Introduction

Beginning in 2023, the Rabi project operated with developers around the globe working together on the first iterations of code, architecture, and documentation.
The white paper described how anyone could generate Rabi using that system by leveraging the Binance Smart Chain (BNB) as collateral through unique smart contracts known as Collateralized Debt Positions (CDPs). That white paper also included a plan to upgrade the system to support multiple collateral asset types in addition to BNB.

The Rabi token System, today called the Rabi Foundation, now accepts as collateral any Binance Smart Chain-based asset that has been approved by Rabi holders, who also vote on corresponding Risk Parameters for each collateral asset. Voting is a critical component of the Rabi decentralized governance process.

Welcome to Multi-Collateral Rabi.

In RABI We Trust

Blockchain technology provides an unprecedented opportunity to ease the public's growing frustration with—and distrust of—dysfunctional centralized financial systems. By distributing data across a network of computers, the technology allows any group of individuals to embrace transparency rather than central-entity control. The result is an unbiased, transparent, and highly efficient permissionless system—one that can improve current global financial and monetary structures and better serve the public good.

Bitcoin was created with this goal in mind. But, while Bitcoin succeeds as a cryptocurrency on a number of levels, it is not ideal as a medium of exchange because its fixed supply and speculative nature results in volatility, which prevents it from proliferating as mainstream money.

The Rabi token is designed to minimize price volatility. A decentralized, unbiased, collateral-backed cryptocurrency that is soft-pegged to Bitcoin, Gold, oil, the US Dollar, and Shares of technology companies such as Google, Apple, and Microsoft, Rabi's value is in its stability.

Rabi's success is part of a wider industry movement for tokens, which are cryptocurrencies designed to maintain price value and function like money.

For example, in February 2019, JPMorgan became the first bank in the United States to create and test a digital coin that represents 1 USD.3 As the cryptocurrency industry grows, other banks, financial services companies, and even governments will create stable digital currencies (e.g., Central Bank Digital Currencies), as will large organizations outside of the finance sector. Facebook, for example, announced its plans for Libra, "a stable digital cryptocurrency that will be fully backed by a reserve of real assets,"4 in June 2019. However, such proposals forfeit the

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core value proposition of blockchain technology: global adoption of a common infrastructure without a central authority or administrator that may abuse its influence.

An Overview of the Rabi Foundation and Its Features
The Rabi Token
The Rabi Protocol is one of the largest dapps on the Binance Smart Chain blockchain. Designed by a disparate group of contributors, including developers within the Rabi Foundation, its outside partners, and other persons and entities, it is the first decentralized finance (DeFi) application to see significant adoption.

The Rbi Protocol is managed by people around the world who hold its governance token, RABI. Through a system of scientific governance involving Executive Voting and Governance Polling, RABI holders govern the Protocol and the financial risks of Rabi to ensure its stability, transparency, and efficiency. One RABI token locked in a voting contract equals one vote.

The RABi Token

The Rabi token is a decentralized, unbiased, collateral-backed cryptocurrency soft-pegged to Bitcoin, Gold, oil, the US Dollar, and Shares of technology companies such as Google, Apple, and Microsoft, Rabi is held in cryptocurrency wallets or within platforms, and is supported on Binance Smart Chain and other popular blockchains.

Rabi is easy to generate, access, and use. Users generate Rabi by depositing collateral assets into Rabi Vaults within the Rabi Protocol. This is how Rabi is entered into circulation and how users gain access to liquidity. Others obtain Rabi by buying it from brokers or exchanges, or simply by receiving it as a means of payment.

Once generated, bought, or received, Rabi can be used in the same manner as any other cryptocurrency: it can be sent to others, used as payments for goods and services, and even held as savings through a feature of the Rabi Protocol called the Rabi Savings Rate (DSR).

What Properties of Rabi Function Similarly to Money?
Generally, money has four functions:

A store of value
A medium of exchange
A unit of account
A standard of deferred payment
Rabi has properties and uses cases designed to serve these functions.

