

Summary

A proposal to renew Gauntlet's 12-month engagement with Aave on continuous market risk management to maximize capital efficiency while minimizing the risk of insolvency and liquidations to create long-term sustainable growth. Gauntlet renewed its partnership with Aave last year in December, which runs through December 28, 2023.

Results

Since 2021, our proactive risk management has helped the Aave protocol avoid any major insolvencies, even through stress periods such as the USDC non-parity event, FTX-induced volatility, CRV Vyper Exploit, and other tail asset liquidity crunches. We have expanded our service offering to include support for GHO stability plan and all the existing and upcoming chains as Aave continues to grow.

Compared to Gauntlet's [2022 engagement](#), the proposed 2023 renewal has larger coverage with the same fixed fee structure that is aligned with Aave's strategic 2023 initiatives.

Background

For the past three years, Gauntlet has collaborated with Aave to maximize the protocol's capital efficiency given an acceptable level of market risk. Over the past year, we have delivered the following:

- Quantitative Research
- Risk methodology: [Interest Rate Curve Framework](#), [Borrow and Supply Cap Methodology for Aave V3](#), [Interest Rate Curve research for all Aave V3 Markets](#), [E-Mode Methodology for Aave V3](#), [Liquid Staking Tokens E-Mode for Aave V3](#), [Isolation Mode Methodology for Aave V3](#), [Updated Value at Risk \(VaR\) Methodology](#)
- Mechanism Design: [Synchronicity Price Adapter "Killswitch" Functionality for LST Emode](#), [LST Oracle risk and Chainlink Synchronicity Price Adapter 2.0](#)
- Research on GHO: [Initial analysis on GHO launch parameters](#), [Additional research and recommendations](#) on GHO launch parameters, analysis on [GHO stability module](#), [wGHO V3 Onboarding](#), and [GHO borrow rate](#).
- Risk methodology: [Interest Rate Curve Framework](#), [Borrow and Supply Cap Methodology for Aave V3](#), [Interest Rate Curve research for all Aave V3 Markets](#), [E-Mode Methodology for Aave V3](#), [Liquid Staking Tokens E-Mode for Aave V3](#), [Isolation Mode Methodology for Aave V3](#), [Updated Value at Risk \(VaR\) Methodology](#)
- Mechanism Design: [Synchronicity Price Adapter "Killswitch" Functionality for LST Emode](#), [LST Oracle risk and Chainlink Synchronicity Price Adapter 2.0](#)
- Research on GHO: [Initial analysis on GHO launch parameters](#), [Additional research and recommendations](#) on GHO launch parameters, analysis on [GHO stability module](#), [wGHO V3 Onboarding](#), and [GHO borrow rate](#).
- Analysis:

To support V2 deprecation and migration to V3, we provided analysis and recommendations to [deprecate Aave V2 AMM market](#), [freeze markets on V2 AMM](#), found the first migration levers in the [Migration plan](#), and proposed [V2 Deprecation plan](#) and [ongoing recommendations](#). Additionally, we provided risk analysis on the [Shanghai Upgrade](#) and [Optimism Mainnet Upgrade](#).

- Risk Alerts:

Firefighting, risk modeling, alert triggers, and recommendations during [USDC depeg](#) and [post-mortem analysis](#), [CRV Vyper Exploit](#) and [post-mortem analysis](#), [TUSD](#) and [MAI](#) risk mitigation. Continuous [market alerts](#) from Gauntlet's risk monitoring platform to increase accessibility and transparency to the community on market risks and utilization levels across all Aave markets.

- Recommendations:

Since January 2023, Gauntlet has published 30 AIPs, 24 snapshots, including 12 sets of IR curve analyses and recommendations, and 59 risk steward borrow/supply cap recommendations. We also provided initial risk parameter recommendations for Aave V3 deployment on [Base](#), [Metis](#), [zkEVM](#), [GnosisChain](#), [Celo](#), [zkSync](#), [BNB Chain](#), and initial onboarding parameter recommendations for 19 assets, including [GMX](#), [sfrxETH](#), [fUSDC](#), [wstETH](#), [rETH](#), [ARB](#), [cbETH](#), [rETH](#), [USDT](#), [LUSD](#), [SUSHI](#), [RPL](#), [FRAX](#), [Arbitrum native USDC](#), [sDAI](#), [OP](#), [STG](#), [KNC](#), [FXS](#),

- Community Updates:

Continuously added features and improved UX for our [Risk Dashboard](#) to provide insight into risk and capital efficiency for the community.

