

From the DarkPool.Design Researchathon in Brussels on July 13, 2024

Our breakout group focused on the question: How do you quote in dark pools?

Open Questions

:

How would this work practically?

- If everyone were to use dark pools, you would lose optimal price discovery thus losing the greatest benefits
- if goal of dark pool is to find mid/market price then must have some opaqueness
- How does zk work with dark pools?
- there's pi squared, maybe now risk squared

Why is quoting important

- different services have different goals
- setting objectives
- different DEX designs for quoting
- tradeoffs for each quoter
- different DEX designs for quoting
- tradeoffs for each quoter

Quoting Strategies

- users need to know what price to expect
- optimistically - Uniswap, good marketing & UX
- pessimistically - CoW, poor marketing & less risky
- optimistically - Uniswap, good marketing & UX
- pessimistically - CoW, poor marketing & less risky

Dark Pool Designs (continuous)

- Orderbook
- LOB
- all private
- LOB
- all private
- Batch Auctions
- CoWswap
- private
- CoWswap
- private
- Hybrid
- orderbooks, Uniswap v4
- some dark, some lit
- orderbooks, Uniswap v4

- some dark, some lit

Strategy

Pros

Cons

alpha

Discrete Quoting (Speedbump)

- orderbook snapshots

accurate, easy, optimistic

- getting interval right is hard and inconsistent - privileged snapshotter needs to be trusted - lags & delays - potential for stat arbs

Quote based on last fill - in darkpool - how late to reveal? - assume public settlement

easy, works, no leak

- inaccurate (outdated) - can be missing depth

this is better than vvv (no quotes)

No quotes

- tradfi

easiest, battle tested for sophisticated actors, no leak

leaves Idaho Joe/retail users confused without quotes on frontend

Quote from other venues - based on Binance or other DEXes

inaccurate

Increasing uncertainty - add book noise

makes everything a stat arb

Stake for quotes - slash if misbehaving (TEEs/AVS)

- no consequences from slashing - KYC or reputation based

Lock for quotes - delayed withdrawal if no execution - pay in time

- implementation details for time constraints - not foolproof - potentially need KYC

Pay for quotes (basically Sentinel orders)

- refund if you execute - could be managed in an auction

really good UX

- implementation details are complicated - worse spreads - potential for stat arb

Smart orders

Set order sizes - tornado cash-like - quote at some price X

good UX

- how does it work? - leak A LOT of info - complicated to implement