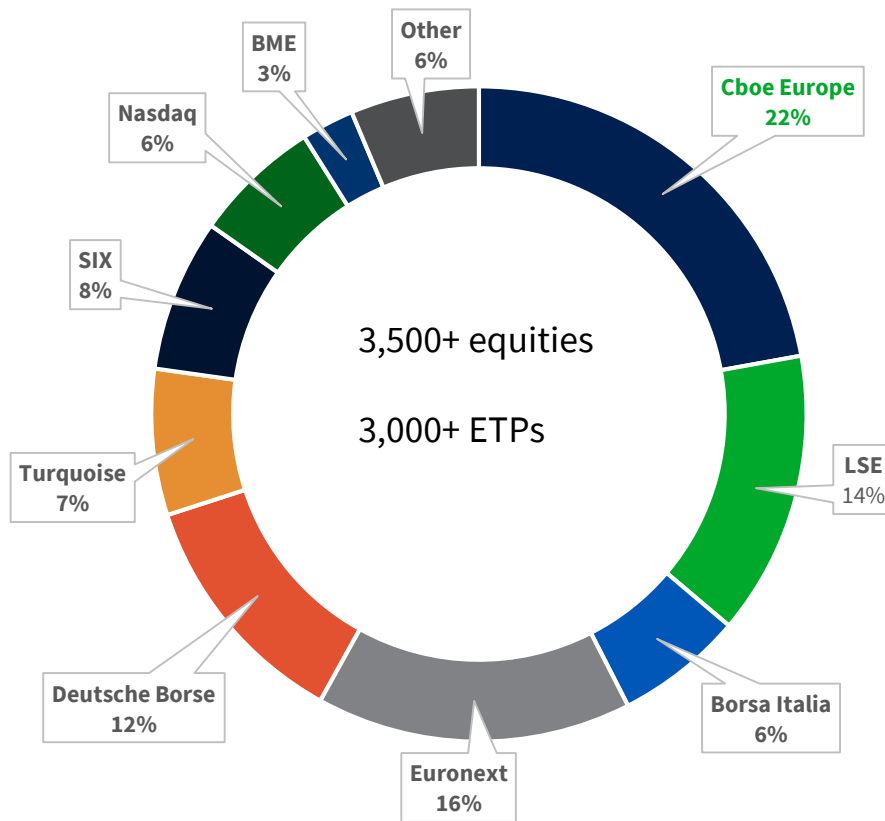


The background features a large, stylized graphic of a grid or mesh that curves and flows across the page. The grid is composed of light blue and green squares, some of which are slightly offset or tilted, creating a sense of movement and depth. Two horizontal dark blue lines intersect the grid, one above and one below the main text area.

