Global Market Structure – Europe

Execution Excellence

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MiFID II: Changing Landscape of Equity Trading
Briefing Note 1

What is happening?
- MiFID II will apply from January 2018 with several regulatory enhancements for equity trading. While it retains the pre trade transparency waivers[1] under MiFID I, trading taking place under the Reference Price (RPW) and Negotiated Trade (NTW) waivers will be restricted per the Double Volume Cap mechanism[2].
- The Double Volume Cap mechanism will limit trading taking place under RPW and NTW cumulatively at 4% of total EU trading per venue and at 8% of total EU trading across all trading venues.
- Large in scale (LIS) waiver is not subject to the caps and there is no restriction on the volume that can be executed using it. See Appendix 1 for LIS table for shares.
- This has led to an increasing demand from buy side firms for MiFID II compliant functionalities that enable large trades with minimal market impact. Altogether, MiFID II has spurred innovation in this area with many exchanges offering solutions to cater to the buy side's requirement for executing large orders.
- In this document, we will highlight several such offerings in both lit (continuous trading, auctions) and dark (block trading facilities) environments.

Functionalities in Lit Environment (Order Types)

Exchanges are offering an array of order types to support large sizes for trading in the lit continuous order book.

Variants of Iceberg Orders - Volume Discovery Order- Deutsche Börse Xetra, Euronext

Volume Discovery order type is a variation of Iceberg orders. It allows the trader to assign a second limit price to the hidden portion of the order which can be executed against other similar Volume Discovery Orders at midpoint. 'Minimum Acceptable Quantity' (MAQ) parameter ensures minimum fill size requirement is fulfilled. For iceberg orders that meet the LIS threshold, the LIS waiver is applied; otherwise the Reference Price Waiver applies.

Euronext also supports a variant of Iceberg orders where participants can randomise the visible quantity of the iceberg order to reduce likelihood of detection and undisclosed portions of iceberg

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[1] Article 4, MiFIR.
[2] Article 5, MiFIR.

orders can be matched against other undisclosed portions of iceberg orders at any price, including the midpoint.

Midpoint Order- Deutsche Börse Xetra

Midpoint Orders enable execution at the midpoint of the current visible bid and offer prices. These orders are not disclosed to other participants. It also allows the trader to enter MAQ and avoid only parts of MAQ being executed. Matching takes place according to volume/ time priority. Midpoint orders only interact with other midpoint orders in the book.

Hidden Order - Deutsche Börse Xetra, Euronext, London Stock Exchange, Nasdaq

Hidden orders are limit orders which are invisible to other trading participants in the order book. To remain hidden, orders need to be large enough to be eligible for the LIS waiver. If an order is only partially filled, then the unexecuted part or 'stub' remains hidden even if it's smaller than LIS threshold. Hidden orders are subject to the same matching regulations as limit orders and are generally matched in accordance with price/visibility/time priority. Traders are allowed to enter MAQ/ Minimum Execution Size (MES) for their orders.

Functionalities in Lit Environment - Auctions (all order sizes)

Traditional auctions are high liquidity, price forming events that give traders an opportunity to execute large orders. Auctions do not apply pre trade transparency waivers, therefore, volumes executed during such events do not contribute towards volume caps. Further, their lit nature enables all order sizes to participate.

For quite some time now, most Regulated Markets have offered opening and closing auctions to determine opening and closing prices of securities. Improvising on traditional forms of auctions, many market operators have launched their innovative variants in response to MiFID II volume caps. In the following sections, we shall examine continuous auctions and intraday auctions in more detail.

Continuous Periodic Auctions - Bats Europe, Nasdaq Nordic

- Periodic auction books are operated as separate lit books where intra-day auctions are held throughout the trading day. As already stated, these facilities do not utilise any waivers as they provide pre trade transparency in accordance with RTS 1. Therefore, volumes executed on these books do not contribute to volume caps.
- Pre Trade Transparency: Unlike a traditional auction where complete order book depth is visible, periodic auction books only publish an indicative auction price and total executable volume.
- Although such books are pre trade transparent, the short duration of each auction (often shorter than 100 ms) limits exposure to market movement. Moreover, pre trade information is disseminated only when there's prediction of non-zero uncrossing volume.
- Price is calculated based on an auction algorithm within a pre defined collar for certainty around price range.
- Minimum Acceptable Quantity (MAQ) attribute allows the trader to limit minimum fill size.
- Lit environment allows for orders smaller than the LIS threshold to participate in the auction.
- Broker preference feature ensures that matching orders entered by a broker interact with each other ahead of other orders already in the auction.
- The auction price and uncrossed volume are published after each auction uncross (there could be several thousand such auctions in a trading day) as per MiFID II post trade transparency.
- For a detailed comparison matrix of BATS Periodic Auctions Book and Nasdaq's Auctions on Demand, see appendix 2.

