain and cannot be tampered, and the depositor gains not only wealth but also reputation. The deposit records contributed by members are visible to other members, and in the future when they need loans, loan applications will be easier to pass.

Repayment of a loan will leave a record on the chain, and the borrower has a greater chance of obtaining a larger loan in the future, indirectly encouraging users to gradually accumulate their credit records. Honest behaviors and defaulted behaviors will always be recorded on the chain. Based on the external constraints of social networks, the default will affect the reputation of individuals. Borrowers will not be able to obtain loans at the bank in the future or it will become more difficult to borrow. Loans can be created on joint and several liabilities. If a person fails to repay the loan, the credit history of the member who guarantees or votes for him will also be affected. It may be regarded as a default, so the lender's friends have extra motivation to help the lender when repaying the loan is hard for the lender.

2. Platform Bank Design



2.1 Risk Management

PB supports multi-currency digital assets as collateral for loans or guarantees. Each type of asset corresponds to different risk parameters according to its risk coefficient. The system will adjust the risk parameters according to the market's risk coefficient and volatility. MB holders can hold a referendum on the adjustment of the parameters, and the proposal passed by the referendum will be automatically executed by substrate runtime.

- **Liquidation Ratio** Each loan (whether mortgage loan or guaranteed loan) that occurs in the PB will correspond to a collateral-to-debit ratio. Each type of collateral will set the corresponding liquidation ratio according to its market value and volatility. The system will monitor the collateral-to-debit ratio of each loan. Once the collateral-to-debit ratio is lower than the liquidation ratio, liquidation will be triggered, and the system will place the

collateral on a decentralized exchange for auction to repay debts. Assets with greater risk factors usually correspond to a larger liquidation ratio and vice versa.

- **Interest Rates** Determine the annual rate of return of depositors, the borrowing cost of lenders, and the scale of the asset pool, and at the same time affect the risk of the system. The loan interest rate and deposit interest rate will dynamically change according to supply and demand, reaching a balance point between income and risk. We will discuss the interest rate model in detail in the next section.
- **Insurance Fund** MyBank has set aside a part of MB Token as an insurance fund. When the Black Swan incident leads to unexpected situations such as the auction of collateral that is still insufficient to repay debts, MyBank will take out part of the assets from the insurance fund to compensate depositors for losses.
- **Reserve Factor** MyBank will charge a certain percentage of handling fees to depositors. In response to extreme situations such as hacker attacks or large fluctuations in currency prices, this part of the funds will be combined with insurance funds to avoid users who provide liquidity to the asset pool suffer losses.

2.2 Interest Rates Model

Lenders and borrowers do not need to negotiate interest rates and related terms. PB asset pools will automatically match deposit and loan events. Interest rates are determined by supply and demand and find a balance between increasing the scale of the asset pool and preventing systemic risks.

2.2.1 Lending Rates

The formula for the loan interest rate is as follows. When the utilization rate of the asset pool is low, users will be encouraged to lend through low-interest rates. When the utilization rate of the asset pool is high, the interest rate will increase to encourage users to repay loans while attracting depositors to provide liquidity to the asset pool through higher yields. Each asset pool will set a critical point, and the loan interest rate will increase faster after the utilization rate of the asset pool exceeds the critical point.

