

XOR Liquidity – Coverage is Alpha

OpenDay
2025

... and Other Niche Xetra Topics

18 September 2025

Xetra Dark Midpoint

Xetra Midpoint

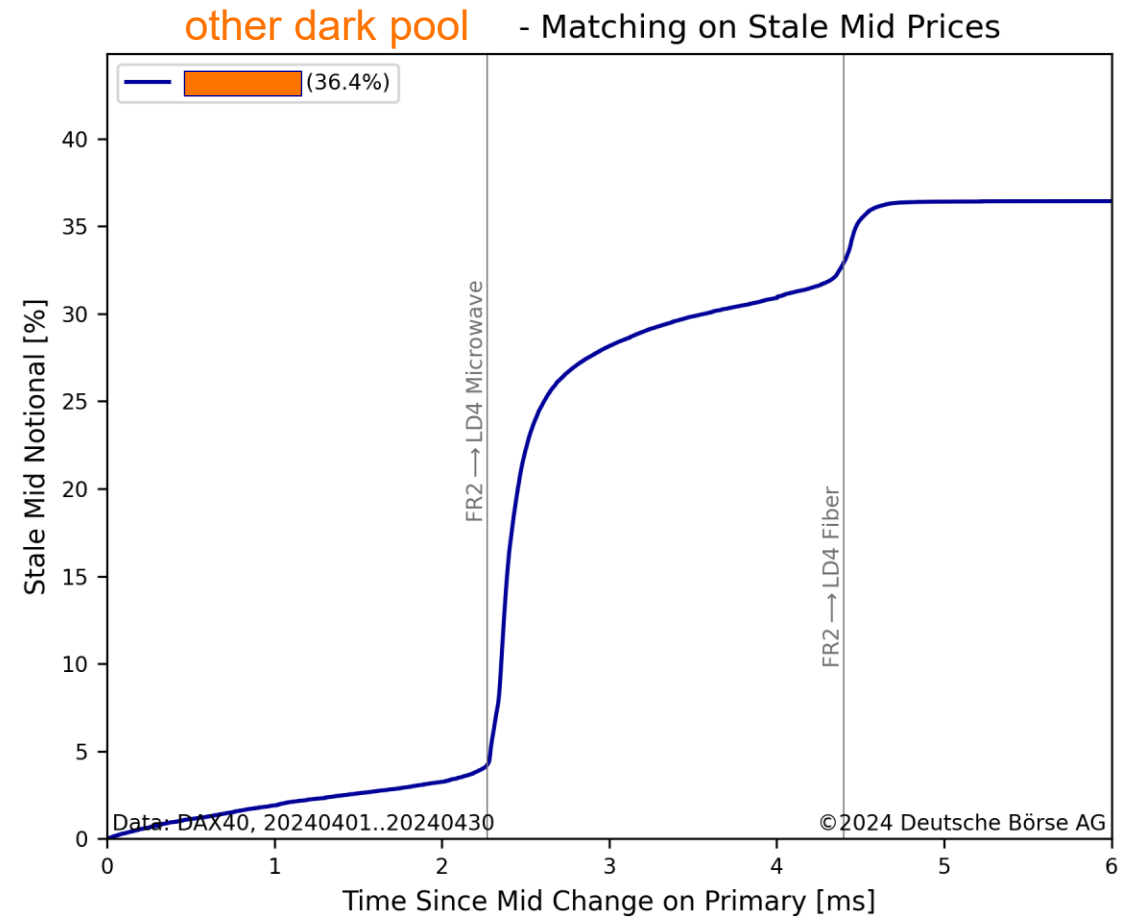
- Launched 20241209.
- No pre-trade transparency, i.e., dark order book.
- For all instruments for which Xetra is reference market.
 - mipoint to Xetra mid price.
- In-process → no latency arbitrage.
- Minimum-acceptable quantity (MAQ).
 - complex matching logic (> polynomial complexity)
- Limit (off-tick)/market, GFD/IOC/FOK orders.
- Price-**volume**-time priority.
- Sweep order → dark-to-lit.



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We Don't Want This

- Without reference price waiver (e.g. LIS), dark venues must match at reference price.
- Dark pools adjust price via fiber feed from primary.
- Arbitrageurs can observe mid change on primary and snipe stale mid price on dark pool.
- Primary→dark latency comprises large chunk of volume.