Intra-Day Auctions - London Stock Exchange, Deutsche Börse Xetra

- Intra-day auctions allow traders to participate in auctions held during periods of low volatility.
- Intra-day auctions take place every business day between 12:00 – 12:02 Hrs (London time, London Stock Exchange) and 13:00 – 13:02 Hrs (CET, Xetra).
- During the call phase; Best Bid and size, Best Offer and size, indicative auction price and executable volume are disseminated to public. At Xetra, additional market imbalance information (direction and volume of surplus) may also be displayed.
- Following an auction uncross, a single update is published which confirms the executed volume and the price it occurred at.

Functionalities in Dark Environment (Contingent Orders)

Block Trading Facilities - Bats Large in Scale Service, Euronext Block, Turquoise Plato Block Discovery/ Uncross

- Block trading facilities operate under the LIS waiver (no caps) to enable dark trading in large sizes.
- These facilities/ platforms give traders the option to negotiate and query available liquidity by submitting contingent orders. After the matching engine finds a potential match, traders are prompted to enter firm orders for execution. Traders also have the choice to not reveal their contingent orders to the wider market.
- Once firm orders are submitted, Bats LIS automatically sends matching orders to CXE for execution. Euronext Block will enter all orders into a periodic auction and Turquoise Plato Block Discovery sends all matching indications to Turquoise Plato Uncross for randomised midpoint uncrossing.
- Currently, Turquoise Plato Block Discovery supports sizes larger than 25% of LIS and applies a Reference Price Waiver. But after January 2018, the minimum order size threshold is expected to be raised to LIS in order to enable unrestricted dark trading under the LIS waiver.
- Features such as counterparty scoring, Minimum Execution Size (MES) allow trader to have more confidence about quality of execution.
- Post trade data will be published in real time.
- See appendix 3 for a detailed comparison matrix of the functionalities discussed above.

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Other documents in this series may be accessed here:

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Appendix 1

Table 1, Annex II, RTS 1- Orders large in scale compared with normal market size for shares and depositary receipts

Average Daily (ADT) Turnover in EUR	ADT< 50K	50K ≤ ADT ≤ 100K	100K ≤ ADT ≤ 500K	500K ≤ ADT ≤ 1m	1m ≤ ADT ≤ 5m	5m ≤ ADT ≤ 25m	25m ≤ ADT ≤ 50m	50m ≤ ADT ≤ 100m	ADT> 100m
Minimum size of orders qualifying as Large in Scale compared with normal market size in EUR	15K	30K	60K	100K	200K	300K	400K	500K	650K

Appendix 2

Comparative review of continuous auction books and a traditional auction

	Newly Introduced Continuous Auction Books		A Traditional Auction
Name	Bats' Periodic Auction	Nasdaq's Auctions on Demand	London Stock Exchange's Closing Auction
Links	http://cdn.batstrading.com/resources/participant_resources/BCE-GuidanceNote_Periodic_Auctions_Final.pdf	http://business.nasdaq.com/media/Factsheet-Auction-on-Demand_tcm5044-40287.pdf	http://www.londonstockexchange.com/products-and-services/trading-services/guide-to-new-trading-system.pdf
MIC	BATP	Stockholm: MSTO Helsinki: MHEL Copenhagen: MCSE Iceland: MICE	XLON
Basic Information	Periodic Auctions book operates as a distinct lit order book separate from the BXE and CXE Integrated (Lit) and Dark Books. It independently conducts intra-day auctions throughout the day.	Auctions on Demand are conducted throughout the day separate from continuous lit trading. Orders may be entered at any time – an auction is triggered when there is a matching order.	Closing auctions are held on every trading day to determine the official closing prices of all SETS and SETSqx securities.
Product Scope	All securities tradable on BXE	Shares traded on Nasdaq Stockholm (including Norwegian shares), Nasdaq Copenhagen, Nasdaq Helsinki and Nasdaq Iceland ETFs and investment funds on Nasdaq Copenhagen	All SETS and SETSqx securities