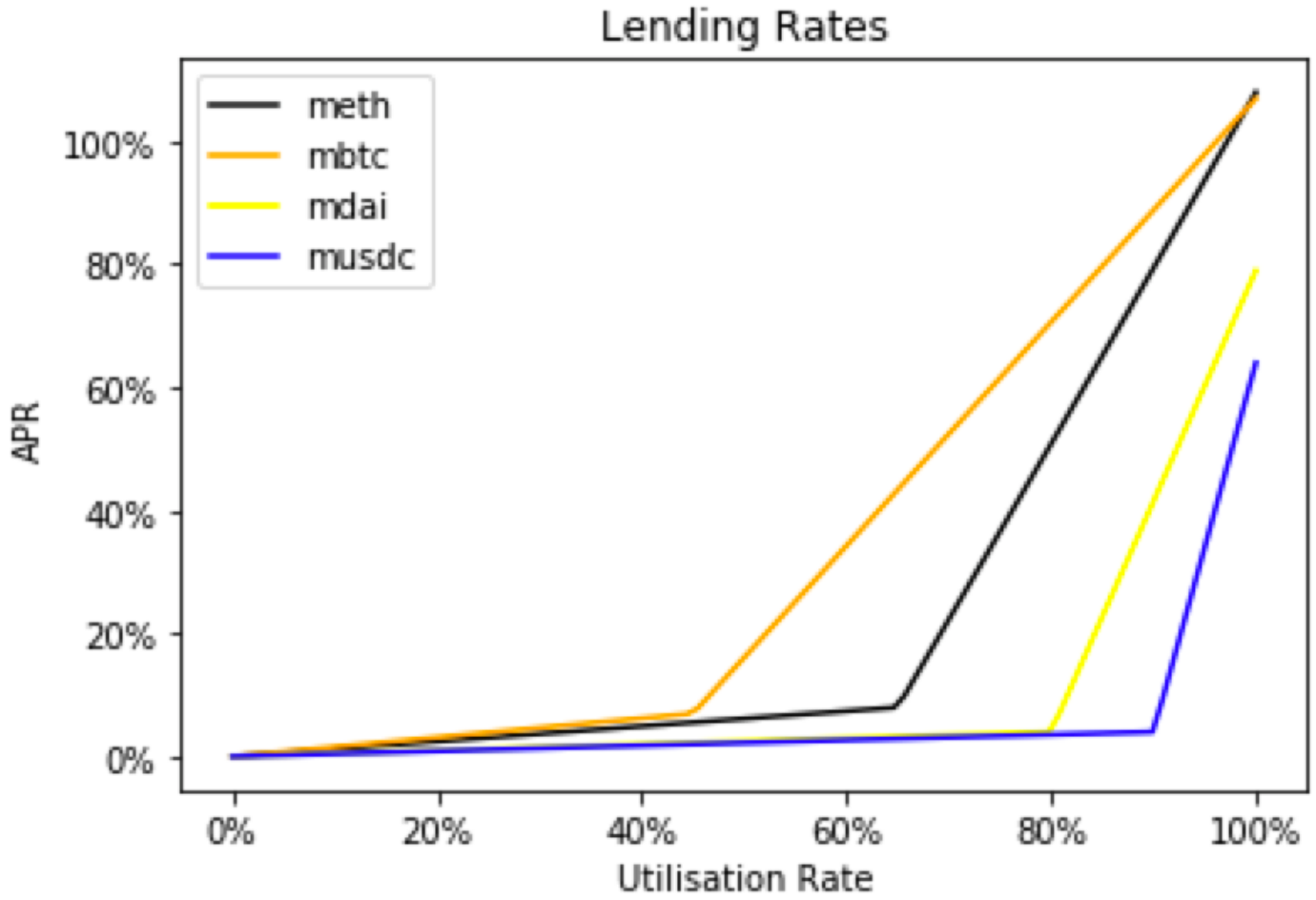
$$
\begin{aligned}
&\text{if } U < U_{\text{transition}}: \quad R_t = \frac{U_t}{U_{\text{transition}}} R_{\text{slope1}} \\
&\text{if } U \geq U_{\text{transition}}: \quad R_t = R_{\text{slope1}} + \frac{U_t - U_{\text{transition}}}{1 - U_{\text{transition}}} R_{\text{slope2}}
\end{aligned}
$$

$$\text{When } U < U_{\text{transition}} \text{ the borrow interest rates increase slowly with utilisation}$$

$$\text{When } U >= U_{\text{transition}} \text{ the borrow interest rates increase sharply with utilisation}$$

Each asset will set different parameters according to its risk coefficient. The lower the price volatility of the asset, the higher the critical point and the lower the borrowing interest rate.

Assert	$U_{\text{transition}}$	R_{slope1}	R_{slope2}
meth	65%	8%	100%
mbtc	45%	7%	100%
Mother	80%	4%	75%
musdc	90%	4%	60%