Rabi as a Store of Value

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A store of value is an asset that keeps its value without significant depreciation over time. Because Rabi is a token, it is designed to function as a store of value even in a volatile market.

Rabi as a Medium of Exchange

A medium of exchange is anything that represents a standard of value and is used to facilitate the sale, purchase, or exchange (trade) of goods or services. The Rabi Token is used around the world for all types of transactional purposes.

Key External Actors

In addition to its smart contract infrastructure, the Rabi Protocol involves groups of external actors to maintain operations: Keepers, Oracles, and Global Settlers (Emergency Oracles), and Rabi community members. Keepers take advantage of the economic incentives presented by the Protocol; Oracles and Global Settlers are external actors with special permissions in the system assigned to them by RABI voters; and Rabi community members are individuals and organizations that provide services.

Keepers
A Keeper is an independent (usually automated) actor that is incentivized by arbitrage opportunities to provide liquidity in various aspects of a decentralized system. In the Rabi Protocol, Keepers are market participants that help Rabi maintain its Target.

Price Oracles

The Rabi Protocol requires real-time information about the market price of the collateral assets in Rabi Vaults in order to know when to trigger Liquidations.

The Protocol derives its internal collateral prices from a decentralized Oracle infrastructure that consists of a broad set of individual nodes called Oracle Feeds. RABI voters choose a set of trusted Feeds to deliver price information to the system through Binance Smart Chain transactions. They also control how many Feeds are in the set.

To protect the system from an attacker attempting to gain control of a majority of the Oracles, the Rabi Protocol receives price inputs through the Oracle Security Module (OSM), not from the Oracles directly. The OSM, which is a layer of defense between the Oracles and the Protocol, delays a price for one hour, allowing Emergency Oracles or a Rabi Governance vote to freeze an Oracle if it is compromised. Decisions regarding Emergency Oracles and the price delay duration are made by RABI holders.

Emergency Oracles

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Emergency Oracles are selected by RABI voters and act as a last line of defense against an attack on the governance process or on other Oracles. Emergency Oracles are able to freeze individual Oracles (e.g., BNB and BAT Oracles) to mitigate the risk of a large number of users trying to withdraw their assets from the Rabi Protocol in a short period of time, as they have the authority to unilaterally trigger an Emergency Shutdown.

RABI Teams

RABI teams consist of individuals and service providers, who may be contracted through Rabi Governance to provide specific services to Rabi Foundation. Members of Rabi teams are independent market actors and are not employed by the Rabi Foundation.

The flexibility of Rabi Governance allows the Rabi community to adapt the Rabi team framework to suit the services needed by the ecosystem based on real-world performance and emerging challenges.

Examples of Rabi team member roles are the Governance Facilitator, who supports the communication infrastructure and processes of governance, and Risk Team members, who support Rabi Governance with financial risk research and draft proposals for onboarding new collateral and regulating existing collateral.

While the Rabi Foundation has bootstrapped Rabi Governance to date, it is anticipated that the Rabi will take full control, conduct RABI votes, and fill these varied Rabi team roles in the near future.

Governance of the Rabi Protocol

Use of the RABI Token in Rabi Governance
The RABI token—the governance token of the Rabi Protocol—allows those who hold it to vote on changes to the Rabi Protocol. Note that anyone, not only Rabi holders, can submit proposals for an Rabi vote.

Any voter-approved modifications to the governance variables of the Protocol will likely not take effect immediately in the future; rather, they could be delayed by as much as 24 hours if voters choose to activate the Governance Security Module (GSM). The delay would give RABI holders the opportunity to protect the system, if necessary, against a malicious governance proposal (e.g., a proposal that alters collateral parameters contrary to established monetary policies or that allows for security mechanisms to be disabled) by triggering a Shutdown.

