



Reflexer Finance(RAI): Non-pegged Overcollateral Decentralized Stablecoin

Lawrence Lee

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Contact

-  @Mint_Ventures
-  Mint Ventures
-  info@mintventures.fund

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About the Author

Lawrence Lee

Researcher at Mint Ventures, specializing in tokenomics, DeFi, and infrastructure. Prior to his current role, he had 7 years of product-manager experience in Fintech. Lawrence graduated from the Shanghai University of Finance and Economics with an MIS bachelor's degree.



[@lawrence_lee](#)



lawrencelee@mintventures.fund

Preamble

As the SEC brings securities charges against BUSD and with Binance listed LQTY, the governance token of Liquity, a decentralized stablecoin protocol, the spotlight is once again on decentralized stablecoins.

Mint Ventures has long been focused on these rapidly evolving stablecoin protocols, offering timely and comprehensive coverage of notable projects such as [FRAX Finance: From Monetary System to DeFi Matrix](#), [Liquidity: The Emerging Stablecoin Protocol](#), [Angle Protocol: The Academic Stablecoin Rookie](#), [Celo: The Triple-A Outstanding Protocol in Decentralized Stablecoins](#), [The Rise of Terra: How to Build The Stablecoins Ecosystem](#) and [Is Luna a Ponzi Scheme or Not?](#)

Decentralized stablecoins continually face regulatory uncertainties akin to the Sword of Damocles, yet this is also a crucial driver of their growth. Mint Ventures has consistently monitored regulatory developments, assessing the opportunities and challenges facing decentralized stablecoins in research [With the Opportunity Brought by Regulation, Which Decentralized Stablecoin Will Stand Out?](#) and [Does Tornado Cash Sanction Warm-up Into a New Decentralized Stablecoins Spring?](#)

In this report, we turn our attention to Reflexer Finance, a standout decentralized and trustless stablecoin protocol featuring RAI, a stablecoin that operates independently from centralized currencies and even Federal Reserve.

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1. Key Insights

1.1 Core Investment Logic

RAI is one of the most decentralized stablecoins on Ethereum. Vitalik Buterin, the founder of Ethereum, has praised it as the pure “ideal type” of a collateralized automated stablecoin, backed by ETH only. Unpegged to any fiat currency, RAI boasts full decentralization, governance minimization, and a high degree of trustlessness.

Stablecoins have a solid business foundation and have seen impressive growth throughout the latest crypto cycle, outpacing the industry average. Decentralized stablecoins, like RAI, show even greater potential for development under the background of strict regulations on centralized stablecoins. They align more closely with the censorship-resistant and trustless ethos of the crypto world, despite being less established at present. RAI's unique attribute of not being pegged to any fiat currency sets it apart in the stablecoin protocols, shielding it from US regulation and the influence of the Federal Reserve's monetary policy.

1.2 Main Risks

RAI may have some potential risks:

- Product-Market Fit Risk: Users may show low acceptance for stablecoins that are not pegged to fiat currencies
- Marketing Challenges:
 - Relying solely on ETH as collateral could hinder RAI's adoption among users.
 - The governance minimization approach may limit the team's ability to introduce breakthroughs in operations.
 - The team has fewer breakthrough points in operations because of governance minimization

- With only 160,000 FLX tokens (worth less than \$2 million in market cap) reserved for protocol incentives, the incentives for further promotion could be insufficient.
- **Team Risks:** After the departure of co-founder Stefan, the team made little progress in use case expansion and marketing promotion over the past year.
- **Code Risk:** Despite its innovative mechanism, RAI's PID-based on-chain control system (Proportional-Integral-Derivative Controller, widely used for feedback control in industrial design) is unprecedented, which means risks should not be overlooked even though it has functioned securely for two years and undergone audits by trusted third parties.

1.3 Valuation

In terms of the price-to-sales (P/S) ratio, Reflexer's valuation is lower than that of Liquity, another fully decentralized stablecoin on Ethereum. However, when comparing the market cap of their stablecoins, the situation is reversed.

For more details, please refer to Section "4.2: Valuation"

2. The Overview of RAI

2.1 Project Scope

Developed and managed by Reflexer Labs, Reflexer Finance's one and only business is "stablecoin".

The core business process is straightforward: users overcollateralized ETH to mint the stablecoin RAI, paying a 2% annual interest to continue utilizing RAI. RAI holders can redeem ETH by paying back RAI and interest. Currently, FLX (RAI's governance token) holders oversee system governance, with a long-term goal of achieving the "governance-free" state.

Distinct from DAI and most other stablecoins, RAI is not pegged to any fiat or physical currency. Instead, the redemption price is automatically adjusted based on market supply and demand, with the objective of creating a "low volatility ETH-based asset." For more information, please refer to Section 2.3: Business of RAI.

2.2 The History and Roadmap of RAI

The milestones of Reflexer Finance:

2020.2	With the idea of improving on MakerDAO, Ameen Soleimani proposed the concept of Metacoin, the predecessor of Reflexer Finance, at the Ethereum Research Forum.
2020.4	MetaCartel Ventures Announced Investment in Reflexer Labs, the Development Team of Reflexer Finance.
2020.8	Announced a \$1.68 million seed funding round led by Paradigm.
2020.10.29	Proto RAI Beta version goes live on the Ethereum mainnet.
2020.11.24	Open Zeppelin completes the audit of Reflexer.
2021.2	Announced a \$4.14 million funding round led by Pantera and Lemniscap.
2021.2.17	RAI officially goes live on the Ethereum mainnet.
2021.2.22	The total locked ETH position exceeds 100,000 after RAI went live on the Ethereum mainnet for 5 days.
2021.3.1	Announced FLX's Tokenomics and use cases, as well as the retroactive airdrop program.
2021.4.1	Lending Protocol Cream announced support for RAI's supply and borrow.
2021.4.9	Lending protocol Rari announced support for RAI's supply and borrow.
2021.4.15	Token FLX officially launched.
2021.6.24	Lending protocol Aave announced support for RAI's supply and borrow.
2021.7	RAI bridge to Polygon.
2021.8.4	Coinbase announced to list RAI.
2021.8	RAI bridge to Fantom.
2021.9	RAI bridge to Avalanche.
2021.10	RAI bridge to Arbitrum.
2021.11.14	Chainlink Price Feed Announced to list RAI.
2021.11	RAI bridge to Optimism.
2022.2	The protocol began to add the integral parameter. (You can find more details in Section 2.3.1)

2022.3	The founder Stefan Ionescu announced his retirement from most of the company's affairs. He now serves as a consultant.
2022.5	Some contrasts upgraded to the “ungovernance” mechanism.
2022.12	Lending protocol Euler announced support for RAI's supply and borrow.

As RAI looks to the future, the project has set its sights on governance minimization, with plans to potentially add decentralized assets, like stETH, as collaterals. Vitalik Buterin recently wrote a post in the Reflexer Governance Forum, exploring [how RAI systems might safely support staked ETH](#).

2.3 Business of RAI

For stablecoins, the key to long-term success lies in establishing a robust core product mechanism. This entails a cohesive set of principles addressing supply control, liquidation, and bad loans handling. Notably, the swift collapse of algorithmic stablecoins like ESD/BAC and UST can be attributed to unsustainable core product mechanisms.

2.3.1 Supply Control Mechanism

For stablecoins and other currencies, supply control is of paramount importance in their designs. Market demand, with its unpredictable nature, can be manipulated through various incentives, but this has limited direct influence on the ultimate goal of price regulation. Consequently, the primary vehicle for achieving price stability is supply control. The ideal stablecoin protocol should develop a supply control mechanism that can flexibly respond to the market while consistently maintaining underlying stability.