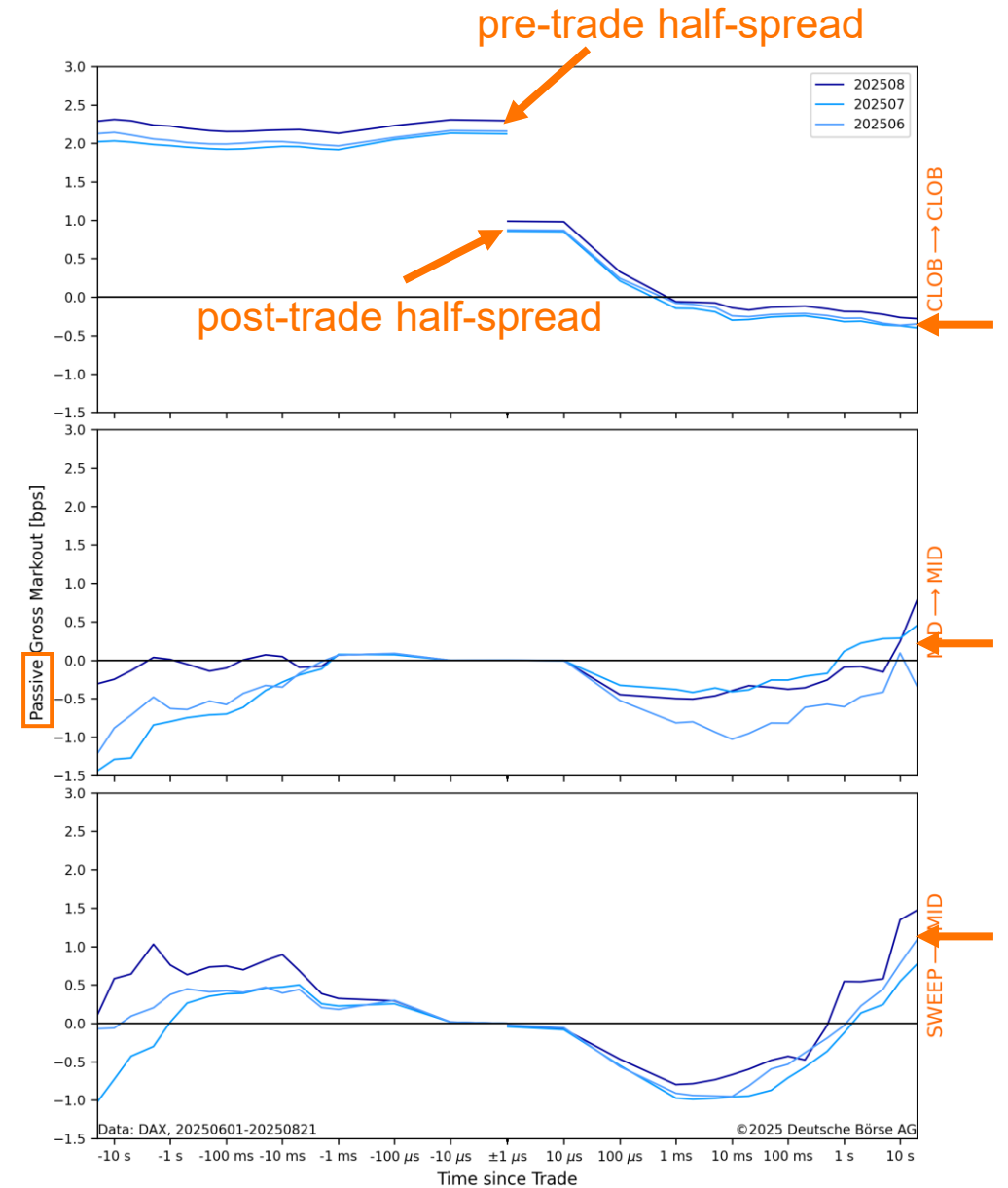
We Do Want This

- Seemingly: No downside of flagging every aggressive order as midpoint sweep.
- Expect: same toxicity in midpoint and lit book.
- Empirically:
 - Mid-mid less toxic than CLOB.
 - Sweep orders less toxic than aggressive CLOB-only orders.

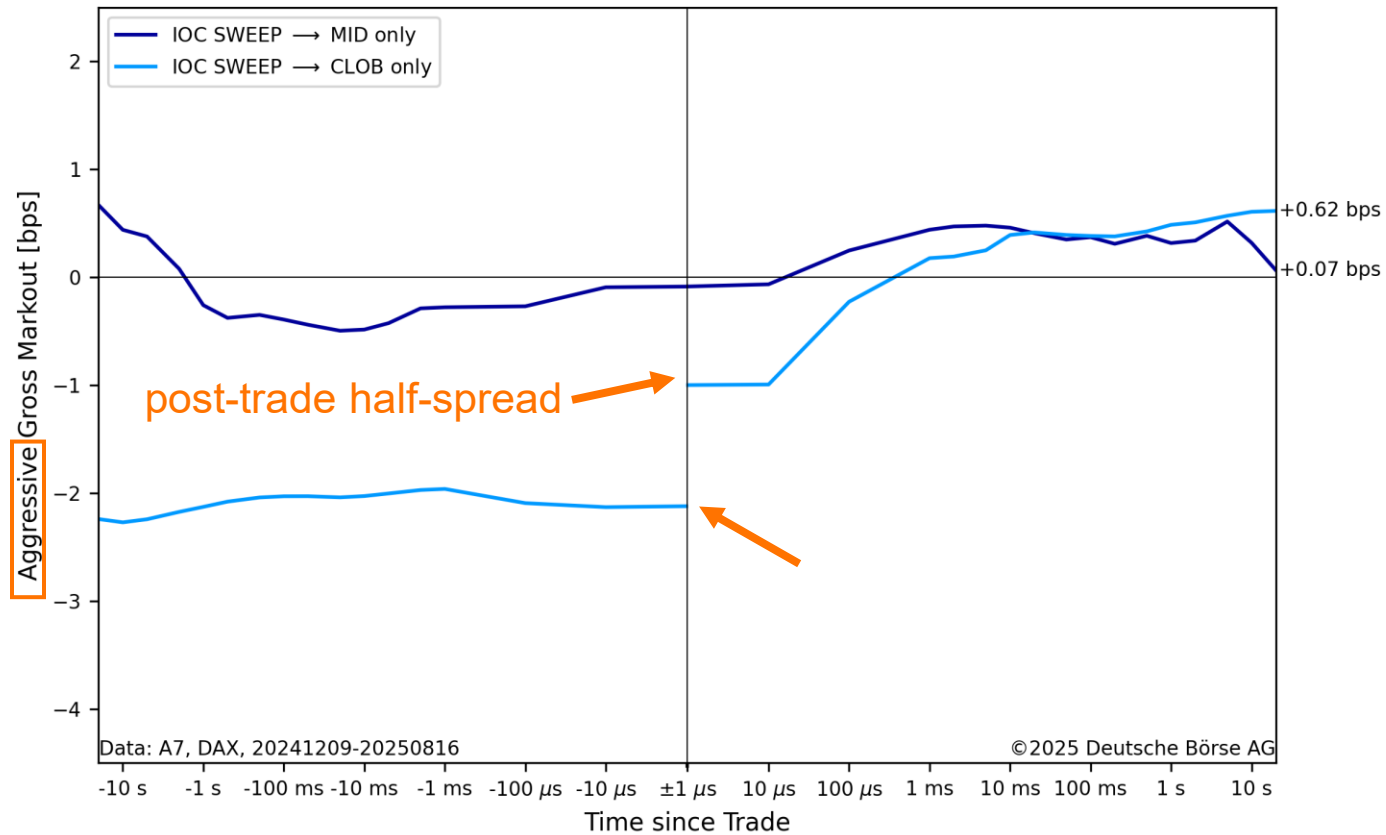
Stable over time.