2.2.2 Deposit Rates

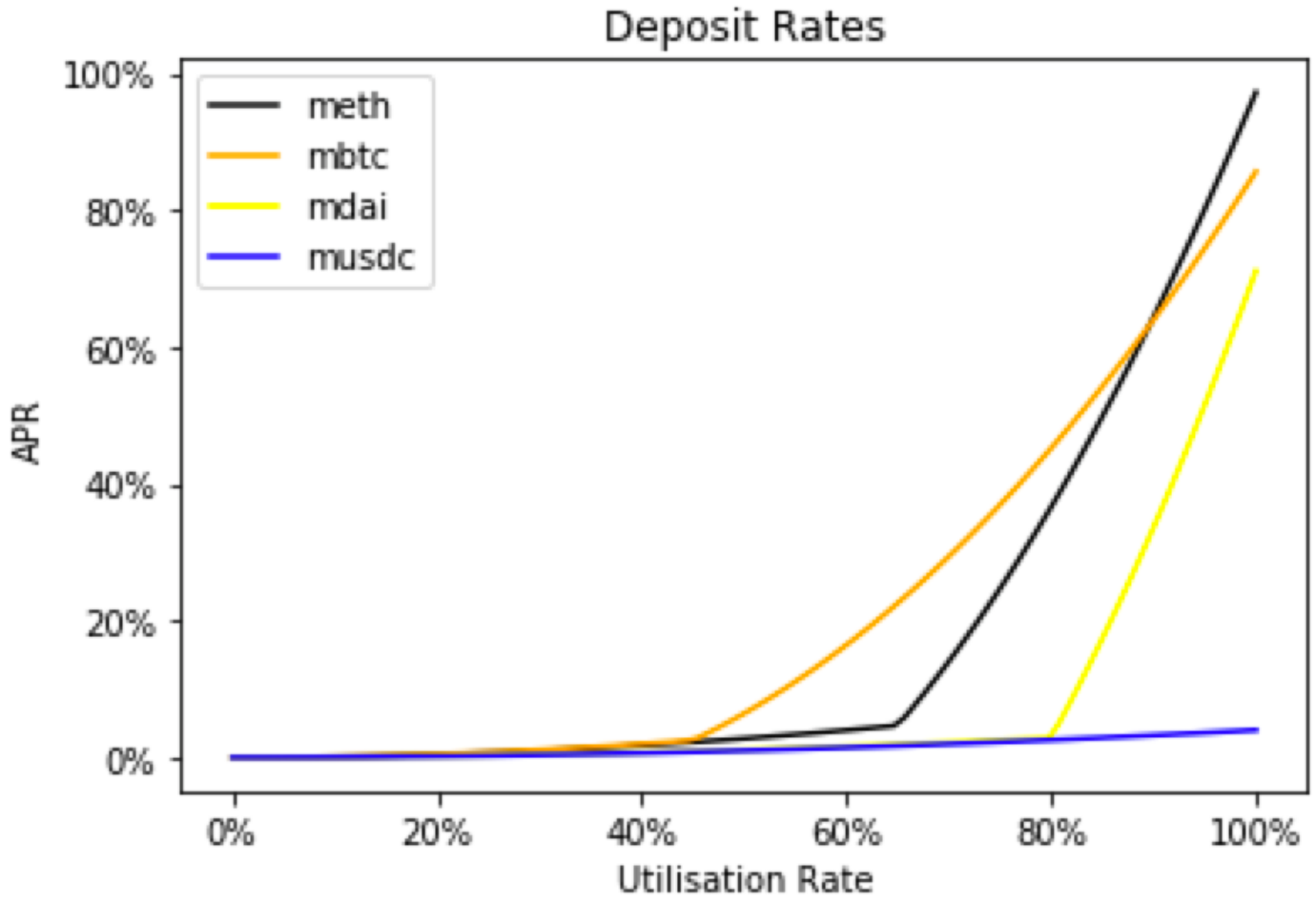
The deposit interest rate formula is shown below. The depositor's income depends on the utilization rate of the asset pool. The higher the utilization rate, the higher the income. To deal with possible hacker attacks and black swan incidents in the future, MyBank will set aside a portion of the income to be allocated to the stability fund as a reserve, and the reserve ratio is controlled by the reserve factor.