- Impact

- Over the past year's engagement, Gauntlet made the community's first isolation mode and LST Emode parameter recommendations on Aave V3, while regularly optimizing interest rate recommendations across markets. To incentivize V3 migration and de-risk the protocol from V2, we found community consensus on migration levers, deprecated the V2 AMM market, and are continuously making V2 deprecation recommendations. Additionally, we researched extensively on LST Emode price synchronicity and made the first mechanism design recommendation on Killswitch. Although GHO was not part of Gauntlet's scope in 2023, we provided GHO launch parameter recommendations, analysis on [GHO stability module](#), [wGHO V3 Onboarding](#), and [GHO borrow rate](#).
- Over the past year's engagement, Gauntlet made the community's first isolation mode and LST Emode parameter recommendations on Aave V3, while regularly optimizing interest rate recommendations across markets. To incentivize V3 migration and de-risk the protocol from V2, we found community consensus on migration levers, deprecated the V2 AMM market, and are continuously making V2 deprecation recommendations. Additionally, we researched extensively on LST Emode price synchronicity and made the first mechanism design recommendation on Killswitch. Although GHO was not part of Gauntlet's scope in 2023, we provided GHO launch parameter recommendations, analysis on [GHO stability module](#), [wGHO V3 Onboarding](#), and [GHO borrow rate](#).

Please refer to our [monthly updates](#) for more details on the value we have contributed to the DAO.

Proposal

Scope

Gauntlet's Risk Management platform quantifies risk, optimizes risk parameters, runs economic stress tests, and calibrates parameters dynamically. We use agent-based simulation models tuned to actual market data to model tail market events and interactions between different users within DeFi protocols. Our simulations are constructed analogously to how transaction-level backtesting is done in high-frequency and algorithmic trading. Our platform provides similar statistical power in these actuarial analyses by modifying these techniques to handle the idiosyncrasies of cryptocurrencies.

Aave has matured and expanded. At this time, Aave has expanded V3 across 9 chains, found new growth vectors with native assets such as liquid staking tokens, and launched a stablecoin. With more markets on diverse chains comes more complexity in risk management. As such, the level of risk management needed is at its highest - not only in terms of the rigor required, but also the speed of risk monitoring and optimizations. Over the past year, we added resources and upgraded our infrastructure to support risk management for all Aave markets. We have conducted the quantitative research needed to ensure simulations are updated in line with new protocols and market dynamics.

Gauntlet's features will cover Aave V2, Aave V3, GHO (new), and Insolvency Refund.

Roadmap

Aave V2

- V3 Migration and V2 Risk Mitigation: Continuous regular V2 deprecation recommendations following the approved [framework](#).
- Asset Delisting Process: Subject to community approval for our support. We will propose a process for asset delisting to avoid future market risks on v2 and streamline governance decisions to de-risk the protocol.
- Risk Monitoring and Alerting covering all Aave V2 markets, including Value at Risk (VaR), Liquidations at Risk (LaR), Borrowing Power, Borrow Usage. Update Gauntlet's external alerts channel to be more expansive in monitoring alerts.

Aave V3

- Risk Monitoring and Alerting covering all Aave V3 markets, supporting up to 15 chain deployments (currently V3 is deployed on 9 chains), including changes in asset liquidity, Value at Risk (VaR), Liquidations at Risk (LaR), Borrowing Power, Borrow Usage, Supply/borrow caps utilization levels updated on Gauntlet's risk dashboard. Update Gauntlet's external alerts channel to be more expansive in monitoring alerts. Any V3 deployment over 15 chains will be budgeted independently.
- Parameter Recommendations: Manage market risk and optimize capital efficiency, covering efficiency mode, isolation mode, and siloed borrowing. Supported parameters include Loan-To-Value, Liquidation Threshold, Liquidation Bonus, Supply Cap, Borrow Cap, Debt Ceiling (for Isolation Mode), and Liquidation Protocol Fee. Market conditions will determine the frequency of parameter updates. For that reason, no SLA will be preset. Support for Risk Steward.
- Interest Rate Optimization: Recommend interest rate parameters to maximize Aave's tradeoffs between risk and revenue/reserves. Supported parameters include slope1, slope 2, base rate, uOpt, and reserve factor.
- Continued research on community initiatives such as the LST Killswitch.
- New chain deployment analysis and initial parameter recommendations, data ingestion, market alerts integration, and simulation backtesting once the new markets are deployed. As mentioned above, up to 15 chains will be supported.

- New asset listing initial parameter recommendation and analysis.
- Ongoing market incident response and analysis: Firefighting for market risk events and providing post-mortems and updates of the firefighting scenarios, detailing which actions should be rolled back, depending on community preference.

