

Impermanent Loss Explained

Liquidity pools on decentralized exchanges offer a viable way to earn rewards from idle crypto assets. You can make a fraction of the trading fees and other token rewards by providing liquidity to DEXs like Trader Joe, Uniswap, and Pancakeswap. However, this is only sometimes the case.

Due to the market's volatility, the price of some cryptocurrencies fluctuates regularly. This leads to a phenomenon known as impermanent loss. If you follow our DeFi education series, you have certainly heard the terms; automated market makers and liquidity pools.

This article will tie the knot between these concepts and present the main risk associated with liquidity pools - impermanent loss.

What is Impermanent Loss?

Impermanent loss occurs when the price of an asset in a liquidity pool changes from the initial price deposited in the pool. The loss affects you as a liquidity provider and everyone holding that asset pair in the pool. It's a common issue associated with all AMMs.

The bigger the price difference, the more you will gain exposure to impermanent loss and vice versa. Often, this leads to the partial loss of your capital in the pool. That said, liquidity providers and investors must understand the implications of providing liquidity to AMMs.

It is called 'impermanent loss' because you can feel the impact of your loss after withdrawing your funds from the pool. Although, you can reduce exposure to impermanent loss by going for some stable assets like stablecoins. As the name implies, stablecoins are stable and don't fluctuate with the market.

How does impermanent loss happen?

As you know, Decentralized exchange uses a technology called an automated market maker to facilitate trades and transactions. And this system enables a permissionless flow of liquidity from investors to traders, benefiting both sides.

Traders mainly visit DEXs for token swaps, paying a small fee for the service. Similarly, liquidity providers visit DEXs to crowdfund a pool with their crypto assets, and in return, they are compensated with trading fees and LP tokens. Also, remember that the asset's price is determined by a mathematical formula unique to each DEX.

Bringing it together, impermanent happens when the price of your tokens changes after depositing it to the pool. Since the DEX is run by bits of code called smart contracts, it won't halt the pool or trades because of the price drop. Everything has been pre-programmed.

Even so, there's a flip to it. If the price of the asset rebounds before withdrawal or there's an extra supply of tokens to the pool, then the liquidity provider will break even and vice versa. Although, sometimes, the effect of the loss is minimized with the rewards from the trading fee and LP token rewards. The rewards can make up for the losses if it's tangible enough.

For instance, let's say Peter deposits 1 BTC and 10 ETH into the ETH/BTC pool. And, the pool is programmed to maintain both baskets at a 1:1 ratio. At the time of deposit, there were 10BTC and 100ETH, which means you have a total liquidity share of 10%.

In two weeks, the price of ETH doubled while BTC remained the same. But, the token baskets' value hasn't reflected the new ETH price. So, as usual, arbitrage traders jump in to buy ETH at a discounted price till the token price matches the market price.

In this case, once the pool is 1 BTC to 50 ETH, your 10% deposit will be worth 1 BTC and 5 ETH. So, your impermanent loss is the 5ETH difference from your initial deposit. It is tagged 'impermanent loss' because there could be an extra supply of tokens to the pool, bringing it back to the initial ratio. The loss becomes permanent once the funds are withdrawn.

Estimating Impermanent Loss

Frankly, it can be estimated. There are some arithmetic formulas for estimating the impermanent loss of an asset in a pool. But I wouldn't bore you with all of those. You can use this free [impermanent loss calculator](#) to estimate it quickly.

Other Risks Associated with AMMs

Smart Contract Risk:

Smart contracts are self-executing programmes deployed on a blockchain. They are basically the underlying codes that power the crypto ecosystem and everything built on it. And since developers create them, there is the likelihood of human errors, which poses a risk known as smart contract risks.

The possibility of smart contract risk exists on all crypto projects, and Struct Finance is no exception. DeFi protocols conduct multiple security audits by third-party organizations to curtail this risk. Even so, it does not entirely rule out the probability of them.

Slippage:

Slippage means the difference between the expected and actual price of an asset. It occurs when buying or selling an asset, and it can be either positive or negative. It's negative when a trader settles for a higher price than expected. In contrast, it's positive when a trader settles for a lesser price than expected. It is worth noting that too much slippage can result in the loss of funds when trading on an AMM.

Plans for the Future

We believe in transparency, so we keep educating our users to help them make better investment decisions. The risks discussed above exist, even when interacting with Struct Finance. Stay SAFU.

Struct Finance is the first protocol designed to unlock the next generation of financial instruments by building the tools, infrastructure, and foundation necessary to enable structured products on DeFi.