$$D_t = U_t\left(V_t\right)\left(1 - R_t\right)$$

- $D_t,$ the The deposit APY
- $U_t,$ the utilisation ratio

- V_t, the lending rate
- R_t , the reserve factor

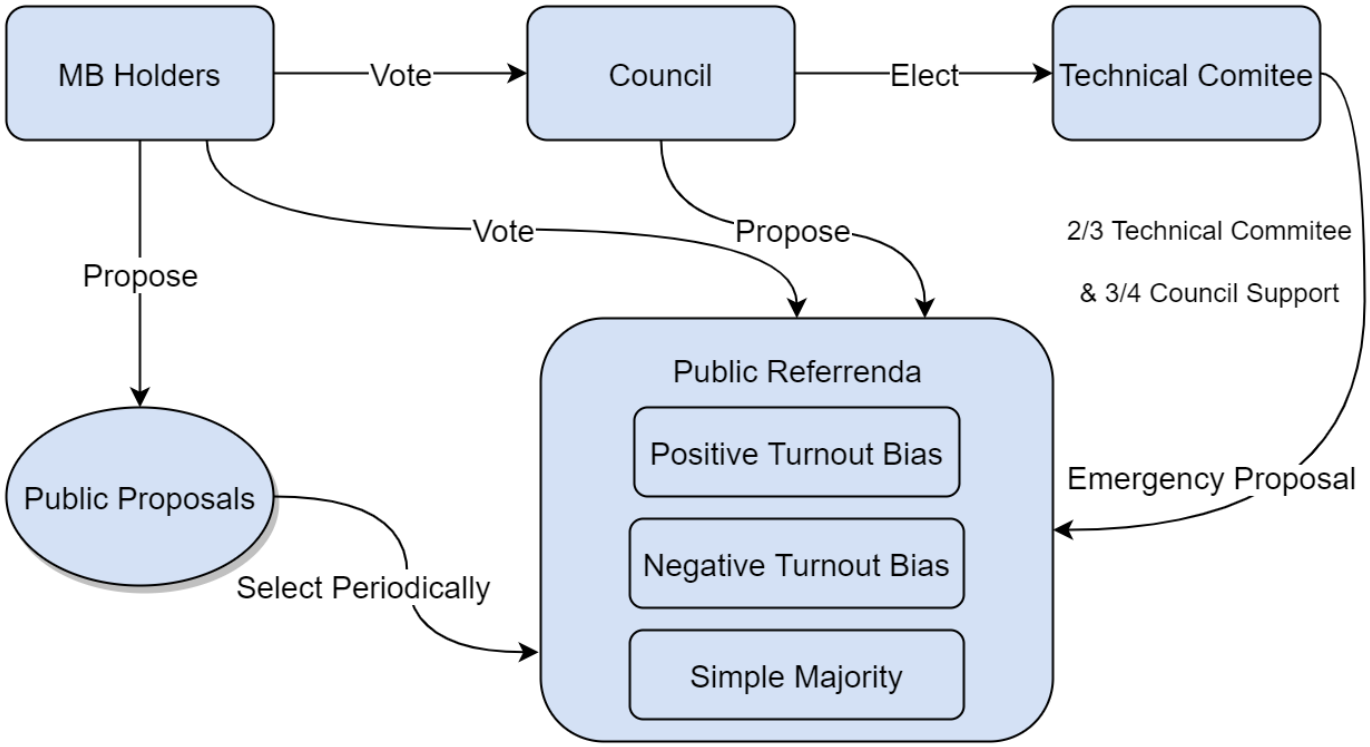
The following figure shows the corresponding relationship between the annualized return rate of the four asset pools of meth (reserve factor 0.1), mbtc (reserve factor 0.2), mdai (reserve factor 0.1) and musdc (reserve factor 0.1), and the overall utilization rate of the asset pool.