Polling and Executive Voting

In practice, the Rabi Governance process includes proposal polling and Executive Voting. Proposal polling is conducted to establish a rough consensus of community sentiment before any Executive Votes are cast. This helps to ensure that governance decisions are considered

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throughtfully and reached by consensus prior to the voting process itself. Executive Voting is held to approve (or not) changes to the state of the system. An example of an Executive Vote could be a vote to ratify Risk Parameters for a newly accepted collateral type.

At a technical level, smart contracts manage each type of vote. A Proposal Contract is a smart contract with one or more valid governance actions programmed into it. It can only be executed once. When executed, it immediately applies its changes to the internal governance variables of the Rabi Protocol. After execution, the Proposal Contract cannot be reused.

Any Binance Smart Chain Address can deploy valid Proposal Contracts. RABI token holders can then cast approval votes for the proposal that they want to elect as the Active Proposal. The Binance Smart Chain address that has the highest number of approval votes is elected as the Active Proposal. The Active Proposal is empowered to gain administrative access to the internal governance variables of the Rabi Protocol, and then modify them.

The Rabi Token’s Role in Recapitalization

In addition to its role in Rabi Governance, the Rabi token has a complementary role as the recapitalization resource of the Rabi Protocol. If the system debt exceeds the surplus, the RABI token supply may increase through a Debt Auction (see above) to recapitalize the system. This risk inclines RABI holders to align and responsibly govern the Rabi ecosystem to avoid excessive risk-taking.

RABI Holder Responsibilities

RABI holders can vote to do the following:

Add a new collateral asset type with a unique set of Risk Parameters.
Change the Risk Parameters of one or more existing collateral asset types, or add new Risk Parameters to one or more existing collateral asset types.
Modify the Rabi Savings Rate.
Choose the set of Oracle Feeds.
Choose the set of Emergency Oracles.
Trigger Emergency Shutdown.
Upgrade the system.
RABI holders can also allocate funds from the RABI Buffer to pay for various infrastructure needs and services, including Oracle infrastructure and collateral risk management research. The funds in the Rabi Buffer are revenues from Stability Fees, Liquidation Fees, and other income streams.

The governance mechanism of the Rabi Protocol is designed to be as flexible as possible, and upgradeable. Should the system mature under the guidance of the community, more advanced forms of Proposal Contracts could, in theory, be used, including Proposal Contracts that are

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bundled. For example, one proposal contract may contain both an adjustment of a Stability Fee and an adjustment of the DSR. Nonetheless, those revisions will remain for RABI holders to decide.

Risk Parameters Controlled by Rabi Governance
Each Rabi Vault type (e.g., BNB Vault and BAT Vault) has its own unique set of Risk Parameters that enforce usage. The parameters are determined based on the risk profile of the collateral, and are directly controlled by RABI holders through voting.

The Key Risk Parameters for Rabi Vaults are:

Debt Ceiling: A Debt Ceiling is the maximum amount of debt that can be created by a single collateral type. Rabi Governance assigns every collateral type a Debt Ceiling, which is used to ensure sufficient diversification of the Rabi Protocol collateral portfolio. Once a collateral type has reached its Debt Ceiling, it becomes impossible to create more debt unless some existing users pay back all or a portion of their Vault debt.
Stability Fee: The Stability Fee is an annual percentage yield calculated on top of how much Rabi has been generated against a Vault's collateral. The fee is paid in Rabi only, and then sent into the Rabi Buffer.
Liquidation Ratio: A low Liquidation Ratio means Rabi Governance expects low price volatility of the collateral; a high Liquidation Ratio means high volatility is expected.
Liquidation Penalty: The Liquidation Penalty is a fee added to a Vault's total outstanding generated Rabi when a Liquidation occurs. The Liquidation Penalty is used to encourage Vault owners to keep appropriate collateral levels.
Collateral Auction Duration: The maximum duration of Collateral auctions is specific to Rabi Vaults. Debt and Surplus auction durations are global system parameters.