No deterioration with growing volumes.

Why?



A Self-Sustaining Less Adverse Equilibrium



- IOC Sweep orders (almost) perfect A/B test for comparing market impact of dark vs. lit trades.
- Fill against mid or CLOB unknown at time of sending request.
- Minimize market impact for parent orders.
- Temporary market order beneficial when position closed quickly.
- Foregoing possible price improvement optimal for HFTs.

XOR Liquidity

„Duplicated-then-Canceled Liquidity“

Observation:

Participants cancel „duplicated“ orders on other venues after a fill.

Hans Degryse, Rudy De Winne, Carole Gresse, and Richard Payne, *Duplicated Orders, Swift Cancellations, and Fast Market Making in Fragmented Markets*, 2016 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3356695).



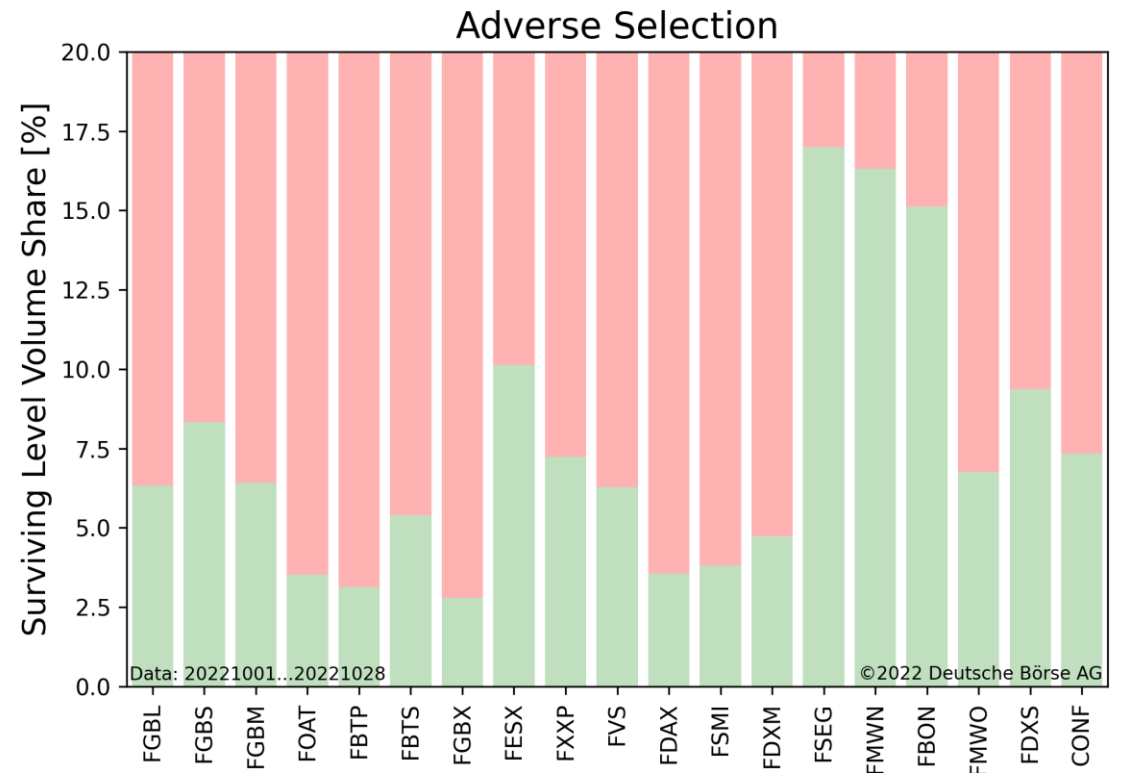
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Not All Levels Are Created Equal