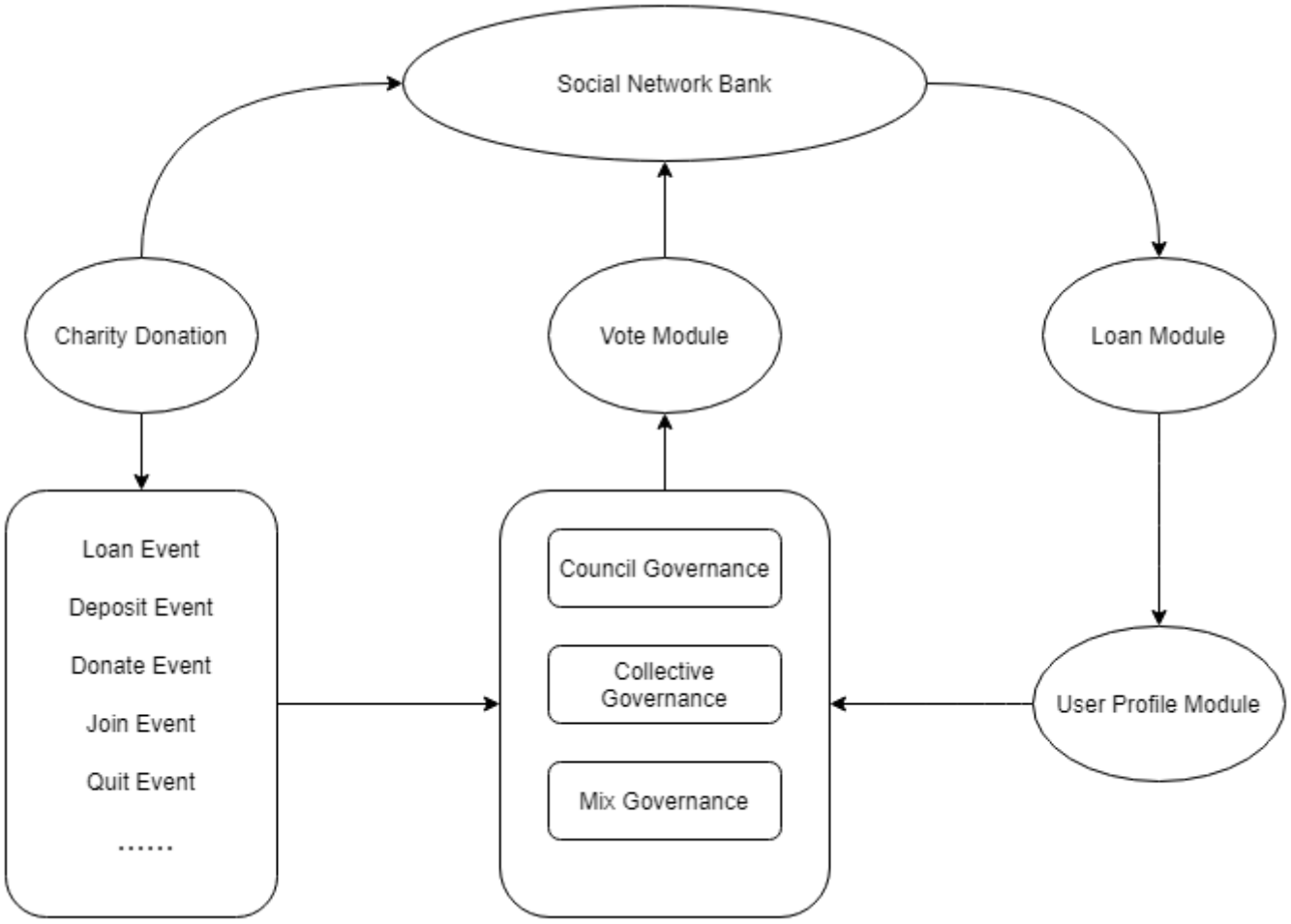
2.3 Governance

Platform Bank will be jointly managed by all MB Token holders, who can initiate a referendum on Network upgrade and adjustment of risk parameters. In the test network phase, the development team will have the authority to upgrade the code and adjust the parameters. As the project gradually stabilizes, the Sudo module will be deleted, and Platform Bank will not be controlled by any centralized organization.

There will be three roles in MyBank: MB Holder, Council, and Technical Committee. Each of MB Holder can initiates a proposal by pledging a certain amount of MB. If other users want to support the proposal, they will pledge the same number of tokens to vote for it. Only one proposal is allowed to enter the queue in each cycle, and the proposal with the highest number of votes will enter the queue first and the Council will decide whether to execute it.



3. Social Network Bank Design



In Social Network Bank, we position ourselves as an infrastructure technology provider. We will provide a series of basic modules. Any organization or individual will directly build a digital bank of their own by combining these modules.

The bank is owned by all users, and the governance of digital banks built on the blockchain will become more transparent. Users can define the bank's governance rules by themselves, and the savings they absorb can be freely used on the premise of complying with the governance rules, and MyBank will not make any intervention. The governance organization can choose to put the funds into the asset pool to generate wealth management income, or it can choose to lend them to internal members for interest. When deciding whether to issue loans to users, the collective or committee can combine the user's historical contribution, credit rating, and other factors to make decisions.

Everyone can act as a financial intermediary in MyBank, the power of collective governance and social networks will be further released, so that finance can truly serve the public, everyone has

the opportunity to get start-up funds to realize self-employment and promote the utilization of funds to release individual labor value. The governance and risk assessment of each bank will be the responsibility of all users of the bank. As a bank based on social networks, members have real social relationships under the chain.

3.1 Governance

MyBank abstracts the user's needs into corresponding events, and the event is decided by the collective or committee. For example, when a member initiates a loan event, basic information such as the reason for the loan, the purpose of the loan, the amount of the loan, the loan interest rate, and the loan duration will be stated. The application will be reviewed by the bank's internal governance organization.