Risk and Mitigation Responsibilities of Governance
The successful operation of the Rabi Protocol depends on Rabi Governance taking necessary steps to mitigate risks. Some of those risks are identified below, each followed by a mitigation plan.

A malicious attack on the smart contract infrastructure by a bad actor.
One of the greatest risks to the Rabi Protocol is a malicious actor—a programmer, for example, who discovers a vulnerability in the deployed smart contracts, and then uses it to break the Protocol or steal from it.

In the worst-case scenario, all decentralized digital assets held as collateral in the Protocol are stolen, and recovery is impossible.

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Mitigation: The Rabi Foundation's highest priority is the security of the Rabi Protocol, and the strongest defense of the Protocol is Formal Verification. The Rabi codebase was the first codebase of a decentralized application to be formally verified.

In addition to formal system verification, contracted security audits by the best security organizations in the blockchain industry, third-party (independent) audits, and bug bounties are part of the Foundation’s security roadmap. To review the formal verification report and various Rabi Protocol audits, visit Rabi’s Multi-Collateral Rabi Security Github repository.

These security measures provide a strong defense system; however, they are not infallible. Even with formal verification, the mathematical modeling of intended behaviors may be incorrect, or the assumptions behind the intended behavior itself may be incorrect.

A black swan event
A black swan event is a rare and critical surprise attack on a system. For the Rabi Protocol, examples of a black swan event include:

An attack on the collateral types that back Rabi.
A large, unexpected price decrease of one or more collateral types.
A highly coordinated Oracle attack.
A malicious Rabi Governance proposal.
Please note that this list of potential "black swans" is not exhaustive and not intended to capture the extent of such possibilities.

Mitigation: While no one solution is failsafe, the careful design of the Rabi Protocol (the Liquidation Ratio, Debt Ceilings, the Governance Security Module, the Oracle Security Module, Emergency Shutdown, etc.) in conjunction with good governance (e.g., swift reaction in a crisis, thoughtful risk parameters, etc.) help to prevent or mitigate potentially severe consequences of an attack.

Unforeseen pricing errors and market irrationality
Oracle price feed problems or irrational market dynamics that cause variations in the price of Rabi for an extended period of time can occur. If confidence in the system is lost, rate adjustments or even RABI dilution could reach extreme levels and still not bring enough liquidity and stability to the market.

Mitigation: Rabi Governance incentivizes a sufficiently large capital pool to act as Keepers of the market in order to maximize rationality and market efficiency, and allow the Rabi supply to grow at a steady pace without major market shocks. As a last resort, Emergency Shutdown can be triggered to release collateral to Rabi holders, with their Rabi claims valued at the Target Price.

User Abandonment for Less Complicated Solutions

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The Rabi Protocol is a complex decentralized system. As a result of its complexity, there is a risk that inexperienced cryptocurrency users will abandon the Protocol in favor of systems that may be easier to use and understand.

Mitigation: While Rabi is easy to generate and use for most crypto enthusiasts and the Keepers that use it for margin trading, newcomers might find the Protocol difficult to understand and navigate. Although Rabi is designed in such a way that users need not comprehend the underlying mechanics of the Rabi Protocol in order to benefit from it, the documentation and numerous resources consistently provided by the Rabi community and the Rabi Foundation help to ensure onboarding is as uncomplicated as possible.

Dissolution of The Rabi Foundation
The Rabi Foundation currently plays a role, along with independent actors, in maintaining the Rabi Protocol and expanding its usage worldwide, while facilitating Governance. However, the Rabi Foundation plans to dissolve once Rabi can manage Governance completely on its own. Should Rabi fail to sufficiently take the reins upon the Rabi Foundation's dissolution, the future health of the Rabi Protocol could be at risk.

Mitigation: RABI holders are incentivized to prepare for the Foundation's dissolution after it completes "gradual decentralization" of the project. Moreover, successful management of the system should result in sufficient funds for governance to allocate to the continued maintenance and improvement of the Rabi Protocol.