GHO [new]

- GHO Peg Stability Framework and Research
- Parameter Recommendations: supported parameters include GHO borrow rate, Stability Module parameters (freeze/unfreeze bounds, buy/sell fee, caps), bucket capacities, stkAAVE discount rate, DEX liquidity goals, wGHO parameters
- New Facilitator Analysis
- Risk Monitoring and Alerting: GHO peg, GHO backing composition, GSM, GHO use cases and activities across Aave, centralized and decentralized exchanges.
- Ongoing Market Incident Response and Analysis

Insolvency Refund

In order to increase our alignment with Aave and put actual “skin in the game,” we will refund a portion of our payment should our risk parameter optimizations incur losses for the protocol during the engagement

. Our ultimate goal is to protect the protocol - we stand behind our work and want the community to have confidence in our recommendations. In the past, we have paid out this refund. See below for how the insolvency payment works.

Out of scope

- Protocol development work (e.g., Solidity changes that improve risk/reward)
- Formalized mechanism design outside of the supported parameters and scope above

Duration

1-year engagement beginning when the corresponding AIP is executed. Our engagement covers 1 year instead of 6 months in order to show long-term commitment to the DAO, provide opportunities to work on longer-term research projects and deliverables, more efficient planning and resource allocation, and prevent any discontinuation of risk services.

Expectations

Outcomes

We aim to improve the following target metrics without increasing the protocol's net insolvent value percentage:

- Value at Risk:

conveys capital at risk due to insolvencies when markets are under duress (i.e., Black Thursday). The current VaR in the system is broken down by collateral type. Gauntlet computes VaR (based on a measure of protocol insolvency) at the 95th percentile of our simulation runs.

- Liquidations at Risk:

conveys capital at risk due to liquidations when markets are under duress (i.e., Black Thursday). The current LaR in the system is broken down by collateral type. Gauntlet computes LaR (based on a measure of protocol liquidations) at the 95th percentile of our simulation runs.

- Borrowing Power:

measures capital efficiency, representing potential upside for the protocol. Borrowing power represents the total available borrows based on collateral supplied to the protocol, calculated as supplies multiplied by the collateral factors of each collateral asset.

We aggregate this to a system level by taking a weighted sum of all the assets used as collateral.

Communications

- Risk parameter change steps: forum post, community discussion, Snapshot, on-chain vote
- Participation in community calls with breakdowns of parameter changes and any anomalies observed

- Proactive [alerting](#) to give the community time to discuss risk-related issues
- Market Downturn Risk Reviews to provide detailed retrospectives
- Risk and Analytics Dashboards updated daily
- Payloads shared and verified before submission for on-chain voting

Cost

We charge a service fee that seeks to be commensurate with the value we add to protocols and provides a strong signal of our alignment with the protocol.

The annual fee will be a fixed fee of \$2,000,000. This will be 40% in GHO and 60% in aUSDC.

How Insolvency Refund works:

- A portion of our payment (up to 30% of the \$2m fee) will be transferred from Aave in a lump sum transfer to an on-chain vault.
- Losses are defined as any new insolvencies related to market risk.
- Exclusions: Issues related to smart contract bugs or related to an underlying asset that is smart contract related and dust accounts (defined as accounts with borrow less than \$1,000). Refund does not apply if any of our risk parameter (excluding Reserve Factor) proposal fails during the engagement.
- Exclusions: Issues related to smart contract bugs or related to an underlying asset that is smart contract related and dust accounts (defined as accounts with borrow less than \$1,000). Refund does not apply if any of our risk parameter (excluding Reserve Factor) proposal fails during the engagement.
- Should losses occur, we will share an update with the community, and send funds back to the DAO in a timely manner.
- At the end of the engagement, any remaining funds in the vault will be removed, realized by our Finance team, and no longer eligible for a refund.

Reference: Last year's service fee

Last year's annual service fee was also a fixed fee of \$2,000,000, 70% stablecoins (USDC, DAI, USDT), and 30% AAVE (at 30d VWAP).

Payment Schedule

- 30% of the total compensation (in aUSDC) deposited in a vault for insolvency refund
- The remaining compensation (40% in GHO and 30% in aUSDC) is streamed linearly over 1 year

Next Steps

Please share any comments or feedback below. We are targeting to submit a Snapshot on Sunday, November 19.

About Gauntlet

[Gauntlet](#) is a simulation platform for market risk management and protocol optimization. Gauntlet has for years been a trusted risk manager for Decentralized Finance. As a result, we are honored to provide our services for many different DeFi protocols and projects. Our active client engagements include Arbitrum, Uniswap, Compound, Moonwell, Immutable, Agoric, Blueberry, Perennial, Tanssi, Synonym, and Cove. We take our clients' trust very seriously. Therefore, we maintain the strictest ethical standards in ensuring that our risk management services are objective and free from unacceptable conflicts of interest or undue influence. Transparency first. Integrity always. It's how Gauntlet does DeFi.