Enter Adverse Selection

- Much more volume trades on collapsing level than on surviving level (>10:1).
- Fill on collapsing level
 - loss of half-spread (>90%)
- Fill on surviving level
 - profit of 1.5 x spread (< 10%)
- Probability improves towards front of queue

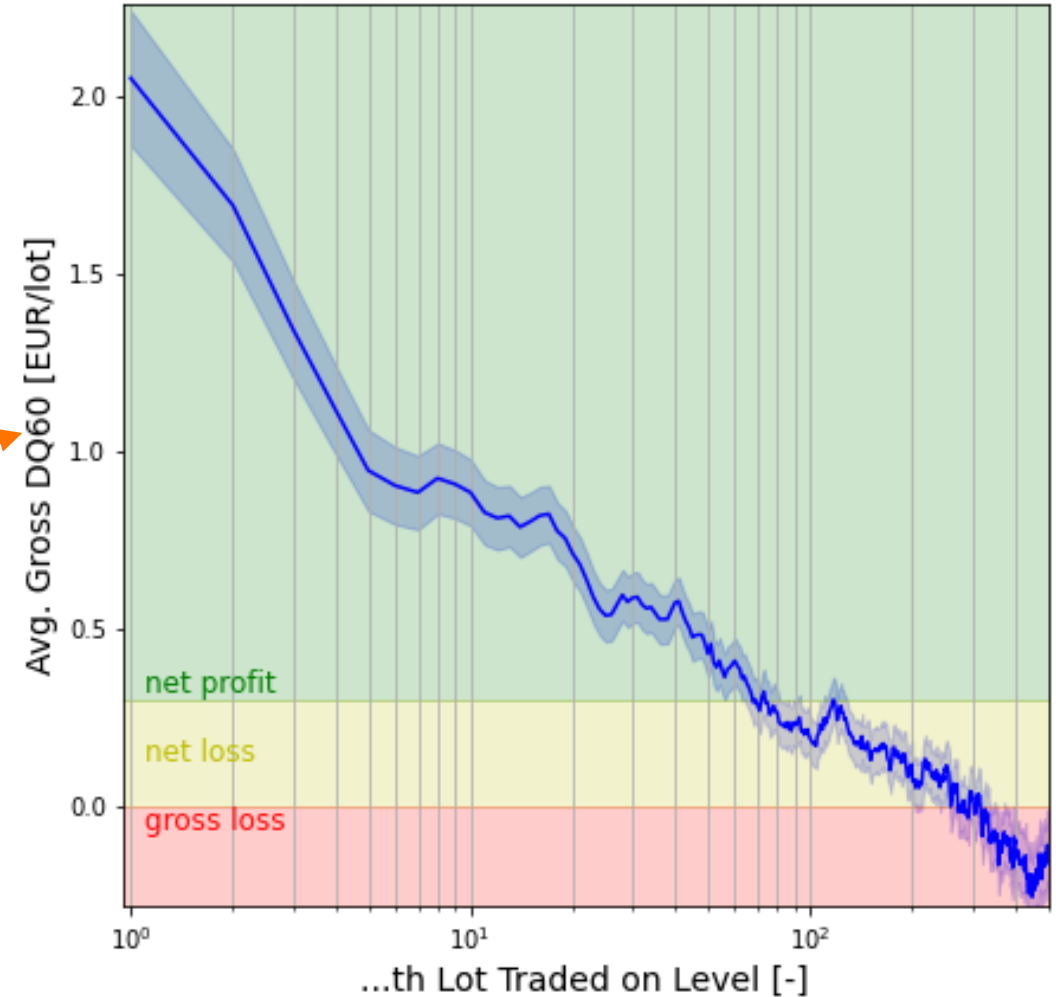


Location, Location, Location ... in the Queue

- Assume 100 shares get filled on surviving level, 1,000 on the collapsing level.
 - First 100 traded shares on the level: 50:50
 - Anything after 100 shares: always “bad” fill
- KPI for profitability
- In practice:
 - no fixed cutoff
 - probabilities vary gradually
 - Chart is for futures (and old) but holds universally.

DQ60 by Filled Volume Ahead

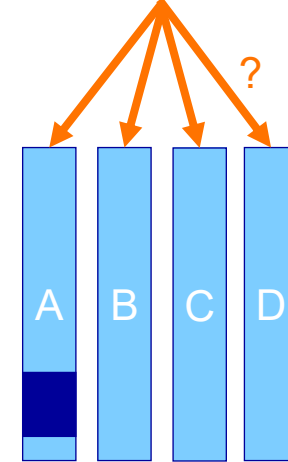
(FESX, 20220401...20220531)



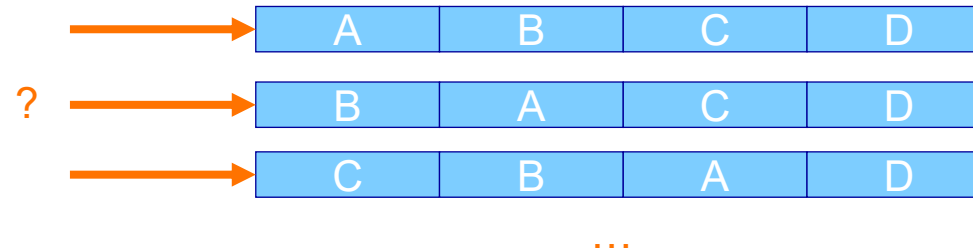
Multiple Queues

- Equities on multiple venues.
- Outright & calendar spreads.
- Instruments with synthetic matching.

