FAQs: Equities Electronic Order Handling

As of December 2019
Electronic Trading Practices

This document is limited to products and services offered by Barclays that access the US Markets through electronic trading products and does not refer to any products that route to other markets, such as markets in Europe or Asia. Please note, when reviewing this document all references to “LX” or “Barclays LX” are referring to the firm’s alternative trading system (ATS) that is registered with the Securities and Exchange Commission and trades NMS securities in the United States. References to ‘LX FAQ’ numbers are from the ‘FAQs: Barclays ATS-LX’ document available at barclays.com/equities.

1. Confidentiality of client information

Barclays has procedures in place to ensure the confidential treatment of clients’ electronic trading information.

A. Electronic trading by Clients directly through Barclays Algos and Router

Only designated employees of the Electronic Trading business unit are able to regularly monitor individual client electronic trading flow through Barclays algorithmic trading strategies (“Algos”) and smart order router (“Dynamic Router” or “Router”). Those employees have the ability to see execution information in LX. The purpose of such access is for, among other things, conducting execution quality analysis for clients as well as for fulfilling the firm’s best execution obligation. In addition, certain designated employees of LX who are operating the system or responsible for its compliance with regulatory requirements have regular access to the confidential trading information of subscribers who route orders directly to LX. The ability to monitor client electronic trading flow is administered through permission-based systems, with permissions managed by Supervisors. Certain other employees may have visibility in respect of specific orders depending on the nature of those orders as described below.

- Barclays traders managing the risk books of the firm and the sales traders that sit within the trading aggregation unit, do not have the ability to view clients’ electronic trading flow, unless a client authorizes visibility, e.g., through the use of a trading product, the election by the client of coverage by a high-touch trader/sales trader or if the trader executes a client’s order using Barclays Algos and Dynamic Router as described in subsection D below.

- Generalist sales personnel do not have the ability to view client electronic trading flow.

- High-touch sales personnel do not have the ability to view client electronic trading flow, unless a client specifically requests to have a single point of contact for both high-touch and electronic coverage, or if a client otherwise authorizes visibility or the high-touch sales personnel executes a client’s order using Barclays Algos and Dynamic Router as described in subsection C below.

- Operations, technology, compliance, audit, risk and legal staff can view order information on a post-execution basis for surveillance and monitoring purposes. They also may request real-time order and revenue information on an as needed basis.

- Electronic Trading IT, other staff (including but not limited to, IT Development, IT Support, Compliance, Middle Office, the ATS Supervisory and Product Development Teams), and the LX Service Desk have access to LX’s internal systems, including servers and databases.

- On a post-execution basis, personnel within the Equities division and senior management are able to view client electronic trading revenue and, where necessary, to address client specific issues and trade details.
• Certain senior management employees may be permitted to view order information in accordance with the firm’s internal controls and approval processes.

• Additionally, a client may choose to authorize additional Barclays’ personnel to view its own electronic trading flow.

B. Trading through a direct connection to LX
Only designated employees who are operating the LX system or responsible for its compliance with regulatory requirements have regular access to the confidential trading information of subscribers who route orders directly to LX. 

• Barclays traders managing the risk books of the firm do not have the ability to view the trading flow of clients who route orders to LX through a direct connection.

• High-touch sales personnel do not have the ability to view the trading flow of clients that route orders to LX through a direct connection.

• Barclays electronic sales personnel that cover clients who trade through a direct connection to LX have the ability to generate and provide LX direct subscribers with post-trade reports of their aggregate activity in LX and the ability to review client activity on a post execution basis (see FAQ 3 for more information on client execution reports).

C. Trading with Barclays Sales Trading Personnel
Both Barclays’ electronic and high-touch sales trading personnel (including personnel who sit within the trading aggregation unit) have the ability to execute a client’s order using Barclays Algos and Dynamic Router, which may place orders in LX as well as other venues. When Barclays’ sales trading personnel (including personnel who sit within the trading aggregation unit) place a client’s order in the Algos or Dynamic Router, they have the ability to monitor that individual order and resulting executions, including executions that take place in LX.

D. Trading with Barclays Trading Desks
Barclays trading desks (including sales traders that sit within the trading desk aggregation unit) have the ability to execute a client’s order using Barclays Algos and Dynamic Router which may place orders in LX as well as other venues. When a trading desk or a sales trader who sits within the trading aggregation unit, places a client’s order in the Algos or the Dynamic Router, that desk as well as the client’s high-touch sales coverage have the ability to monitor that individual order and resulting executions, including executions that take place in LX.


1 Note: subscribers may also route orders to LX through Barclays Algos and Router.
2. Advertisement of executed volume

We advertise our electronic volumes in combination with our high-touch volumes in near real time via Bloomberg IOIA and RANKA screens. Only symbol and aggregated volume are displayed for Bloomberg users utilizing this function. Advertising is generally published in batch intervals for periodic advertising where all trades during that time period are advertised together, however, individual trades can be advertised on a more frequent basis.

Please note, these advertisements do not include the executed volume of clients who have opted out. To opt out of your executions with Barclays being included in aggregated volume reporting or analytics, please contact your Barclays sales representative.