MiFID II: One Year On

The No. 1 Pan-European Equity Trading Venue

European market share **by exchange**



Cboe Europe market share **by market**

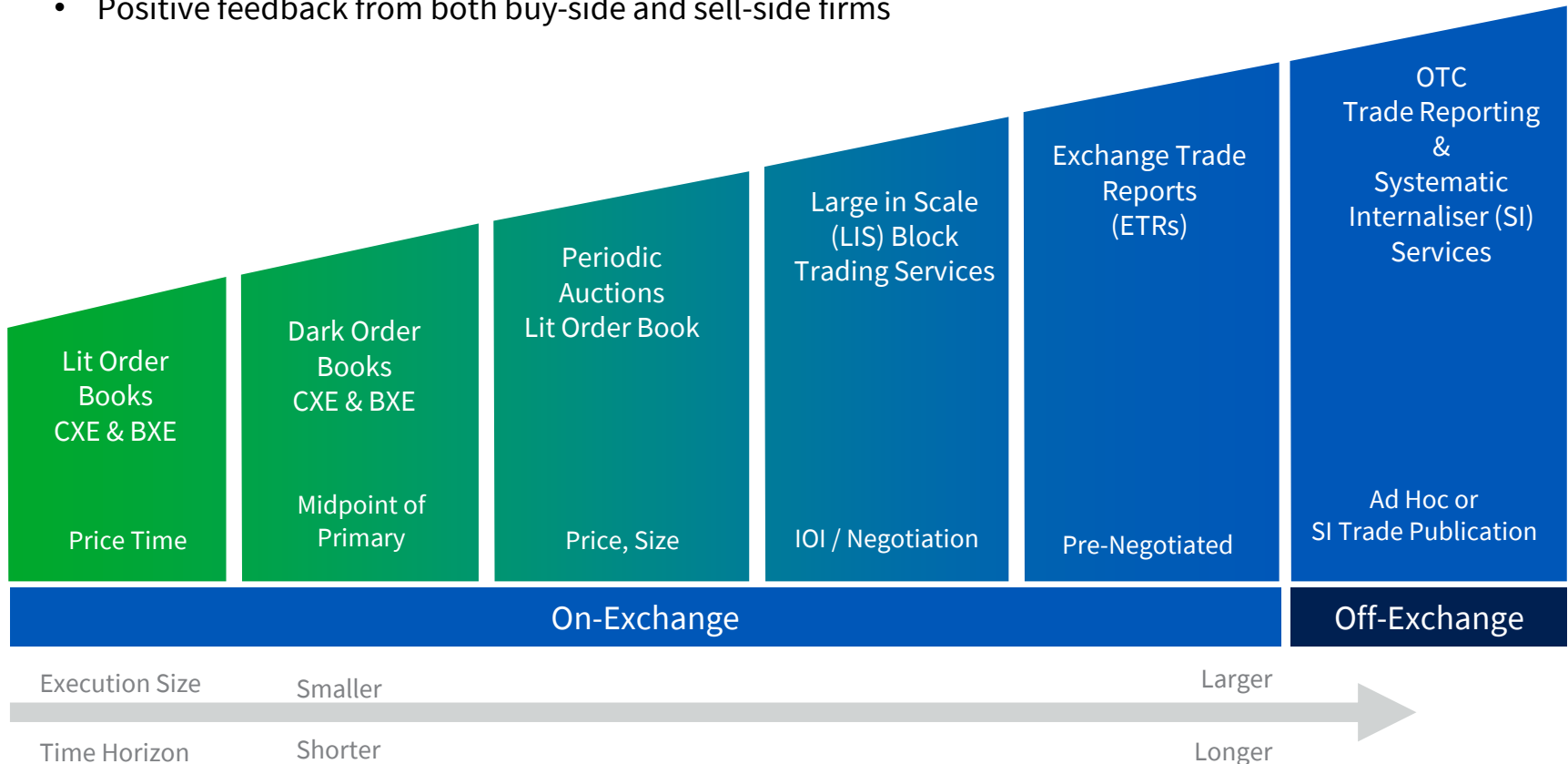


Cboe's Product Suite Met MiFID II Requirements



❖ MiFID II solutions that have emerged in the market have seen strong adoption

- Improved execution outcomes for customers by differentiating and expanding our trading platform offerings
- Enhanced off-exchange services to help market participants meet new regulatory requirements
- Positive feedback from both buy-side and sell-side firms