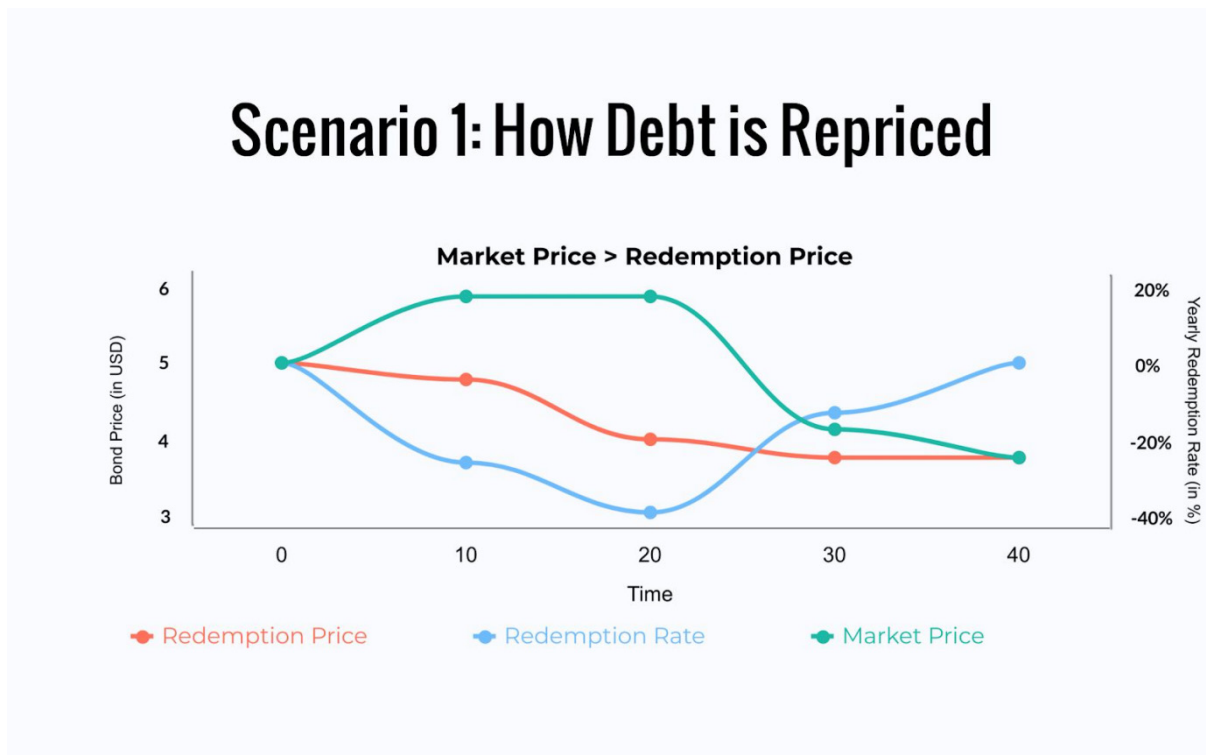
The Reflexer system allows users to mint RAI at the redemption price (target price for simplicity) at any time. And it also allows users to repay RAI and redeem the staked ETH at the system's redemption price at any time.

Reflexer's supply control hinges on its ability to adjust RAI's redemption price in response to market supply and demand imbalances. This incentivizes arbitrage, bringing the market price closer to the redemption price and establishing a new supply-demand equilibrium. RAI's initial redemption price was set at 3.14 (same as π) and is adjusted algorithmically based on market price fluctuations.

There are two roles in Reflexer's system: borrowers, who maintain a net liability in RAI, and lenders, who possess a net holding of RAI. Borrowers typically stake ETH to mint RAI, employing the newly-minted RAI for various purposes. As these users accrue RAI in debt, they must buy RAI from the open market to settle their obligations.

Reflexer strategically manages RAI supply by controlling redemption prices to impact the marginal behavior of borrowers and lenders.

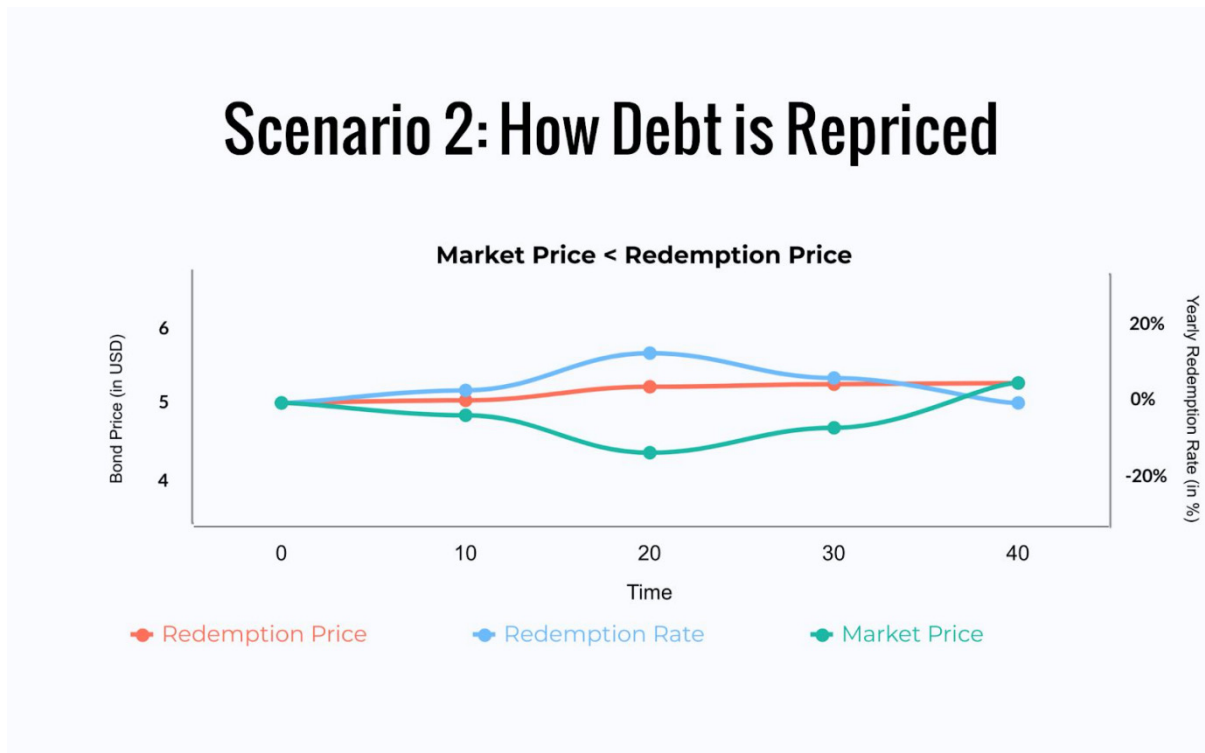
When the market demand for RAI is strong, driving up its price, the system autonomously decreases the redemption price. This widening gap between redemption and market prices encourages users to increase borrowing. Participants are then enticed to mint new RAI by staking ETH, subsequently selling RAI in the market for profit. This process bolsters RAI supply and tempers its market price, as illustrated in the diagram below:



Source: *RAI Whitepaper*

- 0- Initial state
- 10- The market price of RAI climbs (green line), surpassing the redemption price (red line). Arbitrageurs begin minting new RAI to sell on the market, and the system experiences a net minting redemption rate (blue line).
- 20- The system further decreases the RAI redemption price, expanding the arbitrage opportunity and enhancing the minting rate.
- 40- The system is back to equilibrium.

Conversely, when the market demand for RAI shrinks and its market price declines, the system reacts accordingly. It raises the redemption price of RAI, making it higher than the market price, prompting borrowers to repay their loans by purchasing RAI from the market. This action results in a reduced RAI supply and an increased market price, as illustrated in the following diagram:



Source: RAI Whitepaper

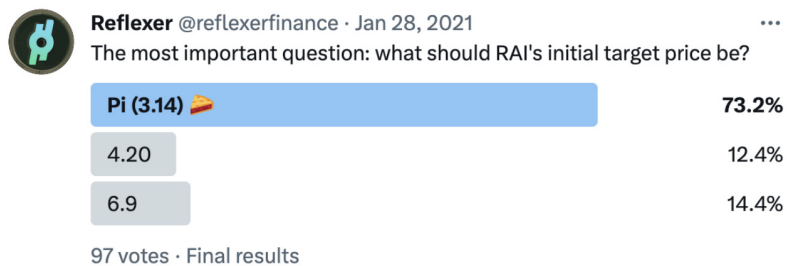
- 0- Initial state
- 10- The market price of RAI drops (green line), falling below the redemption price (red line). Net borrowers of RAI buy RAI from the market to repay the system, while others also buy RAI, increasing the system's redemption rate (blue line).
- 20- The system further elevates the RAI redemption price, expanding the arbitrage opportunity and further boosting the redemption rate.
- 40- The system is back to equilibrium.