Auction Time	Monday – Friday 08:00 – 16:30 (London Time)	Monday – Friday Copenhagen- 09:00 – 17:00 (Local Time) Stockholm- 09:00 – 17:30 (Local Time) Helsinki- 10:00 – 18:30 (Local Time) Iceland- 09:30 – 15:30 (Local Time)	Monday – Friday 16:30 - 16:35 + (random upto 30 secs) (London Time)
Duration of Each Auction	Auctions occur over a set duration + random end. Duration of each auction varies depending upon the activity levels in each security :	Auctions occur over a fixed duration of 25 ms and a random end of upto 75 ms.	Auction Call Phase:16:30 Price Determination Phase: 16:35 (upto 30 sec random end) Auction call phase may be extended via- i) Market Order Extension- this is triggered when at the end of the call period the auction uncross will result in unexecuted orders; and ii) Price Monitoring Extension- this is triggered when the indicative auction price is outside the tolerance level. This allows participants to amend/ add/ delete orders. Following a PME, if the indicative price is still outside the tolerance limits, then order execution will only take place if the auction volume is larger than half the Normal Market Size (NMS).
Order Types	Market Order Limit Order Iceberg Order (MaxFloor values ignored) Pegged Order Bats EBBO Midpoint Peg- Standard and Guarded	Market Order Limit Order Pegged Order (Bid/ Mid/ Offer)	Market Order Limit Order Iceberg Order Hidden Order Stop Order Stop Limit Order Pegged Order Pegged Limit Order Executable Quotes

Order Validity	Day Good till Date Good till Cancel Good for Auction Orders can be amended or cancelled at any time during the auction call phase.	Day Good till Time Speed bumps on cancels	Day IOC, FOK – only for Pegged and Pegged Limit Orders GTD – for Market, Limit, Iceberg, Hidden, Stop and Stop Limit Orders GTT - for Market, Limit, Iceberg, Hidden, Stop and Stop Limit, Pegged and Pegged Limit Orders GFA, GFS, ATC, GFX – for Market, Limit, Iceberg, Hidden Orders
Price Restriction	Auction will match only at or within Bats EBBO. Bats EBBO is defined as the best Displayed buy Order and the best Displayed sell Order available from the Consolidated European Market. (At present, the Bats EBBO consists of quotes from BXE, CXE, Turquoise and the Listing market. This applies to all instruments on Bats except for Spanish securities, in which case the Listing market is not included in the Bats EBBO).	Only at or within Primary BBO	Within dynamic tolerance limits- ±3% (FTSE 100 securities) and ±5% (all other securities) from closing 10min VWAP

Price Determination	To determine a single equilibrium match price the following criteria shall be assessed in sequence:
	  i. Maximum executable volume. If a single auction price can be chosen which uniquely maximises the auction volume, then this is chosen as the auction price.
	  ii. Minimum surplus. If, within the set of prices identified in (i) which maximises executable volume, there is a price which minimises the order volume which would be left on the order book priced at the auction price, then this price level is selected.
	  iii. Market pressure. If the set of prices identified in (ii) would always result in
		i. Price at which executable volume is maximised	i. Price which maximises the executed volume
			  ii. If more than one execution price would result in the same volume, then choose the price that minimises the surplus volume at the execution price
			  iii. If more than one execution price would result in the same surplus volume at the execution price, then choose the price which reflects the balance of pressure on the order book
			  iv. If the balance of pressure on the order book is even, then choose the price which reflects the reference price in the security
			  v. If there is no reference price, choose the

	unexecuted order volume on the buy side of the book, then the highest price identified in (ii) is selected as the auction price. Similarly, if the remaining volume would always be on the sell side of the book, then the lowest price would be used. Reference price. If (iii) does not yield a unique price level, then out of the set of potential prices identified in (ii), the price which is closest to the Reference Price for the security is chosen.		price which is the lowest price
Order Size Restrictions	€ 3000 across all securities	None	None
Minimum Fill Size	Referred to as 'Minimum Acceptable Quantity (MAQ)'. It gives participants control over the minimum total execution size of their orders. Orders with a MAQ designated do not execute unless the minimum quantity or greater can be filled. An order may be filled by multiple opposite orders.	Referred to as Minimum Execution Size (MES). An order with MES specified will not match unless there is one opposite order equal or larger than MES.	None
Allocation Priority	Price/ Size/ Time Broker Preferencing: Participants will be allowed to select a broker preferencing attribute. Broker preferencing will take effect at the execution allocation point and will move the allocation priority from Price/ Size/ Time to Broker/ Price/ Size/ Time.	Broker/ Size/ Time	Price/ Time/ Size
MiFID Pre Trade Transparency	Nothing is disseminated until a potential match occurs- no imbalance or direction. Indicative price and executable quantity published in real time	Nothing is disseminated until a potential match occurs- no imbalance or direction. Indicative price and executable quantity published in real	Indicative auction price and full order book depth are displayed throughout the closing auction If no auction trades are possible, indicative auction