Equity Trading Market Structure – Post MiFID II

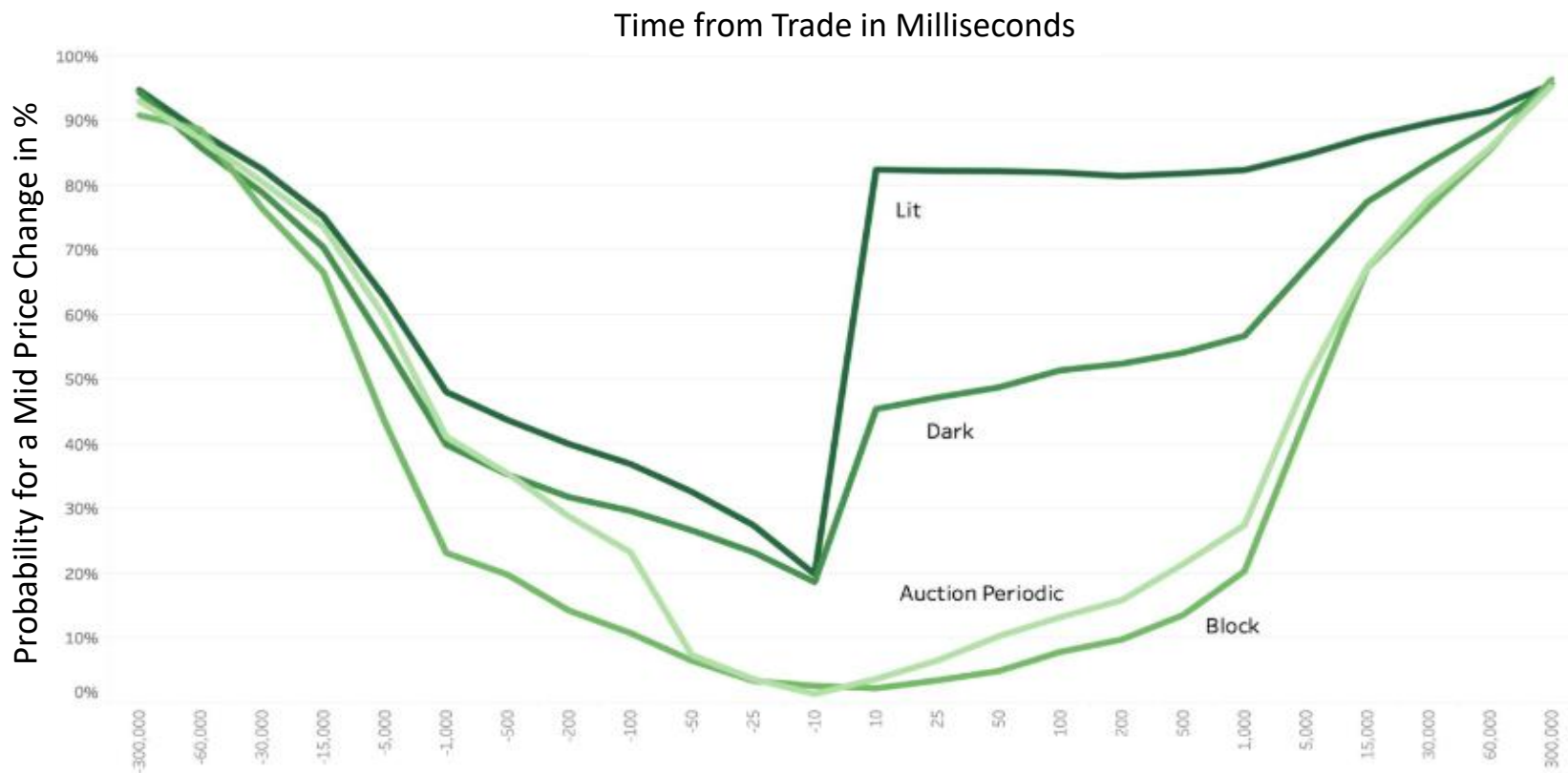
Q4 2017 vs. Q4 2018

Total “Addressable Only” EU market notional (Off-Exchange, OTC + On-Exchange) up 7.7% from ~€71.2bn to €76.7bn per day over the period