In terms of implementation, the RAI system employs a set of mechanisms based on PID control (Proportional-Integral-Derivative Controller), a widely used feedback control method in industrial design. By leveraging a collection of parameters, the RAI system adjusts the control process as follows:

- **The proportional parameter (P-parameter)** addresses deviations based on their proportionality, i.e., the larger the proportion of the deviation, the larger the adjustment. In the case of RAI, the P-parameter steers the redemption price change when the market price deviates from the redemption price. If the market price of RAI spikes up consistently, the redemption price will drop. This parameter, present since RAI's inception, establishes the system's foundation, giving it a "spring" characteristic, as described by founder Ameen Soleimani: "The higher the market price of RAI up from the redemption price, the greater the incentive to pull RAI back to equilibrium.
- **The integral parameter (I-parameter)** considers the time factor, adjusting based on the "integral" term of the deviation. In RAI's scenario, as the gap between the market and redemption prices persists, the I-parameter gradually increases, prompting more significant shifts in the redemption price. This parameter was implemented in February 2022.
- **The derivative parameter (D-parameter)** is regulated according to the "derivative" term of the deviation. This parameter will elicit more considerable adjustments when deviations intensify. The D-parameter is not active in the RAI system.

For an in-depth exploration of RAI's PID control theory and application, feel free to visit [the Official Reflexer Documentation](#), [the Reflexer Forum](#), and [Founder Ameen's article](#).

It is also worth mentioning that the initial price of RAI does not matter, as it was set at 3.14 following a Twitter poll among early participants. In fact, RAI could have been initiated at alternative price points, such as 4.2 or 6.9, with the PID mechanism ensuring the protocol's seamless operation.

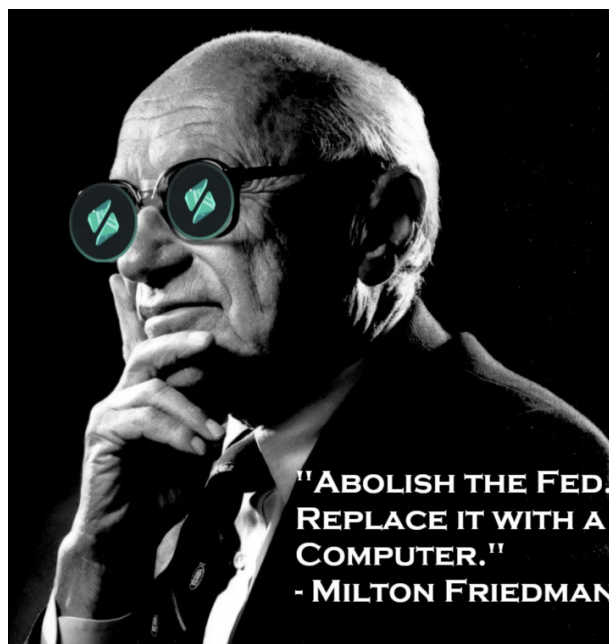


Source: The Twitter poll for the initial price of RAI

The RAI system's underlying mechanisms are reminiscent of what Milton Friedman, founder of monetarism and Nobel laureate in economics, envisioned for an ideal Federal Reserve:

“Abolish the FED, replace it with a computer.”

— **Milton Friedman**



2.3.2 Liquidation Mechanism

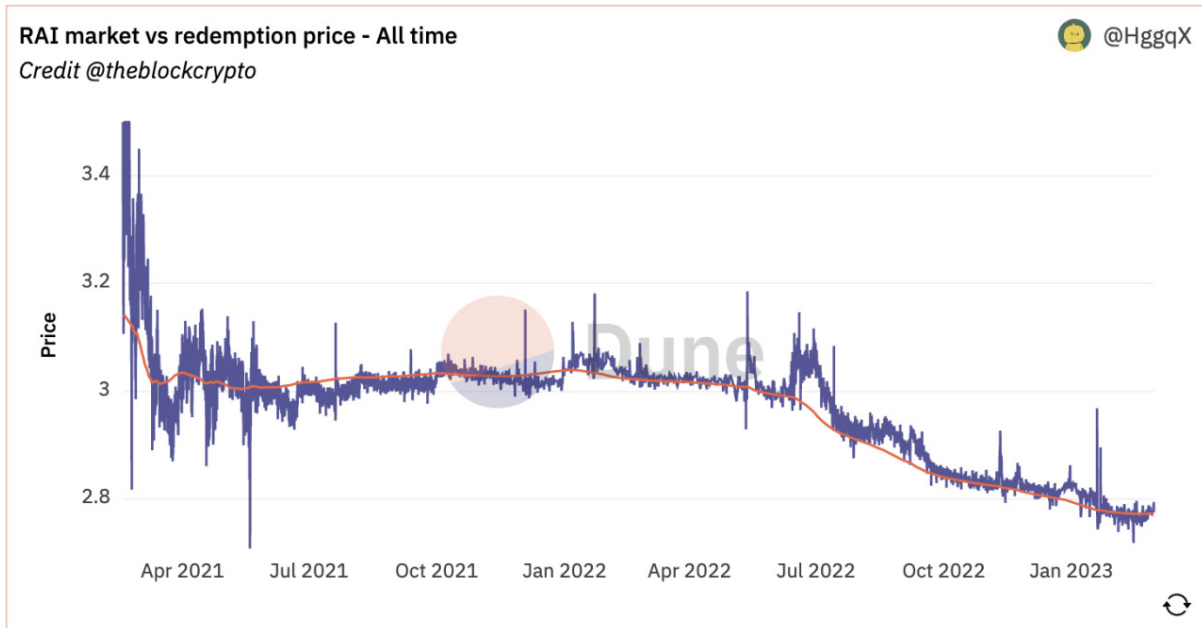
RAI is an over-collateralized stablecoin. Like other stablecoin protocols or lending protocols that use the over-collateralization model, when a user's collateral-to-lending value ratio drops below a specified threshold, a liquidation event is triggered to preserve the protocol's security and stability. During this process, known as "**collateral liquidation**", the liquidator acquires the liquidated party's collateral (ETH) through a fixed discount auction and settles their RAI debt, serving as the protocol's primary security measure.

The protocol's stabilization fee (interest) is allocated to the "**surplus buffer**", which provides a secondary layer of protection. In cases where collateral liquidation fails to address all bad debts, the surplus buffer is utilized to resolve outstanding debts. Periodically, or when the surplus buffer exceeds a certain threshold, DAO will vote to repurchase and burn FLX tokens.

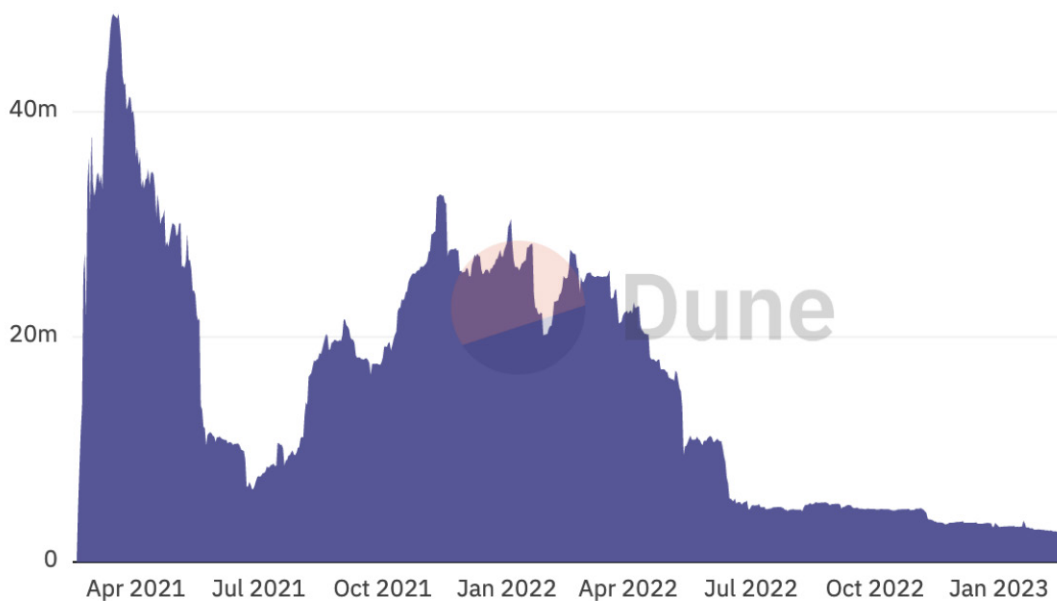
If the surplus buffer is insufficient to handle bad debt, the protocol will initiate a "**debt auction**". During this event, additional FLX tokens are issued and exchanged for RAI in the market to manage the debt, forming the third layer of safeguards for the protocol. This mechanism mirrors the "lender of last resort" function provided by the FLX token.

