

Beethoven Fed Risk Assessment

The following assessment covers various dimensions of risk associated with the proposed launch of the Beethoven Fed on Optimism, including bridge risk, platform risk, asset exposure risk, Fed operations, and limitations.

Bridge Risk: DOLA is mainnet-native and all DOLAs are minted on mainnet. The introduction of cross-chain functionality introduces bridge risk. While the Beethoven Fed aims to provide deep DOLA liquidity on Optimism, reliance on a bridge to move assets between Ethereum and Optimism can expose the protocol to potential vulnerabilities. These risks include potential security breaches, bridge downtime, and interoperability issues. It is crucial to ensure the security and reliability of the bridge involved in the proposed deployment to mitigate these risks effectively. The Beethoven Fed utilizes the Optimism native bridge which innately comes with better security assumptions.

Platform Risk: Launching the Beethoven Fed introduces platform-specific risks relating to the Balancer, Beethoven (Beets), and Aura ecosystems. Any vulnerabilities in the smart contracts deployed by the Balancer, Aura, or Beets teams may endanger the operation of the Fed, and could result in loss to the protocol. Rigorous smart contract audits and ongoing monitoring of the ecosystem are essential for these platforms to retain users. To address these concerns, the Beethoven Fed points to a “vanilla” [DOLA/USDC.e LP](#), which carries significantly fewer security considerations compared to Balancer Boosted Vaults (bb-USDs). Important to also note that [Beethoven X](#) uses Balancer V2 contracts verbatim, and the team acts as a service provider for various functions for Balancer including technical advisory.

Asset Exposure Risk: The proposed Beethoven Fed involves exposure to various assets, including direct exposure to DOLA, and USDC.e, and indirect exposure to BAL and AURA. Exposure to DOLA is by design as AMM Feds play their role in maintaining DOLA peg, whereas a downturn in the value of USDC.e can result in the Fed incurring permanent bad debt. [USDC.e](#), is a version of the native USDC token bridged from Ethereum on the Optimism network, and thus its value is directly tied to the viability of the Optimism Bridge. As of September 5th, 2023, [native USDC](#) is available to OP that comes with the added security benefits (not inherent to USDC.e) of being fully reserved, always redeemable 1:1 for USD, and the availability of institutional on/off-ramps. While there have been no immediate changes to the OP Mainnet bridge, constant monitoring will be required. Meanwhile, fluctuations in the value of assets with indirect exposure (BAL, and AURA) directly impacts the profitability of the Fed. Operations might be reduced or halted altogether if bribe efficiency is poor or if the opportunity cost (funds better spent elsewhere e.g. Velo Fed) is significant. Our TWG constantly monitors the bribe economy for various ecosystems the protocol is exposed to (Curve, Velodrome, Balancer, Liquis, etc) and periodically reassesses strategy based on findings.

Fed Operations and Limitations: The Beethoven Fed's effectiveness relies on its ability to expand and contract DOLA supply based on demand changes. While the proposed mechanism is designed to stabilize the DOLA peg, limitations may arise in cases of extreme market volatility

or sudden shifts in demand patterns. The Fed's response time to these changes could impact its ability to maintain the peg efficiently. It is important to set clear expectations for the Fed's operations and limitations, especially during periods of heightened market stress.

Overall Mitigation Strategies: To address the identified risks, several mitigation strategies have already been implemented. These include:

- **Audit:** The Beethoven Fed and associated contracts have undergone our rigorous smart contract review process and have also been reviewed by an external party.
- **Bridge Security:** Our integration with the Optimism native bridge ensures the security and reliability of cross-chain transfers between Ethereum and Optimism.
- **Monitoring and Response:** Our “Inverse Watch” real-time monitoring systems can provide the necessary insights that might trigger responsive actions by our Fed Chair multisig.
- **Risk Parameters:** The RWG multisig controls max loss parameters relating to slippage incurred when expanding and contracting the Beethoven Fed’s supply. These have been integrated to help prevent excessive risk-taking or user error, eliminating the possibility of big slippage losses when contracting or expanding the Fed. The use of the RWG multisig also addresses and limits the damage a malicious Fed Chair actor can cause.

The proposed launch of the Beethoven Fed on Optimism presents promising opportunities for enhancing DOLA liquidity and incentivization. Thorough risk management strategies, continuous monitoring, and agile response mechanisms will be key to the success of this initiative. Should you require further analysis or specific risk quantification, please do not hesitate to reach out to the Risk Working Group for a more detailed assessment.

Disclaimer: The risk assessment provided herein is intended solely for informational purposes and does not constitute financial or investment advice. The assessment does not guarantee the outcome of the proposed initiative or the performance of the Beethoven Fed on Optimism. Readers are strongly encouraged to conduct their own thorough research, consult with qualified financial professionals, and carefully evaluate the associated risks before making any investment decisions. Inverse Finance and its affiliated parties shall not be held liable for any financial losses, damages, or consequences arising from the use of this risk assessment or the implementation of the proposed initiative.