Incoming flow

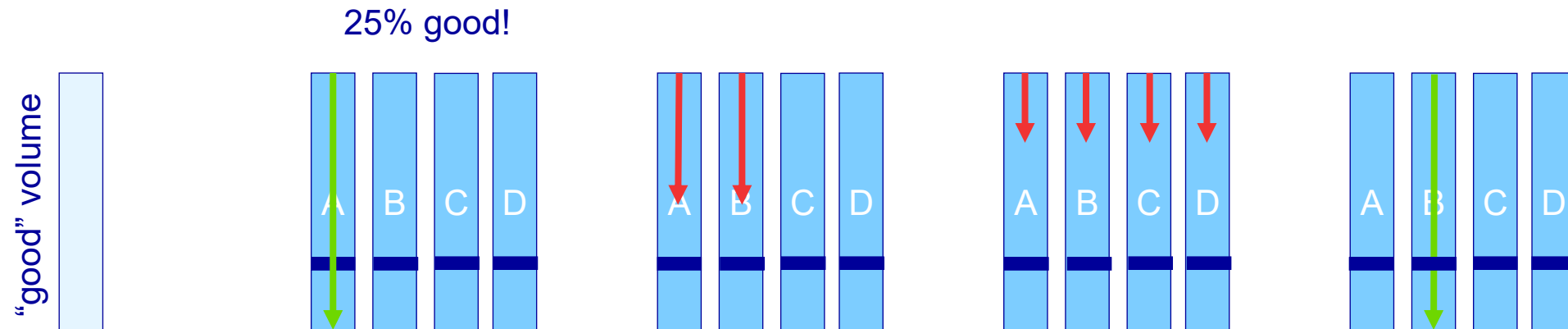


Which queue am I in?



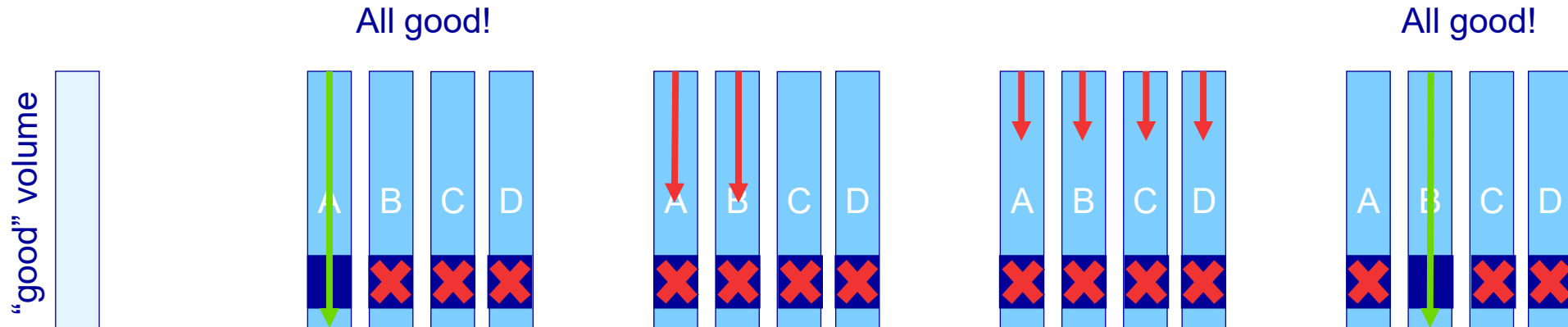
Approach “Hedge Your Bets”

- Smaller volume in each queue.
- High probability of good fill but only for fraction of volume; overall (for same volume) no better.