As illustrated by the entire liquidation system, "**collateral liquidation**" serves as the protocol's constant line of defense. By liquidating collateral at a fixed discount, the system enhances liquidation efficiency and mitigates systemic risks arising from inefficient liquidation in extreme market conditions, such as the incident experienced by MakerDAO on March 12, 2020. When there is an extreme market that leads to the temporary failure of the collateral liquidation mechanism, RAI's protocol relies on additional safety measures such as "surplus buffer" and "debt auctions" to preserve the system's integrity. Notably, since the launch of RAI, only collateral liquidations have been executed, while surplus buffer and debt auctions have yet to be utilized.

2.3.3 Practical Operation of the System



RAI Outstanding per day



The market price, redemption price (red line) and circulation of RAI

Data source: <https://dune.com/HggqX/Reflexer-RAI>

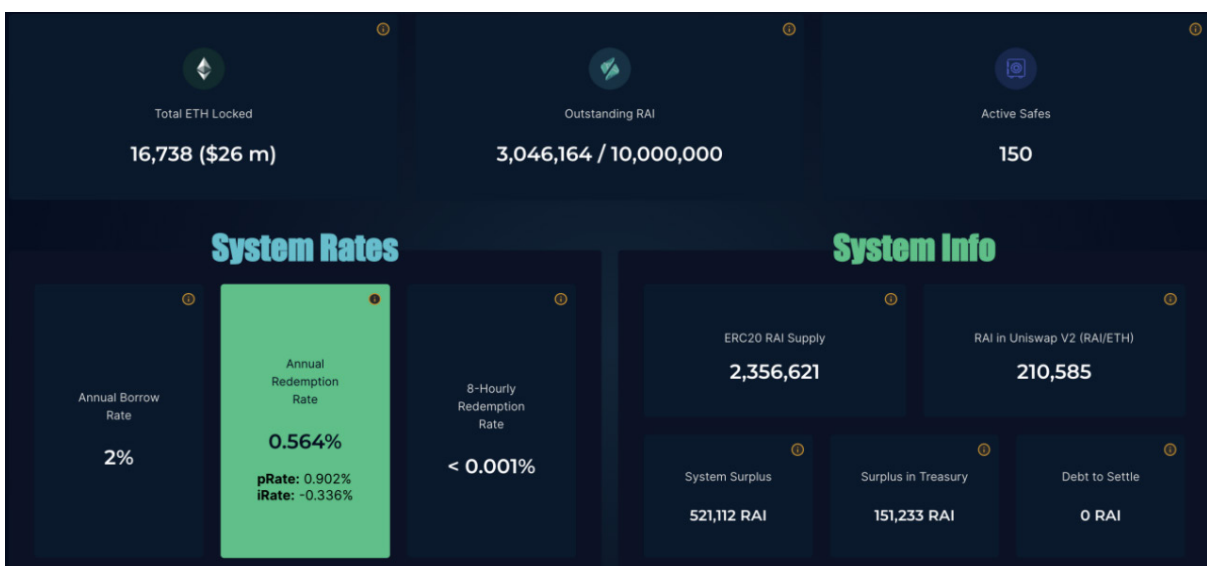
The graph above demonstrates that since its February 2021 launch at a redemption price of 3.14, RAI's market price has closely tracked its redemption price. Post-initial market volatility, RAI's redemption price fluctuated between \$3.01 and \$3.04 until

May 2022. At the same time, the price of ETH—the underlying asset of RAI—has fluctuated a lot, ranging from \$4,000 to \$1,750 to \$4,800 to \$1,800. Accordingly, the circulation of RAI fluctuated from 50 to 6.5 to 30 to 16 million, which indicates that RAI effectively maintained its status as a low-volatility ETH-based asset.

Between May and July 2022, Luna, 3AC, Celsius and Voyager collapsed, broader market faced large amount of ETH liquidation, and the entire market experienced both a liquidity crisis and a heavy blow to the decentralized stablecoins, RAI holders grappled with their collateral ETH's depreciation and potential liquidation risks. As a result, many borrowers chose to repay their loans and RAI's circulation decreased from 17 million on May 6 to 5.2 million on June 20. The strong demand for RAI repayment from borrowers led to higher RAI prices. In the meantime, a lack of arbitrageurs minting and selling RAI contributed to the market price remaining approximately \$0.08 (about 3%) above the redemption price for over a month. Due to the I parameter mechanism, RAI's redemption price eventually dropped to around \$2.70.

Having been operational for two years amid extreme Ether price fluctuations, RAI has remained stable between 2.75 and 3.05, with no significant liquidation incidents or security risks. RAI's core product mechanism has been verified.

As of the time of this article, \$26 million of ETH is deposited with RAI, supporting 150 active borrowers and a circulating supply of 2.35 million RAI.



Data source: <https://stats.reflexer.finance/>

RAI has achieved notable progress in use case expansion:

- Lending market: Integration with Aave, Euler, Rari, and Cream.
- Centralized exchanges: RAI gets listed on Coinbase.
- Payment platforms: Integration with Uphold, Eidoo, and Mover.

The successful integration with Aave and Coinbase highlights the team's exceptional business development skills. However, due to RAI's limited size, its use cases have not yet reached large-scale adoption.

2.4 Financing and Team

2.4.1 Financing

Reflexer Finance has successfully completed three rounds of funding:

- In April 2020, MetaCartel Ventures, a well-known Venture DAO with a strong incubation track record, disclosed its first investment in Reflexer Finance for an undisclosed sum. MetaCartel boasts an extensive network across active projects and venture capitalists within the Ethereum community.
- In August 2020, Reflexer announced a \$1.68 million (around \$400 per hour in ETH) seed round led by Paradigm, followed by Standard Crypto, Compound founder Robert, and Variant Fund.
- On the eve of its mainnet launch in February 2021, Reflexer announced the closing of a \$4.14 million funding round led by Pantera and Lemniscap and followed by MetaCartel, TheLAO, Aave founder Stani, Synthetix founder Kain and others.

Overall, though Reflexer's total funding may not be extensive, it has attracted significant support from active VCs, DAOs, and projects within the Ethereum community, showing the growing interest in Reflexer.

2.4.2 Team

The founders of Reflexer Finance are Ameen Soleimani and Stefan Ionescu.

Ameen Soleimani is also the founder of Moloch DAO and SpankChain. Moloch DAO is designed to fund Ethereum infrastructures, which once received a donation from Vitalik and Joseph Lubin (co-founder of Ethereum, founder and CEO of Consensus). The DAO's innovative "Rage-Quit" mechanism, which allows DAO members to withdraw their funds before investing, has set the foundation for modern Venture DAOs. SpankChain, on the other hand, serves as an Ethereum-based micropayment platform for the adult industry. Additionally, Soleimani has experience working at ConsenSys for a year.



Ameen Soleimani

Stefan Ionescu, the former founder and CTO of Reflexer Finance, announced his retirement from most of the company's affairs on March 25, 2022. He now serves as a technical consultant to the DAO, with his tokens locked up for four years. According to Soleimani's Twitter disclosure, the Reflexer team consisted of seven developers (including the co-founders) on the eve of the mainnet launch in January 2021.

In May 2022, following a self-nomination and community vote, Bacon assumed the role of DAO lead, while 0x-Kingfish took on the position of integration lead, focusing

primarily on RAI integration with other protocols. However, Bacon departed in August, and Reza joined the DAO to lead community engagement efforts.

Reflexer Finance's daily operations are now led by active members Ameen Soleimani, 0x-Kingfish, and Reza. Both 0x-Kingfish and Reza remain anonymous. In 0x-Kingfish's campaign proposal, he shared his decade-long experience in financial secondary market investments and his entrance into the cryptocurrency space in 2020. Reza, an industry veteran since 2017, previously managed marketing and community efforts at Akoin. He is also an NFT collection creator, Reza now holds a business development position at Decrypt, a leading crypto media.