Off-Exchange	On-Exchange														
<p>OTC</p> <p>BCN Disappeared</p> <p>✗ No longer permitted post-MiFID II</p>	<p>On-Book Lit</p> <p>Continuous Lit Books (Price, Time), Standardised Tick Sizes</p> <p>➔</p> <table border="1"> <tr> <th>2017</th> <th>2018</th> </tr> <tr> <td>ADV: €33.5B 47.1%</td> <td>ADV: €33.8B 44.0%</td> </tr> </table>	2017	2018	ADV: €33.5B 47.1%	ADV: €33.8B 44.0%	<p>On-Book Dark</p> <p>Dark Books (Reference Price Match), Double Volume Caps, No Bid/Offer</p> <p>⬇</p> <table border="1"> <tr> <th>2017</th> <th>2018</th> </tr> <tr> <td>ADV: €2.9B 4.0%</td> <td>ADV: €2.3B 3.0%</td> </tr> </table>	2017	2018	ADV: €2.9B 4.0%	ADV: €2.3B 3.0%	<p>Off-Book Reported</p> <p>Large In Scale Block (IOI Negotiation)</p> <p>⬆</p> <table border="1"> <tr> <th>2017</th> <th>2018</th> </tr> <tr> <td>ADV: €945M 1.3%</td> <td>ADV: €1.3B 1.7%</td> </tr> </table>	2017	2018	ADV: €945M 1.3%	ADV: €1.3B 1.7%
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<p>OTC Trades Ad hoc, irregular, infrequent</p> <p>⬇</p> <table border="1"> <tr> <th>2017</th> <th>2018</th> </tr> <tr> <td>ADV: €15.2B 21.3%</td> <td>ADV: €6.0B 7.9%</td> </tr> </table>	2017	2018	ADV: €15.2B 21.3%	ADV: €6.0B 7.9%	<p>Closing Auctions (Listing Markets)</p> <p>⬆</p> <table border="1"> <tr> <th>2017</th> <th>2018</th> </tr> <tr> <td>ADV: €7.0B 9.9%</td> <td>ADV: €8.6B 11.3%</td> </tr> </table>	2017	2018	ADV: €7.0B 9.9%	ADV: €8.6B 11.3%		<p>Trade Reports (Off Book, Negotiated Trade), 4%, 8% Caps, LIS possible</p> <p>➔</p> <table border="1"> <tr> <th>2017</th> <th>2018</th> </tr> <tr> <td>ADV: €10.2B 14.4%</td> <td>ADV: €9.9B 13.0%</td> </tr> </table>	2017	2018	ADV: €10.2B 14.4%	ADV: €9.9B 13.0%
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<p>Systematic Internaliser Must be on risk (prop)</p> <p>⬆</p> <table border="1"> <tr> <th>2017</th> <th>2018</th> </tr> <tr> <td>ADV: €998.8M 1.4%</td> <td>ADV: €13.2B 17.2%</td> </tr> </table>	2017	2018	ADV: €998.8M 1.4%	ADV: €13.2B 17.2%	<p>Periodic Auctions (Price, Size)</p> <p>⬆</p> <table border="1"> <tr> <th>2017</th> <th>2018</th> </tr> <tr> <td>ADV: €30.1M 0.04%</td> <td>ADV: €957.6M 1.3%</td> </tr> </table>	2017	2018	ADV: €30.1M 0.04%	ADV: €957.6M 1.3%						
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	<p>Other Auctions (Opening, Intraday)</p> <p>➔</p> <table border="1"> <tr> <th>2017</th> <th>2018</th> </tr> <tr> <td>ADV: €442.9M 0.6%</td> <td>ADV: €467.5M 0.6%</td> </tr> </table>	2017	2018	ADV: €442.9M 0.6%	ADV: €467.5M 0.6%										
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Source: big xyt

Periodic Auctions – Lit Market, Low Market Impact



Average Price Move in December 2018

Lit vs. Continuous Dark vs. Periodic Auctions vs. Blocks

❖ **Enhanced transparency + market data**

- Improved accuracy of SI and OTC trade reporting/data throughout 2018
- Data will continue to improve; regulator clarification on trade reporting flags
- Collaborated with industry organisations to implement and advocate for best practices

❖ **Growth of low market impact venues**

- Periodic Auctions, Block Trading, Systematic Internalisers (SI)
- Clients want to trade with as little market impact as possible, not all order flow suited for lit markets

❖ **Evolution of Systematic Internalisers**

- Still early days, but volume increasing for both bank/broker and ELP SIs

❖ **Rising volumes in Closing Auctions**

- National exchange monopoly; high cost to trade

❖ **Consolidated Tape**

- High cost of market data from national exchanges remains key barrier to creation of consolidated tape in Europe
- Expect regulators may start to consider radical moves to create a consolidated tape in the European equities market

❖ **Brexit's impact**

- An evolving regulatory landscape