	If there is insufficient contra volume to satisfy a MAQ on an order then that order is not considered for execution (at that time) and so does not contribute to any calculated indicative executable volume in auction update messages.	time	price is set at 0.
MiFID Post Trade Transparency	Auction price and total size of executed orders are published All Periodic Auction market data is published over existing BXE feeds. Auction summaries with Auction Type marked 'P' pertain to the Periodic Auctions Book. If the indicative price goes beyond the Bats EBBO collar, the auction update message will be flagged as "outside tolerance (O)" at which point the price and volume fields are blanked.	Auction price and total size of executed orders are published Separate MIC codes on execution reports.	Auction price and total size of executed orders are published Auction trades are reported as Uncrossing Trades and denoted as "UT"

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Appendix 3

Comparative review of Block Trading Facilities

	Bats LIS Service	Euronext Block	Turquoise Block Discovery
Venue Identifier	MIC: LISX	MIC: XSMP	MIC: TRQX
Link	http://cdn.batstrading.com/resources/participant_resources/BatsEuro_LIS_Service_Description.pdf	https://www.euronext.com/en/blockmtf	http://www.lseg.com/sites/default/files/content/documents/Turquoise%20Block%20Discovery%20Trading%20Service%20Description%20v2.1.pdf
Basic Description	Bats LIS enables participants to enter IOIs and negotiate large blocks of European securities. Participants may select other participants to whom they wish to reveal their IOIs, based on objective criteria. Once IOIs are submitted, Bats LIS system scans for potential matches. After the system finds a match, it prompts the participants to send firm orders. Firm orders are executed through Bats Europe RIE (CXE).	Euronext Block allows participants to send conditional (Invitation to Trade) or firm Block Size Orders (LIS). Participants can also choose the distribution group to which their Invitation to Trade/ conditional order will be made visible. The platform continuously scans for matches for all orders residing in the book that meet specified minimum price and quantity. If a potential match is found for a conditional order, requests are sent to participants to firm up their orders. Firm orders are then entered into the periodic auctions book for execution.	Turquoise Block Discovery allows participants to submit an IOI or 'Block Indication' before submitting a firm order. The Block Discovery platform identifies potential matches where the Minimum Execution Size of an order is met. Upon identification of a match, participants are requested to firm their orders and send them to Turquoise Plato Uncross to participate in the upcoming uncross event.
Stock Universe	Trading is available in more than 5500 securities across 15 European markets. Full list here	Trading is available in over 2000 instruments on 15 European markets. Full list here	All securities tradable on Turquoise Plato- Roughly 4200 securities and ETFs from 17 European markets
Order Types	Limit Order Market Order Pegged Orders (Primary (near), Midpoint, Market (far))	Limit Order Market Order Pegged Order (Primary Bid, Mid, Offer) Validity: Day Good Till Cross	Limit Order Market Order Pegged Order type not supported Validity: Good For Auction Good Till Tile Good Till Date

			Day
Minimum Order Size	Large in Scale only	Large in Scale only	Minimum Indication Value defined for each security at 25% of LIS. This may change to LIS if dark trading on Turquoise Plato Uncross is suspended on account of the volume caps.
Minimum Fill Size Option	Available. Referred to as 'Minimum Quantity Value'	Available. Referred to as 'Minimum Acceptable Quantity'	Available. Referred to as 'Minimum Execution Size'
Price Determination	System will match as close to EBBO mid-price as possible. In any event, not outside EBBO.	Standard auction methodology Execution price can be at the Primary Bid, Mid or Offer, or even outside of the PBBO if that is where buy and sell interest meet.	Randomised Midpoint Uncrossing Turquoise uses PBBO and Primary Midpoint Price as Reference Prices
Matching Priority	Traders can choose between: Size/ Price/ Time and Price/ Size/ Time	Not specified	Size/ Time If the Limit Price precludes an order from matching at the prevailing midpoint price, the Limit Order will retain its queue priority but will be prevented from matching while the prevailing midpoint price is beyond the specified Limit price.
MiFID II Pre Trade Transparency	No Pre trade transparency- LIS Waiver	No Pre trade transparency- LIS Waiver	Firmed up orders are sent to Turquoise Plato Uncross for matching, which utilizes a Reference Price Waiver and does not provide pre trade transparency. Trades executed by matching orders below LIS will contribute towards calculation of Double Volume Caps. In the event that trading under the Reference Price Waiver is suspended on Turquoise Plato Uncross, orders above LIS may still be able to trade provided an LIS approval is in place.
MiFID II Post Trade Transparency	Trades published over CXE feeds as 'off-book, on-exchange' trade in real time	Auction price and executed volume published in real time indicated by separate MIC	Trades published over Turquoise Plato Uncross feeds

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