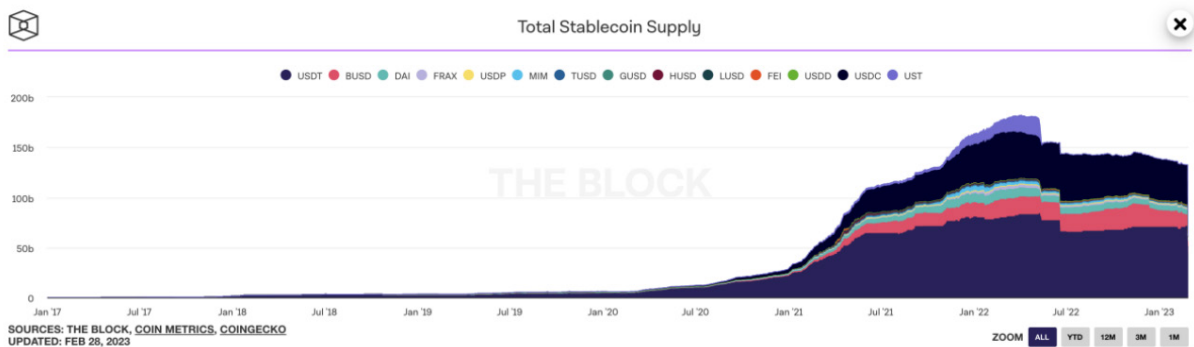
MetaCartel's investment announcement also revealed that Reflexer's advisor was Nikolai Mushegian, an early and influential developer within the Ethereum community. Mushegian was the co-founder and architect of MakerDAO and Balancer. However, he passed away in November 2022.

In general, Reflexer Finance operates with a lean team, which has become more relaxed following the departure of co-founder Stefan Ionescu. The company's pursuit of "governance-minimization" further contributes to this laid-back approach.

3. Business Analysis

3.1 Trend and Potential Analysis of Stablecoins

In the most recent crypto cycle, stablecoins have exhibited remarkable resilience, outperforming the broader crypto market. Despite a year-long bear market and the collapse of the LUNA and UST, over \$135 billion worth of stablecoins remain in circulation - only a 27% decline from the peak of \$180 billion. This drop pales in comparison to the price declines of BTC and ETH.

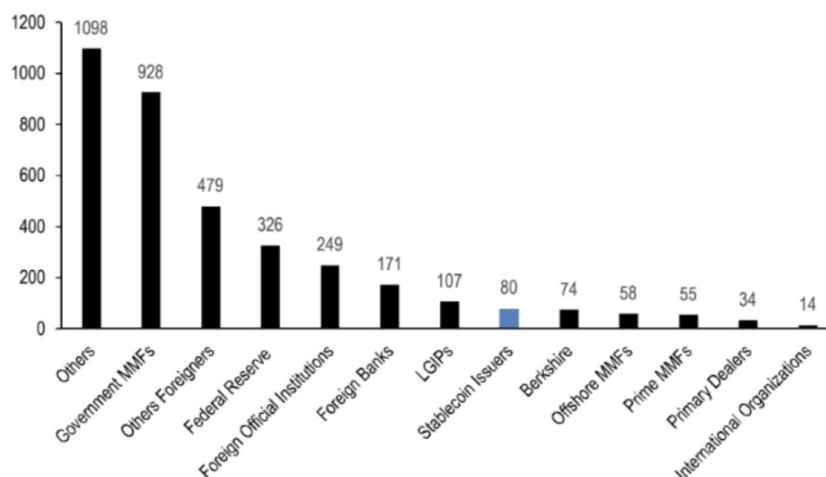


Market participants have increasingly recognized the advantages of stablecoins as a base settlement currency over BTC and ETH, aligning more closely with the firstness principle. Specifically, this shift is reflected in:

- The growing use of stablecoins as settlement currency for spot trading
- Emerged as a go-to settlement currency for derivatives, including the increasingly popular perpetuals
- Projects and VCs prefer to choose stablecoins as settlement currency for investment and financing

The unprecedented price surges in the last cycle, fueled by global currency over-issuance and a plethora of high-yielding or innovative on-chain projects, have resulted in more regulatory-compliant institutions and a diverse array of market players. Consequently, the role of stablecoins as the cornerstone settlement currency in the crypto market has solidified in the minds of participants. As the overall crypto market expands, stablecoins are poised for substantial growth, with big opportunities for further development.

As stablecoin issuers' holdings of short-term U.S. Treasury bonds exceeded 2% of the market share by May 2022, even surpassing Warren Buffett's investment firm, Berkshire Hathaway, regulators have turned their attention to the crypto market, particularly focusing on stablecoins. The fall of algorithmic stablecoin UST has further underscored the need for regulations on stablecoins.



U.S. Treasury bill investor composition. Source: JPMorgan

In the recent six months, numerous regulatory discussions have taken place among authorities in various countries, with some tangible measures implemented occasionally. Two of the most contentious events are:

- In August 2022, the U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC) imposed sanctions on Tornado Cash, an Ethereum-based cryptocurrency tumbler. In response, Circle, the issuer of USDC, promptly froze USDC holdings in addresses associated with Tornado Cash listed by OFAC. This move stirred up the Ethereum community, with ulterior motives, some even "poisoning" the crypto world by sending ETH to celebrities' on-chain addresses via Tornado Cash.
- In February 2023, the New York Department of Financial Services (NYDFS), which regulates stablecoin issuer Paxos, asked it to stop issuing BUSD. Furthermore, Paxos received a "Wells Notice" from the SEC against BUSD-related matters, potentially facing charges of illegal securities issuance.

These events have long-term and far-reaching impacts on stablecoin holders and the whole industry.

Recent regulatory actions have raised concerns among ordinary individuals. If the DeFi protocols they interact with offend the U.S. Treasury, their on-chain USDC balance could be frozen. The ridiculous uncertainty undermines confidence in crypto assets and contradicts the principles of censorship resistance, permissionless transactions, and decentralization. Following such events, USDC issuance dropped by \$10 billion, while USDT, unaffected by OFAC sanctions, rose by \$5 billion. MakerDAO also considered the possibility of de-pegging DAI from the USD.

After the SEC's charges against Paxos, Binance sought new partners for global fiat-collateralized stablecoin issuance and focused on decentralized stablecoin projects. Consequently, it listed Liquity's LQTY token on February 28th.

Paxos announced to stop issuing new BUSD on February 21, with the market cap dropping to \$10.5 billion by March 1, down from over \$16 billion on February 13. Once a top 10 cryptocurrency, BUSD may return to zero within a year and vanish under regulatory pressure. For the stablecoin issuer Paxos facing the US SEC lawsuit due to BUSD, Messari founder Ryan Selkis tweeted: " My new goal in life is to

end Gary Gensler's political career and make him the reason Biden loses reelection. I will spend every ounce of energy, financial and political capital I have on fighting the morally immoral and corrupt enemies of cryptocurrency."














If BUSD is ultimately deemed a security by the SEC, it would represent a significant blow to the entire crypto industry.

These events have driven the market's focus toward decentralized stablecoins. In contrast to the flourishing of centralized stablecoins, the journey of decentralized stablecoins in this cycle has been bumpy. Despite climbing the peak, they subsequently tumbled into a "valley of despair" following the collapse of UST. A comprehensive comparison between RAI and its decentralized stablecoin counterparts can be found in section 3.2, Competitive Edges.

In conclusion, stablecoins have a solid foundation, vast potential, and ample room for growth. Amid heightened regulatory scrutiny, decentralized stablecoins, like RAI, show even greater potential for development under the background of strict regulations on centralized stablecoins. They align more closely with the censorship-resistant and trustless ethos of the crypto world, despite being less established at present.

