

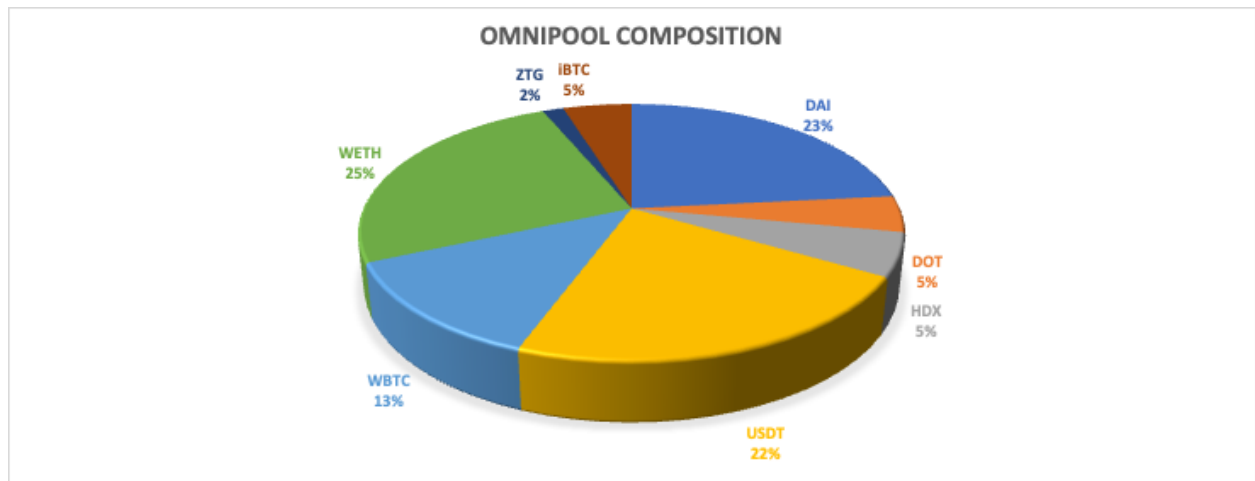
## 0 Impermanent Loss in the Omnipool

The Omnipool AMM model, in its most basic form, can be thought of as a collection of xyk AMM pools where each of the different TKN assets is paired with LRNA - learn more about it [here](#). This is enabled because when a liquidity provider deposits a TKN asset into the Omnipool, an equivalent value of LRNA is minted to account for the 2nd-leg of the LP position.

Since LRNA is minted/burned based on the amount of TKN a LP deposits or withdraws, the total value of LRNA within the Omnipool is equivalent to that of the total value of all assets within the Omnipool.

As such, one can think of the LRNA token itself as a weighted price index reflecting the aggregate movement of the different assets within the Omnipool. As of June 2023, the asset composition of the Omnipool is as observed in the chart below, comprised predominantly of BTC, ETH and stablecoins (~88% of total assets). For any TKN, the impermanent loss therefore arises when the TKN's price movement differs from what is predominantly the price movement of BTC, ETH and stablecoins\*.

\*Note however, this can change and fluctuate depending on the asset composition.



### How TKN as a % of Omnipool can affect IL

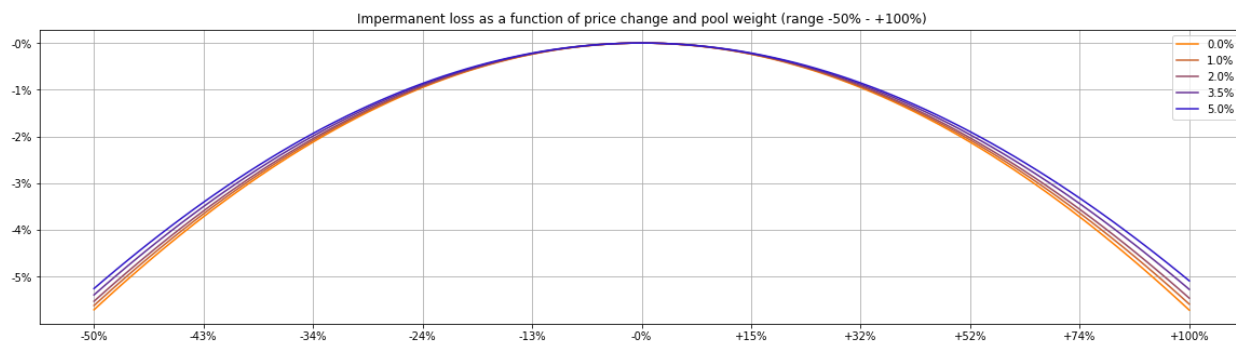
If a TKN's weighting in the Omnipool increases relative to other assets, this would mean the TKN now has a larger effect on the price of LRNA. The price movement of LRNA would therefore have an increased positive correlation with the price movement of TKN.

Because impermanent loss is observed based on the price changes between the TKN itself and LRNA, when a TKN has a larger presence in the Omnipool, the impermanent loss observed between that TKN and LRNA decreases.

## IL calculation based on the price movement of TKN relative to LRNA

In the graph below, we illustrate how much impermanent loss would be incurred (y-axis) based on the price change of TKN relative to LRNA (x-axis).

For example, based on a 1% TKN weight in the Omnipool, if TKN price increases 50% (or decreases 35%) relative to the price of LRNA, the resulting IL will be ~2%.



X-axis = TKN price change relative to LRNA

Y-axis = Impermanent Loss

The various colored lines represent the different initial weights assigned to TKN as a % of the total Omnipool.

## Trading fees

For DEX AMMs, the primary way for LPs to offset IL is through the fees earned from trading. Based on the current version of the Omnipool, the fees earned by LPs is 0.25% of the trading volume for the particular asset which they have LPed for. In future versions of the Omnipool, through the deployment of dynamic fees, LPs may earn higher fees during times of heightened volatility to ensure they are fairly compensated for negative market environments.

Predicting trading fees requires making a lot of assumptions about market conditions so any such predictions should be taken with caution. We have provided the following example for illustrative purposes only.

Example:

- If we assume an initial LP position of 100k USD worth of TKN and that the average daily trading volume equates to 1% of TVL, it would accrue 2.5 USD per day.
- This would amount to 912.5 USD or 0.9125% return on the initial 100k USD position.
- The calculation is as follows:
  - $(\text{LP Position} \times \% \text{ of TVL}) \times \text{LP Fee \% of Trading Volume} \times 365 \text{ Days} = \text{Fees Earned}$
  - $(100,000 \times 0.01) \times 0.0025 \times 365 = 912.5 \text{ USD or } 0.9125\% \text{ return on } 100\text{k position}$

- Based on the above graph depicting impermanent loss for a TKN/LRNA position, the ~0.91% return earned would offset up to a ~125% TKN price increase **relative** to LRNA.

Note that the example above does not factor in compounding of fees (i.e. whether the traded volume occurs upfront at the beginning of the year or is earned throughout the year).