Approach “XOR” a/k/a Duplicated-then-Canceled

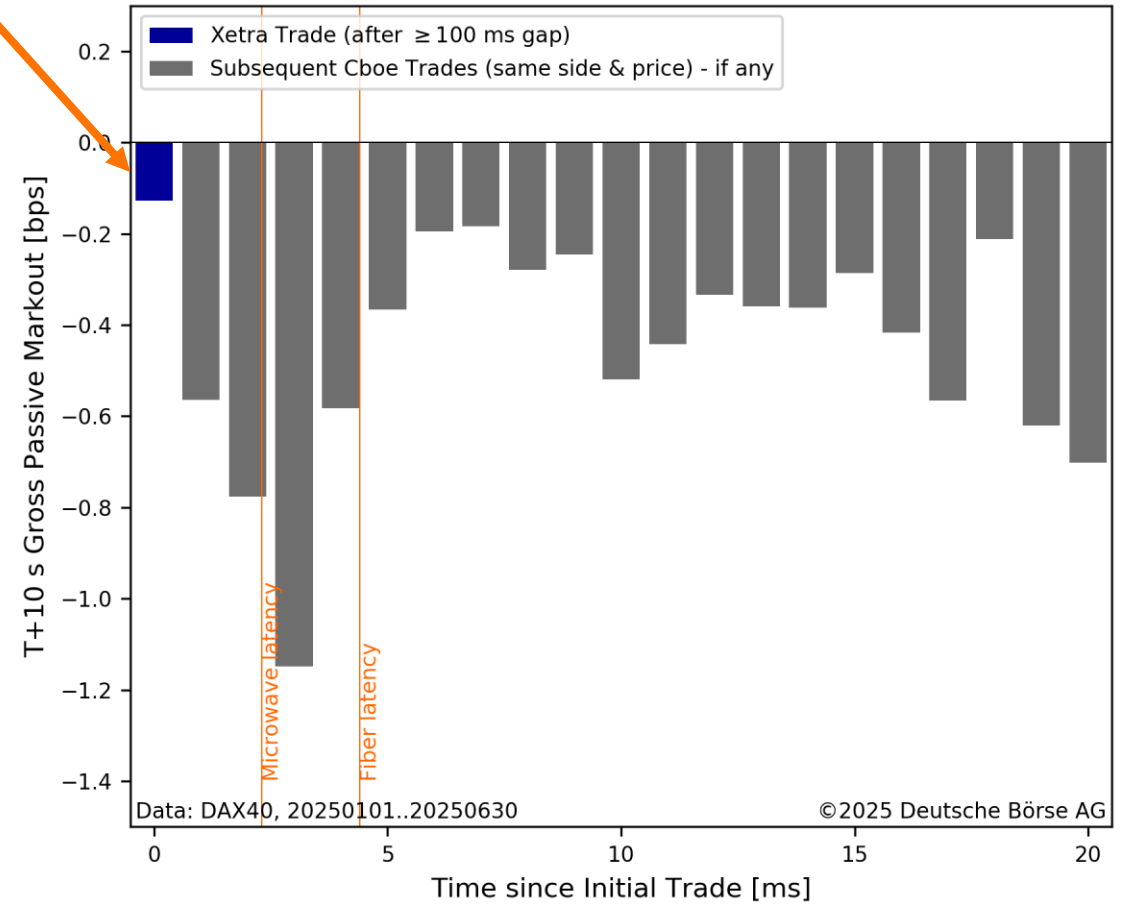
- Full volume in each queue.
- Once volume is filled, cancel remaining.
- Maximizes effective queue position.
- Small chance of overflow.
- **The more queues (lit or dark) you join, the better.**
- **Externality of fragmentation**
- **“Ghost liquidity”**



Canary Fills

- Trades on other venues shortly after a trade are more toxic than the average trade.
- Holds in both directions (only XETR→Cboe shown in chart).
- Partly unavoidable (orders sent to multiple venues to avoid latency arbitrage a la “Flash Boys”).
- Some avoidable only with MW.
- Plenty of toxic fills even beyond fiber latency.
- Trade-off: Worth giving up queue position? (Not necessarily a subsequent fill.)

Incl. “naked” trades.



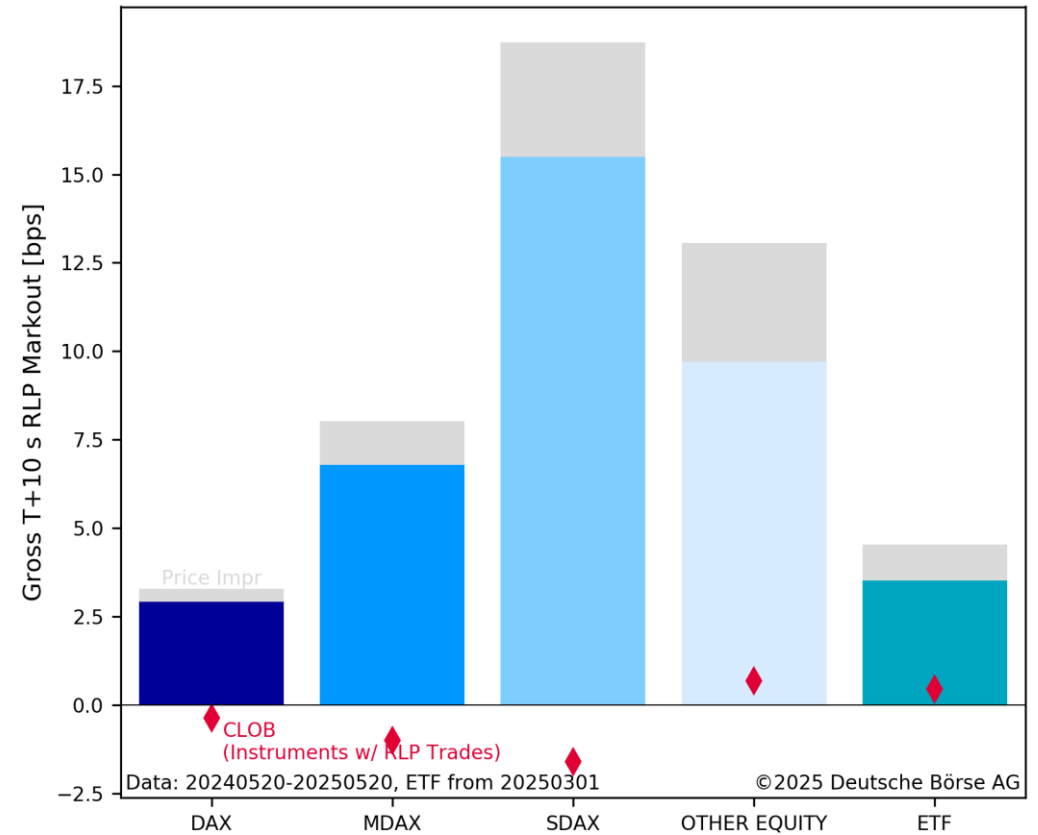
Xetra Retail Execution

- Launched 20240520 for equities, ETFs from 20250301.
- Retail liquidity provider (RLP) orders can only interact with retail member organization (RMO) orders.
- RMO orders can match against any order.
 - **additional, interleaved** orderbook only for retail
- Best of both world for retail traders:
 - Possible price improvement.
 - Full liquidity of CLOB.
- ∃ real-time level-2 feed (not via member feed)
- DAX constituents: \approx half of RMO volume is matched against RLP.