3.2 Competitive Edges

In this section, we will dive into the landscape of decentralized stablecoins, focusing on RAI's position in the market. According to data from CoinGecko, the following decentralized stablecoins currently boast a circulating supply exceeding \$30 million:

#	Coin	Price	1h	24h	7d	Mkt Cap	FDV [?]	Mkt Cap/FDV [?]
★ 19	 Dai DAI	\$1.00	0.1%	-0.0%	0.1%	\$5,033,188,867	\$5,033,150,937	1.00
★ 53	 Frax FRAX	\$0.999920	-0.1%	0.1%	0.0%	\$1,039,620,045	\$1,039,620,045	1.00
★ 69	 USDD USDD	\$1.00	-0.0%	0.5%	0.3%	\$725,382,127	-	-
★ 162	 TerraClassicUSD USTC	\$0.02490867	-1.0%	-8.6%	-6.4%	\$245,575,833	-	-
★ 172	 Liquity USD LUSD	\$1.00	0.1%	0.3%	0.0%	\$231,031,131	-	-
★ 210	 Alchemix USD ALUSD	\$0.996093	0.0%	0.2%	-0.1%	\$172,880,132	-	-
★ 264	 Magic Internet Money MIM	\$0.997351	0.0%	0.0%	-0.2%	\$116,444,220	\$705,005,050	0.17
★ 367	 Dola DOLA	\$0.997630	0.0%	-0.1%	0.7%	\$70,957,670	\$79,164,174	0.90
★ 402	 Origin Dollar OUSD	\$1.00	0.0%	0.1%	0.1%	\$60,579,855	\$60,579,855	1.00
★ 457	 sUSD SUSD	\$1.00	-0.0%	0.2%	0.0%	\$49,788,810	\$49,788,810	1.00
★ 523	 Fei USD FEI	\$1.00	0.0%	0.5%	-1.3%	\$39,719,263	\$39,984,328	0.99
★ 579	 agEUR AGEUR	\$1.06	-0.0%	0.0%	-0.2%	\$34,402,320	-	-
★ 603	 Bean BEAN	\$0.929703	0.1%	-0.1%	-0.5%	\$32,944,730	\$32,944,730	1.00

With a circulating market cap of under \$10 million, RAI lags behind other stablecoins in key metrics, such as the number of token holders, total value locked (TVL), and transaction volume. Despite this apparent disparity in business performance, RAI possesses distinct competitive advantages, including:

- Non-fiat pegged
- Fully decentralized

3.2.1 Non-Fiat Pegged

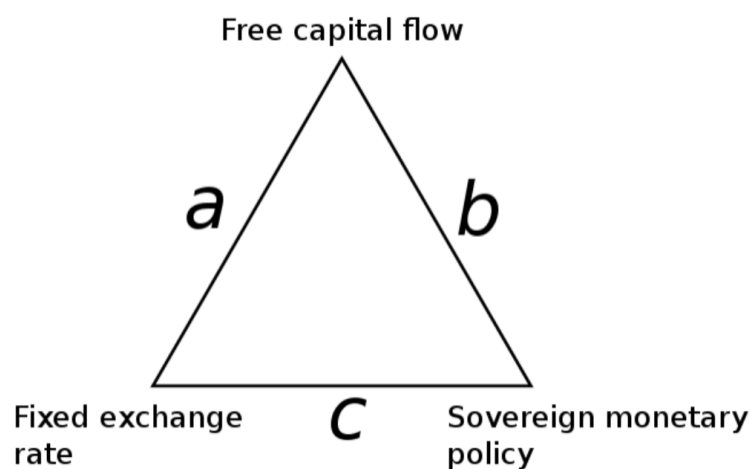
In Section 2.31, "Supply Control Mechanism," we find that RAI distinguishes itself from most stablecoins by not being pegged to any fiat currency or physical assets. Instead, its value is indirectly determined by market demand.

It is a very rare mechanism in the whole stablecoin market. Only Float Protocol, which went live roughly at the same time as RAI, has a similar design (Olympus and its Fork can not be defined as stablecoins in my opinion). A non-pegged to fiat currency design is precious in the crypto space.

This unique mechanism is a rarity within the stablecoin market. Float Protocol, which launched around the same time as RAI, is the only one that employs a similar design. However, in our opinion, Olympus and \$FORK cannot be classified as stablecoins, which highlights the preciousness of a non-fiat-pegged design in the crypto world.

To understand the importance of this design, we can draw upon **a concept from International Economics**:

The Mundellian Trilemma posits that a country's monetary policy independence, exchange rate stability, and free capital flow cannot coexist simultaneously, with the exception of the rule-maker (i.e., the United States). A country can only prioritize two of these aspects; attempting to achieve all three can result in financial crises, such as the Asian financial crisis (1997), the Mexican peso crisis (1994-1995), and the Argentine financial crisis (2001-2002).



Source: https://en.wikipedia.org/wiki/Impossible_trinity

For example, Hong Kong has opted for a stable exchange rate pegged to the US dollar and free capital flow, relinquishing control over its own monetary policy. Conversely, North Korea prioritizes an independent monetary policy and a stable exchange rate, implementing full capital controls. Most other countries strike a balance between these three considerations.

Examining the current state of the crypto world through the lens of the Mundellian Trilemma, we observe that it bears a striking resemblance to Hong Kong:

- Unrestricted capital flow
- Stable exchange rates, with most stablecoins pegged 1:1 to the US dollar
- Abandonment of an independent monetary policy

In the context of the Trilemma, free capital flow is an innate characteristic of the crypto market. While opting for exchange rate stability relative to the US dollar may offer promotional advantages, it sacrifices the crypto world's monetary policy independence. Consequently, stablecoins, the backbone of the crypto ecosystem, become mere "puppets" of the US dollar. This subverts the anti-inflationary, trustless principles that underpin cryptocurrencies, **reducing them from super-sovereign to sub-sovereign currencies**. Should the Federal Reserve engage in excessive monetary issuance, crypto space could be exposed to inflation risks, **casting a shadow of Fed-induced inflation on the entire ecosystem**.

If the crypto community's ultimate goal is not to become another Hong Kong, and if it seeks to preserve the super-sovereign nature of cryptocurrencies, **a common currency in the crypto world should have an independent monetary policy**. Considering the inherently free-flowing nature of the crypto market, cryptocurrencies should avoid being pegged to real-world fiat currencies (giving up fixed exchange rates) to prevent becoming mere extensions of traditional currencies.

From this point, Reflexer functions as an independent central bank, while Circle/Tether or MakerDAO operates more like commercial banks within the Federal Reserve (or European Central Bank) system. The distinction between MakerDAO and Circle lies in MakerDAO's support for using ETH or other crypto-native assets as collateral for lending.

Following the Tornado Cash sanctions, an increasing number of stablecoin protocols have recognized the importance of non-fiat pegged stablecoins. *MakerDAO has even considered the possibility of depegging DAI from the US dollar*, sparking discussions involving Ethereum founder Vitalik Buterin. However, with over 60% of DAI currently backed by centralized stablecoins pegged to the US dollar, the likelihood of MakerDAO successfully de-pegging is minimal. Even if achievable, the process would be both lengthy and troublesome.

In conclusion, while the majority of users are unfamiliar with the concept of a non-fiat pegged stablecoin, which may bring challenges for RAI's adoption, pegging to the US dollar is a more straightforward approach. Moreover, developing a system that remains stable without being pegged to the US dollar is more complex. **By forgoing a US dollar peg, Reflexer liberates itself from US regulation and insulates RAI from the effects of US monetary policy.** This feature represents a rare and praiseworthy fault-tolerance mechanism for stablecoins in the crypto ecosystem.

3.2.2 Fully Decentralized

RAI is fully decentralized and exclusively supports ETH as collateral. However, decentralization comes at a cost.

Analogous to the Mundellian Trilemma, *a stablecoin trilemma* has been proposed, suggesting that capital efficiency, price stability, and decentralization cannot coexist simultaneously. This theory holds weight, as evidenced by the eventual failure of ESD/BAC/UST, which attempted to achieve all three aspects.

The evolution of the established decentralized stablecoin DAI serves as a prime example of this trilemma in action.

Prior to November 2019, DAI operated as a decentralized stablecoin with ETH as its sole collateral. However, the absence of an effective mechanism to maintain DAI's value at \$1 and the significant price volatility of ETH led users to maintain adequate safety margin when using it as collateral in order to avoid liquidation. Consequently, the system experienced a high over-collateralization rate, resulting in suboptimal capital utilization.

Dai Price Chart (DAI)

Last updated 05:20AM UTC. Currency in USD.

