Hedge against Impermanent Loss

This post seeks to find out whether the Uniswap community would be interested in having a Hedge against Impermanent Loss available for its liquidity providers.

Summary

Liquidity providers in AMMs are facing the risk of Impermanent Loss. The losses caused by this risk can be substantial and can potentially deter users from providing liquidity. Having a substantial amount of liquidity not only in major token pools but also in the mid and small sized tokens is necessary for the future of DeFi that lies in composability and swapping is the main building block today and tomorrow.

Providing liquidity providers with an option to hedge fully or partially against Impermanent Loss would likely increase the volume of assets in Uniswap's liquidity pools. This would stabilize liquidity availability as users would feel more secure about their investments and be less inclined to withdraw their capital. Additionally, new tokens are more likely to be listed on Uniswap, as the availability of this feature could be a key factor for the communities of newly listed tokens.

How it works

The design is straightforward. At its core is a liquidity pool that matches underwriters and buyers. On one side, buyers purchase the Hedge against Impermanent Loss, with the liquidity pool acting as the counterparty. On the other side, underwriters take on the Impermanent Loss risk. The liquidity pool ensures that buyers and sellers are matched over time…

This hedge fully covers the Impermanent Loss, with a small excess payout due to the discrete nature of the hedge. For example, if the Impermanent Loss from a 10% price shift results in a $20 loss, the hedge would compensate $20, plus a small additional amount. Buyers pay a premium to acquire this coverage.

The Hedge against Impermanent Loss is priced using a European options model. This approach offers two benefits:

- Familiarity: European options are well-understood financial instruments, simplifying onboarding for underwriters and facilitating third-party distribution by arbitrageurs.

- Flexibility: Options act as market-priced conditional statements, and their P&L profiles can be easily combined to create more complex structures that align with Impermanent Loss behavior.

In the background, the hedge is constructed as a portfolio of options with strike prices spread out to match available market conditions, resulting in a payout curve that has linear segments.

Team

We are Carmine Finance. Team of developers on a mission to handle risks in DeFi. My name is Marek Hauzr and I founded Carmine little over two and a half years ago.

The Carmine team has a strong track record in DeFi, Web3 development, and traditional finance, making us well-equipped to deliver on this project.

- Carmine Options AMM: Successfully built and operated an options AMM on StarkNet, enabling long/short options trading and staking. The team is developing advanced features like hedging impermanent loss and leveraging (Twitter: @CarmineOptions, Website: link).

- DeRisk: Our DeFi risk management platform aggregates data from AMMs and lending protocols, monitoring real-time metrics like health ratios and capital utilization. Currently running on StarkNet and Solana, DeRisk is monitoring over $1.7 billion USD in assets (Website: link, GitHub: link).

- Trading & Finance: Extensive backgrounds in high-frequency trading, market-making, and risk management from traditional finance and DeFi.

- Konoha Governance: Contributed to the StarkNet ecosystem by developing open-source governance smart contracts (GitHub: link).

- AI & Machine Learning: Developed AI-driven solutions for predictive analytics and risk management in financial markets.