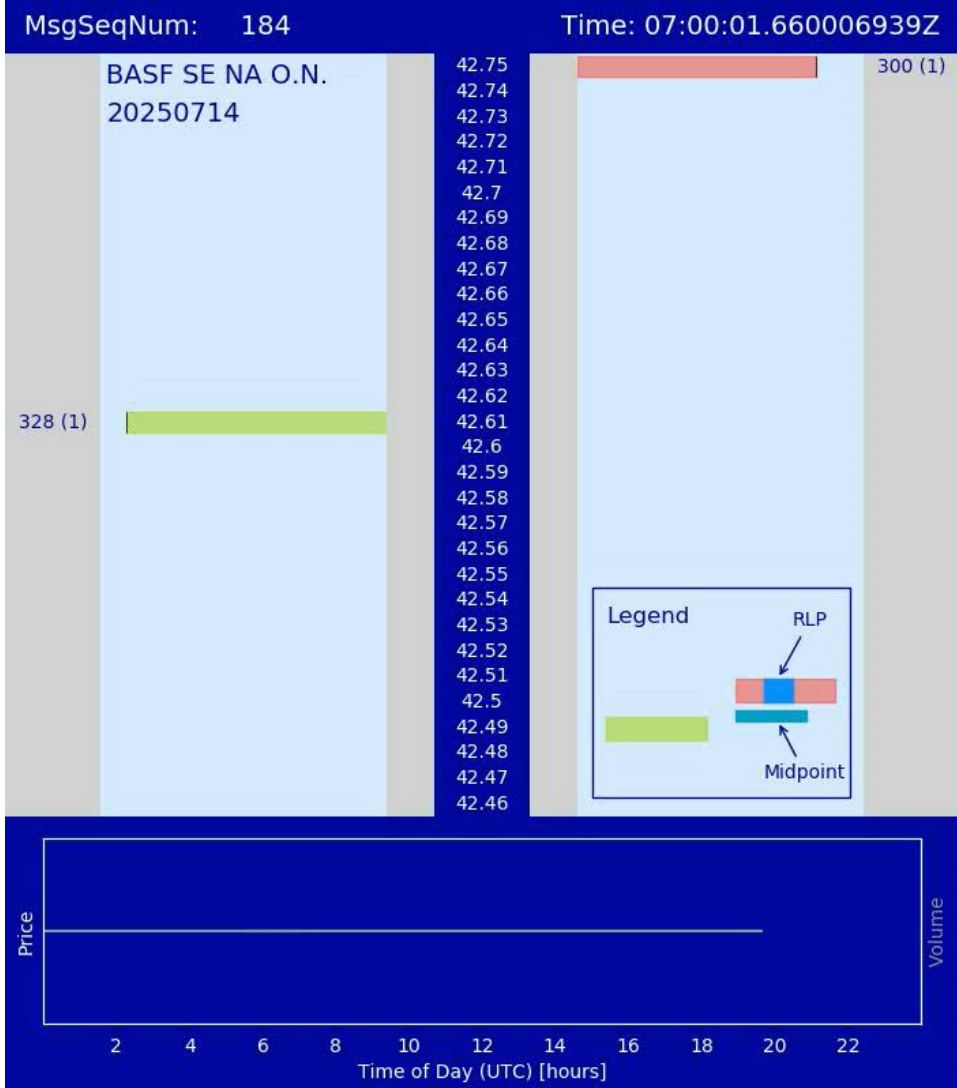
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- RLPs can harvest low-information flow.
- No negative impact on CLOB trading observed (liquidity, markouts, ...).
- RLP itself has become very competitive.