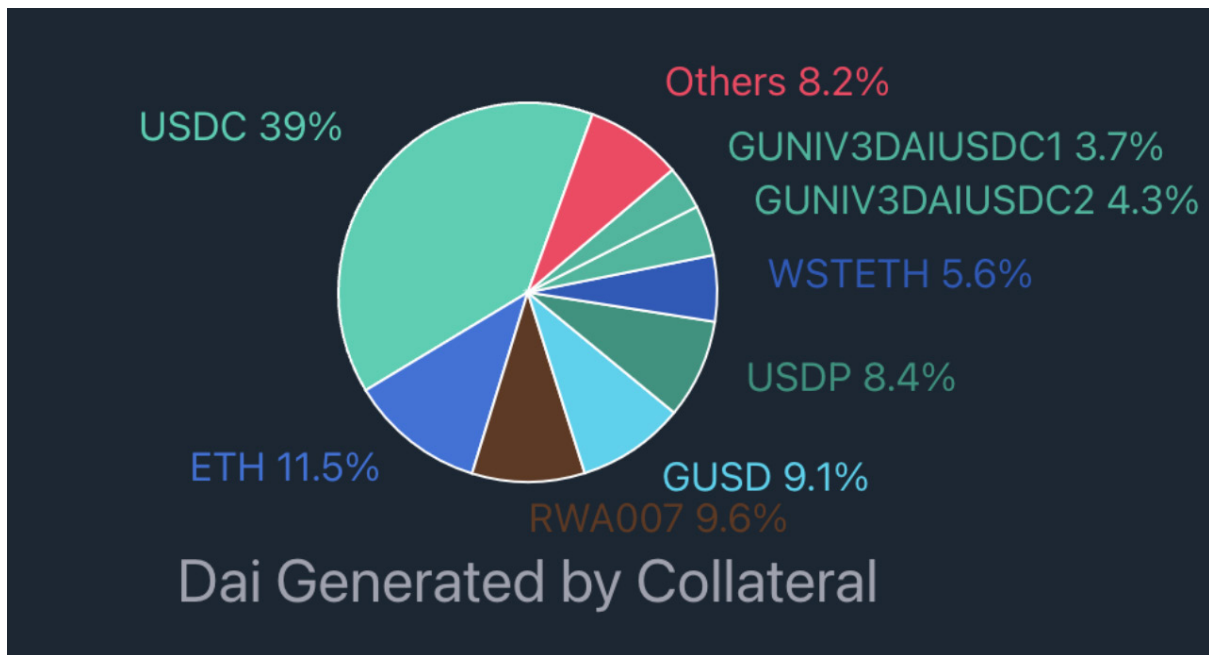
☆ Add To Watchlist



*Price trend of DAI
Data Source: Coingecko*

To address these issues, MakerDAO considered diversifying its collateral sources, although USDC was not initially part of the proposal. Following the March 12, 2020 market collapse, MakerDAO's liquidation system malfunctioned due to high gas fees and low on-chain liquidity, resulting in a loss exceeding \$6 million. Consequently, Stablecoin Vaults supporting USDC collateral minting for DAI were introduced.

This development quickly stabilized DAI's price at around \$1. DAI's price later surpassed \$1.03 as a result of high demand during the DeFi Summer and the inability to swiftly adjust the upper limit of USDC Vault. However, the introduction of the Peg Stability Module (PSM) allowed for a more stable DAI price, enabling USDC-to-DAI conversions through swaps. Centralized stablecoins, including USDC, GUSD, USDP, and USDC in USDC-DAI LP, now account for over 60% of DAI circulation, while the overall over-collateralization rate of the protocol has dropped below 200%.



Source: <https://daistats.com/#/>

As demonstrated by the DAI case, introducing widely-circulated stablecoins as collateral can substantially boost a protocol's stablecoin liquidity, leading to enhanced price stability. Simultaneously, the use of stablecoins for both collateral and lending purposes reduces the system's over-collateralization rate, thereby improving the protocol's overall capital utilization efficiency. Additionally, the integration of other stablecoins as collateral helps decentralized stablecoin protocols in both their initial launch and subsequent growth phases. Several stablecoins in our analysis adopt this approach, for example:

- Over 75% of FRAX's collateral is backed by centralized stablecoin assets, as indicated by its Decentralization Ratio. The stablecoin protocol's innovative and proactive AMO mechanism also contributes to notable capital efficiency and price stability.
- Decentralized stablecoins such as MIM, aUSD, DOLA, and agEUR consist of more than half of collateral sourced from other stablecoins (USDT, USDC, DAI) or stablecoin-related yield-bearing token from other DeFi protocols. This approach fosters rapid business growth and typically results in more stable stablecoin prices.
- The latest versions of OUSD and FEI are minted almost totally by other stablecoins.

However, since widely-circulated stablecoins are usually centralized (with DAI relying on centralized stablecoins for 60% of its collateral), opting to integrate them implies a departure from the commitment to decentralization. If USDC were to ban the accounts of DAI or other protocols, it could deal a heavy hit to all these stablecoin protocols.

In contrast, fully decentralized stablecoins utilize only decentralized assets as collateral. However, as observed with early versions of DAI, these stablecoins often grapple with low capital efficiency and price stability due to high collateral volatility, making it difficult to broaden their use cases. The decentralized stablecoins mentioned earlier generally need to strike a balance between price stability and capital efficiency or prioritize one over the other:

- UST and several other now-defunct algorithmic stablecoins pursued extreme capital efficiency by enabling users to mint stablecoins with undercollateralized decentralized assets. While this approach can accelerate business growth during bull market cycles, it comes at the expense of destroying the entire system during bear market cycles due to the inability to maintain stablecoin prices.
- Synthetix's sUSD, a well-established decentralized stablecoin, prioritizes price stability, with its value typically fluctuating within 1% above and below \$1. However, this comes at the expense of significantly inefficient capital usage, as collateralization rates often exceed 500% on an ongoing basis.
- LUSD, launched in April 2021, introduced a new trade-off via an innovative mechanism (refer to [Liquity: The Emerging Stablecoin Protocol](#) for more information on the Liquity mechanism). LUSD allows its price to vary between \$1 and \$1.1 and permits single-user collateral ratios as low as 110% to enhance capital utilization efficiency. In fact, LUSD's price mostly fluctuates between \$1 and \$1.03, achieving stability within a relatively wide range. In terms of capital utilization efficiency, Liquity's collateral ratio typically ranges between 200% and 250%, with the current ratio at 260%.

Apr 5, 2021 → Mar 2, 2023



The price of LUSD
Data source: Coingecko

Total Collateral Ratio

● @bstraza



Changes in collateral rate for Liquity Systems
Source: <https://dune.com/bstraza/Liquity-Protocol>

RAI, similar to LUSD, attains relative price stability across an extensive range through its robust mechanism. Its over-collateralization rate usually varies between 300% and 400% on an ongoing basis.

For decentralized stablecoins, it is relatively simple to introduce more centralized assets, while building a stablecoin system on a fully decentralized foundation is challenging. **Reflexer sacrifices higher capital efficiency and greater price stability to uphold decentralization and censorship-resistant features.**

3.2.3 Governance Minimization

The essential feature of RAI is its focus on **decentralization and trustlessness**.

The prevalent "governance" function in DeFi protocol token utility essentially represents "human governance." The practical governance processes of projects with governance tokens often exhibit inevitable oligarchization and low participation rates from holders, as evidenced by Uniswap community's governance discussion on selecting a cross-chain bridge for BNB Chain.

RAI's mechanism design does not rely on the Federal Reserve or any individual "human." One of its core principles is governance minimization, which RAI believes should be automated, self-sufficient, and minimize external dependencies. Like Liquity, another stablecoin protocol, RAI aims to eventually become ungovernance.

Each module within the Reflexer protocol features [a detailed roadmap for governance minimization](#), with the intention of automating and rendering RAI ungovernance in the coming years. RAI aspires to reach a state where the governance layer has little or no control over most of its core contracts.

In August of last year, RAI's governance minimization advanced to [its second stage](#). RAI's governance token, FLX, will gradually diminish in power over time until its primary function becomes that of a lender of last resort in cases of system insolvency (i.e., keeping the "debt auction" on track).

ungovernance or governance minimization approaches can impact a protocol's adaptability and responsiveness to complex and changing environments. For instance, Reflexer cannot increase protocol revenue by raising stabilization rates

when the market is in FOMO. Additionally, Reflexer and Liquity, which target ungovernance or governance-minimization models, lag behind other stablecoin protocols with more aggressive governance in terms of use case expansion. Nevertheless, achieving ungovernance or governance-minimized status is difficult, and **relinquishing protocol governance is the price Reflexer pays for decentralization and censorship-resistant features.**

3.2.4 Summary

In conclusion, while RAI has a huge gap from top decentralized stablecoins like DAI and FRAX in terms of market cap size, token holders, transaction volume, and other metrics that gauge stablecoin business development, it possesses distinct advantages over these leading projects due to its non-fiat currency pegged feature, complete decentralization, and governance-minimized concept.

As the founder of Ethereum Vitalik said:

“RAI better exemplifies the pure “ideal type” of a collateralized automated stablecoin, backed by ETH only.”

The future RAI aspires to embody the grand narrative of the entire crypto market: a peer-to-peer electronic cash system that eliminates the need to trust any third party.

