SWAPPING BETWEEN CURRENCIES

SOVRYN AMM
AUTOMATED MARKET MAKING

- Trade against a pool instead of matching orders
- Price is determined by a mathematical formula
- \( x \times y = k \), where \( x \) and \( y \) are the token balances and \( k \) constant \( \rightarrow \) reserves always have the same value in the pool
- Pool tokens represent a share in the pool
- LPs need to provide both assets in equal value
AMM PROBLEMS

- High slippage with low liquidity
- Arbitraging required to keep the price around the expected price (from other trading venues) -> cost for the pool
- Impermanent loss
  - loss in contrast to just hodling the asset if the price rises
  - Canceled out if price returns to starting point
GENERAL INFORMATION

ORACLE BASED AMMS

- Price follows an external oracle
- Less arbitraging opportunities, therefore less impermanent loss
- Allows for one-sided liquidity provision
SOVRYN’S AMM

Fork of Bancor v2

Different kinds of liquidity pools
  - V1: Traditional AMM (used for SOV)
  - V2: Oracle based AMM (used for all others)

RBTC as second currency on each pool (though technically not required)

Network contract which connects all of the pools, allowing to trade each asset with each other asset
PROVIDING LIQUIDITY

V1
- Provide 2 reserves in the correct ratio (50/50)
- Wrong ratio → lower value reserve is used as base for calculation, excess returned to the user
- 1 pool token representing a share of both currencies

V2
- Provide a single asset
- 1 pool token per reserve
SOVRYN’S AMM

REMOVING LIQUIDITY

V1
- Burn the pool tokens to receive an equal value of both reserve currencies
- Impermanent loss turns into permanent loss

V2
- Burn the pool tokens to receive the originally staked balance + earned fees
- The pool balance might be insufficient for the payout
- Fee on withdrawing an undersupplied asset
SINGLE SIDED LIQUIDITY

- Smart contract keeps track of how much of each reserve it owes to its LPs
- Incentivizes the market to keep the balance by creating arbitraging opportunities
- If not taken frequently enough, staked and current balance diverge, leading to a loss
- System reacts with dynamic fees which are used to fill up the undersupplied reserve
CONVERSION FEES

- Conversion fee is paid on each swap for each involved pool.
- Fee is added to the staked balance of the purchased reserve.
- Each pool can have a different conversion fee.
- Default 0.1%.
- Dynamic fees are not added to any staked balance (used to move the current balance of an undersupplied asset closer to the staked balance).
FREQUENT SOURCE OF CONFUSION

- You do not get 1 pool token per supplied reserve token, but less, because the pool token grants you a share of the fees generated in the past as well.

- While the AMM price follows the oracle price, it is not the same, because of
  - Slippage (caused by low liquidity)
  - Market incentives for rebalancing the AMM pool (arb opportunity + dynamic fees)