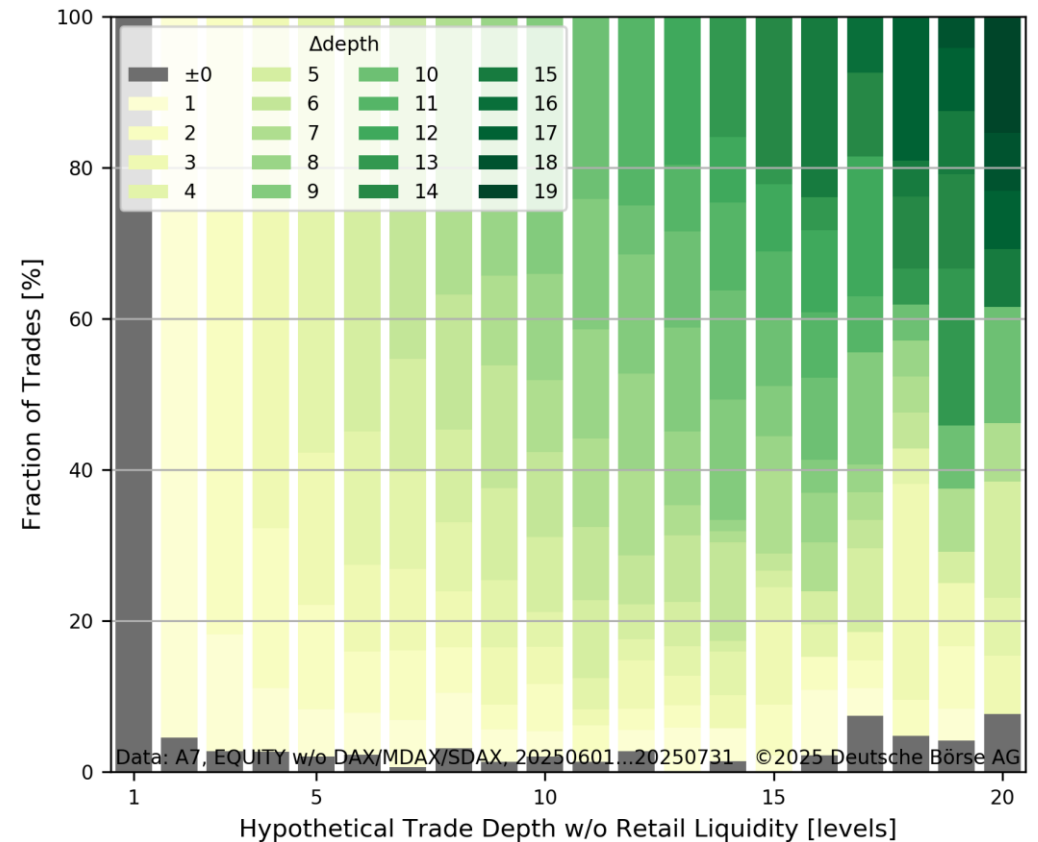
RLP More Than Just An Afterthought

- A LOT of RLP liquidity.
- Usually with very good queue position (no danger of being sniped).



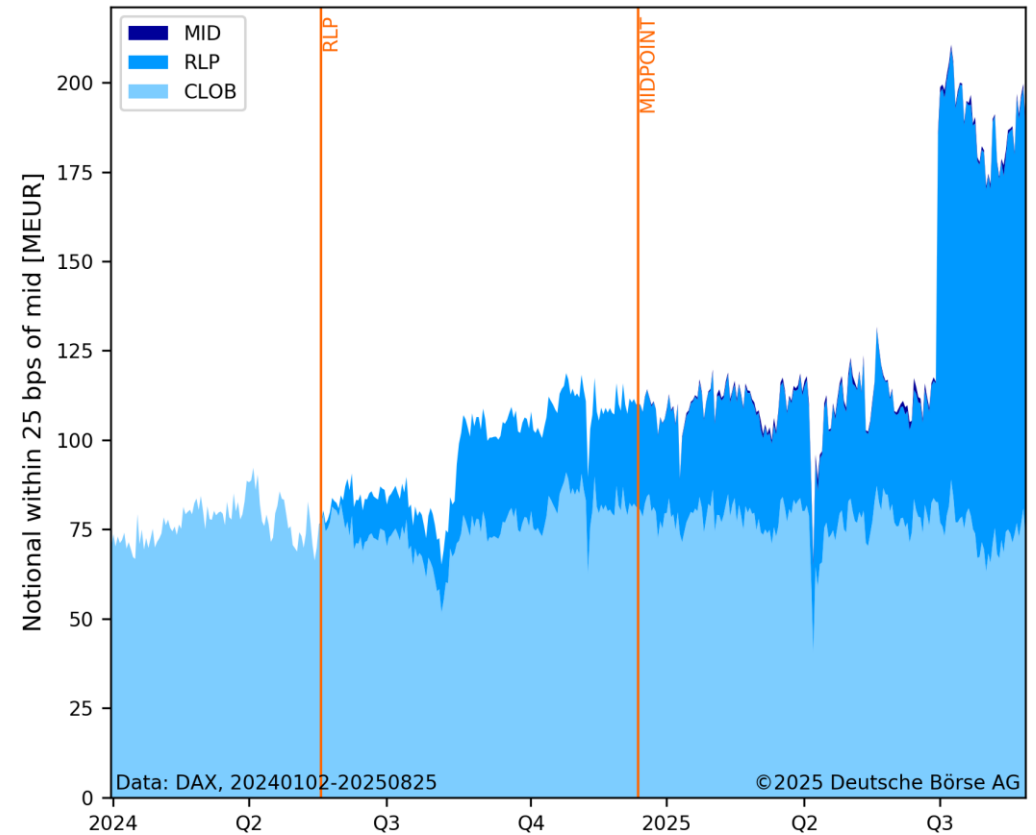
RLP Make the Worst-Case Less Bad

- HUGE price improvements for large trades in illiquid (non-DAX/MDAX/SDAX constituents).
- 1,000's EUR for individual trades.
- “Direct” price improvement (RLP inside BBO) only around 3 EUR / trade.
- “Indirect” price improvement (reduced depth of trade) much larger > 10 EUR / trade.



Liquidity Cannibalization?

- Does the RLP liquidity come at the cost of CLOB liquidity? – No.
- RLP liquidity exceeds CLOB liquidity.
- RLP liquidity is genuine **additional** liquidity.



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