3.3 Tokenomics Analysis

3.3.1 Token Utility

FLX, the governance token within the RAI protocol, serves two primary purposes:

- **As a buffer for RAI**

The RAI protocol conducts surplus and debt auctions, similar to MakerDAO. If the RAI protocol faces a deficit, it will automatically mint and auction FLX to safeguard RAI holders' interests. Conversely, when the system generates a surplus, the excess RAI can be auctioned at a discount through FLX, with the auctioned FLX subsequently burned. As of today, 25,057 FLX tokens have been burned.

- **Governance**

Although Reflexer Finance's vision for RAI aims for governance minimization, human involvement remains necessary during the protocol's development process, particularly in the early stages. FLX holders assume responsibility for governance decisions.

3.3.2 Token Distribution and Vesting

- 35% of FLX is allocated to the GEB Foundation, with its primary use being protocol development, including liquidity mining rewards to RAI's liquidity providers and security, as well as funding various grant programs:

- Out of the Foundation Supply, 0.687% of FLX will be given to every address that interacted with Proto RAI in any way.
- The remaining FLX from the Foundation Supply is distributed to RAI-ETH liquidity providers and RAI's early minters.

- 35.69% of FLX will be distributed to investors and early supporters:

- 21% of FLX will be distributed to early supporters/backers. This allocation is subject to an initial lock for 1 year and vesting linearly in the second year.
- 11.3% of FLX to miscellaneous investors of Reflexer Labs. This allocation is subject to an initial lock for 1 year and vesting linearly in the second year.
- 3.39% of FLX will be distributed to DAOs that contributed funding and helped Reflexer bootstrap. This allocation is subject to an initial lock for 1 year and vesting linearly in the second year.

- 29.31% of FLX to the Team:

- 20% of FLX to Reflexer employees and advisors. This allocation is subject to an initial lock for 1 year and vesting linearly in the second year.

- 9.31% of FLX will be the corporate property of Reflexer Labs. Such FLX is not subject to vesting or any lockup period.

*Note: The unlock schedule started on the 15th of April 2021.

According to Coingecko, the circulating supply of FLX is 653,309, reaching 67% of the fully diluted supply; the total amount of burned FLX is 25,057.

3.4 Risks

RAI may have some potential risks:

- Product-Market Fit Risk: Users may show low acceptance for stablecoins that are not pegged to fiat currencies
- Marketing Challenges:
 - Relying solely on ETH as collateral could hinder RAI's adoption among users.
 - The governance minimization approach may limit the team's ability to introduce breakthroughs in operations.
 - The team has fewer breakthrough points in operations because of governance minimization
 - With only 160,000 FLX tokens (worth less than \$2 million in market cap) reserved for protocol incentives, the incentives for further promotion could be insufficient.
- Team Risks: After the departure of co-founder Stefan, the team made little progress in use case expansion and marketing promotion over the past year.
- Code Risk: Despite its innovative mechanism, RAI's PID-based on-chain control system is unprecedented, which means risks should not be overlooked even though it has functioned securely for two years and undergone audits by reputable third parties.

4. Valuation of RAI

4.1 Five Core Issues

What's the Development Stage of the Project?

After 2 years of development, RAI has implemented main functions and stepped into a relatively mature stage. However, based on the current market share of its stablecoin RAI, the project's business is still in its early stages.

Does the Project Possess a Significant Competitive Advantage? If So, Upon What Factors or Elements is This Competitive Edge Founded?

The project does not have a solid competitive advantage, and its business metrics lag behind Liquid, one of the leading decentralized stablecoin protocols. Reflexer is not pegged to any fiat currency, making it a rare crypto-native stablecoin protocol in the ecosystem. As regulations on stablecoins tighten, Reflexer's position as a reserve asset for the Ethereum ecosystem stands out. Additionally, Vitalik's personal endorsement of Reflexer could be considered a potential competitive edge for Reflexer.

Is the Long-term Investment Rationale of the Project Well-defined, and Does It Align With the Overall Direction and Trends Within the Industry?

The project's id-to-long-term investment rationale reveals a lucid strategy, as decentralized stablecoins embody the first principle within the realm of crypto stablecoins. They offer vital disaster recovery value for the entire crypto industry, aligning with the prevailing direction of the crypto world.

What Constitutes the Major Factors Affecting the Project's Operation, and Can These Factors be Accurately Quantified and Assessed?

The foremost variable influencing the project's operation hinges on the scalability of RAI's use cases. This aspect can be effectively tracked through RAI's issuance, distribution, and the external collaboration tendencies exhibited by the Reflexer team.

How is the Project's Management and Governance Structured, and What is the Nature of Its DAO?

The project's management and governance are primarily anchored on the DAO, aiming to attain governance minimization over the long term. The DAO's performance is considered average in terms of business development progress.

4.2 Valuation

As highlighted in Section 3.2, sUSD and LUSD are also fully decentralized stablecoins. While sUSD, issued by Synthetix, does not target an all-purpose role but instead serves as a settlement currency within its derivatives trading system, it is worth noting that Synthetix will release a new stablecoin, snxUSD, in its upcoming v3 launch. Consequently, our analysis focuses on comparing Liquity and Reflexer valuations, with MakerDAO, the most prominent decentralized stablecoin protocol, serving as a reference.

Liquity and Reflexer share several similarities, including utilizing \$ETH—the most widely-adopted decentralized asset—as collateral and adhering to an ungovernance or governance minimization philosophy. This approach minimizes human governance impact on decentralization and epitomizes the purest form of decentralized stablecoin on the Ethereum network.

We assess valuations from two angles. The first metric involves the relationship between market capitalization and the governance token, which gauges the size of the stablecoin managed by its governance token. The second metric examines the market capitalization of circulating governance tokens in relation to protocol revenue, analogous to the P/S concept, to compare their revenue capture capabilities. The findings are illustrated in the following diagram:

Protocol\Stablecoin\Governance Token	Liquity\LUSD\LQTY	Reflexer\RAI\FLX	MakerDAO\DAI\MKR
Market Cap of Protocols' Stablecoin (\$)	232,465,000	6,531,000	5,010,910,000
Market Cap of Governance Token(\$)	165,806,000	8,683,000	797,464,000
Fully Diluted Market Cap of Governance Token(\$)	182,040,000	12,881,000	889,696,000
Protocol Revenue over 12 months(\$)	1,040,000	183,210	23,220,000
Market Cap of Governance Token/ Market Cap of Protocols' Stablecoin	0.71	1.33	0.16
Market Cap of Governance Token/ Protocol Revenue	159.43	47.39	34.34
Made by Mint Ventures, updated time: 2023-03-08			
Data Source: Coingecko and Tokenterminal			

- In terms of market capitalization, FLX boasts a higher valuation compared to LQTY and significantly outpaces RAI. Furthermore, both FLX and LQTY outshine MKR in this metric, suggesting that fully decentralized stablecoins command a premium in the market.
- In terms of revenue capture, FLX's P/S valuation is much lower than LQTY's and is close to MKR's valuation.

LQTY's slightly inflated valuation can be attributed to the liquidity premium resulting from its recent Binance listing, in conjunction with LQTY's fee structure, which precludes benefiting from LUSD's market cap and relies solely on new minting and redemptions of LUSD.

It is also important to consider that while MakerDAO generates a lot of revenue, elevated operational costs lead to high expenses and a negative profit, as protocol revenue has not been distributed to \$MKR holders for a long time. Consequently, \$MKR's P/S is lower, but its P/E remains negative, elucidating the undervaluation from a P/S standpoint.

In conclusion, from a P/S perspective, Reflexer's valuation is lower than Liquity's, which also represents a fully decentralized stablecoin on Ethereum. However, when assessing stablecoin market capitalization, it is quite the opposite.

5. Reference

Beyond the references previously cited, we have summarized other resources that might be useful:

- Ameen Soleimani: *Announcing MetaCoin — The Governance-Minimized Decentralized Stablecoin*
- Ameen Soleimani: *a-money-god-raises-rai-is-live-on-ethereum-mainnet*
- Adam Cochran: *Why MetaCartel Ventures is investing in Reflexer Labs*
- Vitalik: *Two thought experiments to evaluate automated stablecoins*
- Dankrad Feist: RAI — one of the coolest experiments in crypto
<https://dankradfeist.de/ethereum/2023/01/31/rai-crypto-experiment.html>
- The stablecoin trillema: <https://stablecoins.wtf/resources/the-stablecoin-trillema>

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