Users can choose the bank's governance method by themselves. Users can elect a committee. The senator is elected by all members, and all members also have the right to initiate a referendum to revoke a senator. The management of the bank will be fully represented by the committee, and each event needs to reach a certain proportion of the scenarios to agree before it can executed. Events approved by the committee can be automatically executed or executed after a while. During this period, if a others vote against the proposal, the event will be automatically removed. Members can vote to determine the remuneration that the committee members can receive. The scenarios can choose to pledge a certain amount of assets to obtain more nomination votes. If the senators commit acts that harm the interests of other members of the bank, others can initiate a referendum to confiscate the pledged assets.

Users can also choose collective governance, and each event needs the voting pass rate of all members to reach a set value before it can be executed. Or users can combine the advantages of committee governance and collective governance, and find a balance between efficiency and democracy. For example, loan events require collective decision-making, and deposit events can be decided by the committee.

Different types of events correspond to different voting pass rates, and the same type of events will also correspond to different voting pass rates. For example, the minimum voting rate for new members joining events is x%, and the minimum voting rate for loan events is y%. The same type of events can be classified twice. For example, for loan events, when the loan amount

is less than n, it is a type of loan event that requires more than y% of the voting rate, and when it is greater than n, it requires more than z% of the voting rate. After the governance rules are written on the chain, the event will be automatically executed under the governance rules. If you need to update the governance rules, you need to propose a referendum.

In addition to providing basic technical facilities, MyBank will launch a series of management and finance courses to improve users' comprehensive skills and share the successful experiences of excellent banks on the platform. Everyone is an untapped treasure, and there is a lot of potentials that have not been released. Banks belong to all members and are closely related to everyone's interests and reputation. Participating in the governance of banks is both a right and an obligation. Under such a mechanism, the collective power will be magnified and new things will be created.

4. Currenct Progress

We started to form a team to conceive the product at the end of February 2021. The formal development began at the beginning of March, and the first version of the white paper has been completed to determine the basic route of the product. The core code of the lending module has been written, and the front end is undergoing relevant adaptation.

5. Question & Solution

Income & Debit Caculation

In Platform Bank funds, the deposit interest rate and loan interest rate are linked to the utilization rate of the asset pool, and the utilization rate of the asset pool is dynamically changing, so the income of the depositor and the debt of the lender are also dynamically changing. If every time the utilization rate of the asset pool changes, we update the accounts of each depositor and lender, and this workload is very heavy. Therefore, we give up the method of real-time update, but dynamically link the user's deposit and debt and interest rate, and the loan interest rate of each asset pool only needs to be calculated once in each block, and this calculation result will be automatically transmitted to each user.

Oracle & DEX & Cross Chain Bridge

The liquidation process in Platform Bank needs to obtain real-time quotes for assets and collateral of the asset pool to evaluate whether the pledge ratio of users has reached liquidation ratio, which needs to rely on Oracle and DEX. At the same time, we plan to support assets such as BTC and ERC-20 in the MyBank ecosystem, which needs to rely on related bridges. We don't want to repeat the wheel building. We want to focus on the lending business. We will wait for related projects to stabilize and cooperate with them.

Privacy Protection

In Social Network, we want the data of each collective bank to be invisible to non-bank members. Currently, we are exploring how to implement this based on Polkadot and Substrate.

6. Plan

MyBank is developed based on Substrate and will be deployed as a parachain of Polkadot. MyBank is mainly divided into two parts, one is Platform Bank and the other is Social Network Bank.

Platform Bank's main business is on-chain lending. The project is positioned to provide users with basic lending services. While supporting mortgage lending, we will develop zero-mortgage secured lending products based on social networks. We plan to complete the development of the core code in April and will also start to form our community. Users will be able to enjoy lending services in early May.

Social Network Bank is positioned as an inclusive finance platform and is committed to enabling more people to enjoy the convenience brought by finance through blockchain technology. The target users are not limited to groups who know blockchain technology. MyBank, as a technology provider, will develop a series of basic modules. Any user can directly launch his digital bank through a combination of these modules on the MyBank website. The governance of the bank will be decided by the user. In addition to providing technical support, we will also launch relevant courses and activities to help users improve their comprehension skills and better manage the bank. At the same time, we will also support users' banks with relevant charities to jointly solve the current poverty problem.

6.1 RoadMap

2021 Q1

- Finish Whitepaper
- Launch Official Website
- Implement Base Loan Module

2021 Q2

- Optimize Liquidation and Interest Rate Module
- Build Community
- Finish Governance Module
- Develop Social Network Bank
- Launch Testnet

2021 Q3

- PLO & Auction Polkadot SLOT
- Launch Mainnet