

Blockchain and DeFi intro

Rostislav Berezovskiy, Hash CIB

Vega Institute

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Plan

- ▶ Uniswap V3 strategy examples

Strategy 1

Symmetric range: place the price range symmetrically around current price with regular rebalancing.

- ▶ parameters: range width
- ▶ rebalancing trigger example: price hits lower or upper bound
- ▶ rebalancing rule: new range is set symmetrically around current price with the same fixed width

Strategy 2

Symmetric range with dynamic width: place the price range symmetrically around current price with regular rebalancing, adapt range width.

- ▶ parameters: range width, width step, volatility window, volatility threshold
- ▶ rebalancing trigger example: realized volatility change exceeds threshold
- ▶ rebalancing rule: new range is set symmetrically around current price, the width is increased or decreased with the corresponding realized volatility increase or decrease.

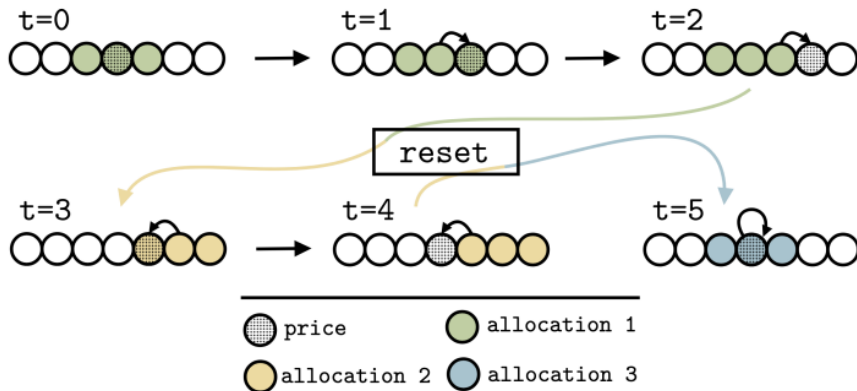
Strategy 3

Pegged assets strategy: set a narrow price range around the known in advance price.

- ▶ parameters: price growth rate, time window size, rebalancing period
- ▶ rebalancing trigger example: deterministically according to the rebalancing period
- ▶ rebalancing rule: new range is set symmetrically around current price, the width equals to the standard deviation in the chosen time window




General case

τ -reset strategies described in [3].



Protocol examples

- ▶ Gamma
- ▶ Range

-  Adams, H., Zinsmeister, N., Salem, M., Keefer, R., Robinson, D.
Uniswap v3 core
Technical report, Tech. rep., Uniswap, 2021.
-  Cartea, Á., Drissi, F., Monga, M.
Predictable losses of liquidity provision in constant function markets and concentrated liquidity markets.
Available at SSRN 4541034, 2023.
-  Fan, Z., Marmolejo-Cossío, F., J. Moroz, D., Neude, M.r, Rao, R., Parkes, D.
Strategic Liquidity Provision in Uniswap v3.
arXiv:2106.12033 [cs.CR], 2023.