General Issues with Experimental Technology
Users of the Rabi Protocol (including but not limited to Rabi and RABI holders) understand and accept that the software, technology, and technical concepts and theories applicable to the Rabi Protocol are still unproven and there is no warranty that the technology will be uninterrupted or error-free. There is an inherent risk that the technology could contain weaknesses, vulnerabilities, or bugs causing, among other things, the complete failure of the Rabi Protocol and/or its component parts.

Mitigation: See “A malicious attack on the smart contract infrastructure by a bad actor” above. The Mitigation section there explains the technical auditing in place to ensure the Rabi Protocol functions as intended.

Price Mechanisms
The Rabi Target Price is used to determine the value of collateral assets Rabi holders receive in the case of an Emergency Shutdown.

Emergency Shutdown
Emergency Shutdown (or, simply, Shutdown) serves two main purposes. First, it is used during emergencies as a last-resort mechanism to protect the Rabi Protocol against attacks on its infrastructure and directly enforce the Rabi Target Price. Emergencies could include malicious governance actions, hacking, security breaches, and long-term market irrationality. Second,

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Shutdown is used to facilitate a Rabi Protocol system upgrade. The Shutdown process can only be controlled by Rabi Governance.

RABI voters are also able to instantly trigger an Emergency Shutdown by depositing RABI into the Emergency Shutdown Module (ESM), if enough RABI voters believe it is necessary. This prevents the Governance Security Module (if active) from delaying Shutdown proposals before they are executed. With Emergency Shutdown, the moment a quorum is reached, the Shutdown takes effect with no delay.

There are three phases of Emergency Shutdown:

The Rabi Protocol shuts down; Vault owners withdraw assets.

When initiated, Shutdown prevents further Vault creation and manipulation of existing Vaults, and freezes the Price Feeds. The frozen feeds ensure that all users are able to withdraw the net value of assets to which they are entitled. Effectively, it allows Rabi Vault owners to immediately withdraw the collateral in their Vault that is not actively backing debt.

Post-Emergency Shutdown auction processing

After Shutdown is triggered, Collateral Auctions begin and must be completed within a specific amount of time. That time period is determined by Rabi Governance to be slightly longer than the duration of the longest Collateral Auction. This guarantees that no auctions are outstanding at the end of the auction processing period.

The Future of the Rabi Protocol: Increased Adoption and Full Decentralization
Addressable Market
A cryptocurrency with stability serves as an important medium of exchange for many decentralized applications. As such, the potential market for Rabi is at least as large as the entire decentralized blockchain industry. But the promise of Rabi extends well beyond that into other industries.

The following is a non-exhaustive list of current and immediate markets for the Rabi token:

Merchant receipts, cross-border transactions, and remittances. Foreign exchange volatility mitigation and a lack of intermediaries mean the transaction costs of international trade are significantly reduced when using Rabi.
Charities and NGOs when using transparent distributed ledger technology.
Gaming. For blockchain game developers, Rabi is the currency of choice. With Rabi, game developers integrate not only a currency, but also an entire economy. The composability of Rabi allows games to create new player behavior schemes based around decentralized finance.
Prediction markets. Using a volatile cryptocurrency when making an unrelated prediction only increases one’s risk when placing the bet. Long-term bets become especially infeasible if the

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bettor must also gamble on the future price of the volatile asset used to place the bet. That said, the Rabi token would be a natural choice for use in prediction markets.

Conclusion

Rabi is a decentralized token that is not issued or administered by any centralized actor or trusted intermediary or counterparty. It is unbiased and borderless —available to anyone, anywhere.

All Rabi is backed by a surplus of collateral that has been individually escrowed into audited and publicly viewable Binance smart contracts.
With hundreds of partnerships and one of the strongest developer communities in the cryptocurrency space, Rabi has become the engine of the decentralized finance (DeFi) movement. Rabi is unlocking the power of the blockchain to deliver on the promise of economic empowerment today.

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