ATS volume data is published by FINRA on a delayed basis at finra.org/ats.

3. Execution and venue transparency

To provide order transparency, Barclays offers its clients the ability to receive a variety of information and reports regarding their own orders. This information varies from time to time and may include, but is not limited to, execution venues, percentage of order flow executed in various venues, crossing rates in LX, percentage of order flow executed against various types of counterparties in LX, and a client’s algorithmic and router settings.

In addition, Barclays publishes on its website (barclays.com/equities) monthly statistics related to LX which includes the following:

- Various aggregated and anonymized order and execution metrics
- Aggregated LX reported shares for the previous 12 months
- Number of subscribers that have changed Liquidity Profiling category (see LX FAQs 12 and 13), and the percentage of LX take flow they represent in notional value
- Number of and framework for any Liquidity Profiling Overrides from the previous month’s review (see LX FAQ 12) and the percentage of LX take flow they represent in notional value
- Percentage of execution by Subscriber Type (see LX FAQ 10).

Barclays also may include aggregated and anonymized analysis in its marketing materials or its client presentations related to various order and execution metrics about orders and executions in LX.

In addition, Barclays may make available to clients the following tools:

- Near real-time trade monitoring through our Portfolio WebBench® analytics toolkit (not available to LX Direct Subscribers; for additional information, please contact your Barclays sales representative)
- Detailed reporting of both routing and LX results, including venue and LX execution analysis (through our Portfolio WebBench® analytics toolkit)
- Various FIX tags, e.g., trade destination, executing broker, add/take details
- Access to SPECS™, an online client interface where clients may view, verify, and request changes to their order handling settings with Barclays.

Please contact your Barclays sales representative for any additional information.

4. Payment for order flow/Rebates and fees

When trading US equities, Barclays may execute on exchanges, ATSs and off-exchange trading venues which may have no charge or may provide rebates for execution. Periodically, the amount of credits that Barclays
receives from one or more such market centers may exceed the amount that Barclays is charged. None of these trading venues are operated by Barclays’ affiliates. Clients may receive information regarding their execution and associated rebates and fees in detailed routing reports.

For information on fees related to trading in Barclays LX, please refer to LX FAQ 9.

5. **Commissions and fees for electronic trading**
   Per-share commissions and fees for electronic trading are negotiated.

For information on fees related to trading in Barclays LX, please refer to LX FAQ 9.

6. **Irregular settlement of securities**
   In certain situations, a shortened or extended settlement may cause you to be a holder of record in respect of a corporate action or distribution on a record date on which you would not have been a holder of record had the relevant securities settled pursuant to the regular settlement cycle. Where Barclays has agreed to settle securities on an irregular settlement basis, Barclays reserves the right to reclaim any economic benefit accruing to you in respect of any corporate action (whether a stock split, merger consideration or otherwise) and any distribution (whether in cash or in kind and whether consisting of shares, rights or other property) that Barclays would have been entitled to receive by virtue of being the holder of record on the relevant record date had the shares settled according to the regular settlement cycle. Barclays reserves the right to bill you for any such economic benefit.

7. **Order handling customizations**
   Barclays provides its clients with the ability to customize certain handling of their electronic orders. For example, as discussed in more detail in other FAQs, Barclays provides its clients with the ability to opt out of the following:
   - Including their order flow in electronic volume advertisements (see FAQ 2)
   - Participating in conditional order negotiations (see FAQ 26 and LX FAQ 16)
   - Interacting in LX with certain subscribers, subscriber types, or order flow (see LX FAQ 13)
   - Crossing their orders in a locked market on a trade-by-trade or default basis in LX (see LX FAQ 19)
   - Interacting with designated trading venues, including LX and/or external venues (see FAQs 12, 13, and 17)
   - Including their LX order information in the aggregated information provided to Barclays’ Dynamic Router (see FAQ 15 and LX FAQ 28)
   - The default settings for rerouting self-directed day orders sent to exchanges by the Dynamic Router when the market for the security locks or crosses (see FAQ 18)

Clients also may customize other default settings for order flow handled by Barclays algorithms or the Dynamic Router.

Clients may view, verify, and request changes to their order handling settings through the online client interface SPECS™. Note: If after being granted access to SPECS and receiving your settings, you do not notify us that you wish to make changes to your settings, then by continuing to transact with Barclays, you are deemed to have provided consent that those settings are correct.

For additional information regarding your ability to customize the handling of your orders, please contact your Barclays sales representative.
8. Platform enhancements

At any time, Barclays may implement enhancements to its equities electronic trading platform, which includes Barclays algorithms, router, and core infrastructure components. The enhancements may be rolled out across the platform as a whole or in multiple phases. For some enhancements a group made up of internal traders, and in some circumstances clients who have opted in, may be given access to functionality for verification purposes that is not available to all clients and which is not fully described in this Order Handling document. Internal traders who are given access to this functionality may be trading on behalf of clients. Please contact your Barclays electronic sales representative for details on enhancements or new features currently being rolled out.
Smart Order Routing

Barclays has developed a new smart order router (“SOR”) for US equities that leverages its new electronic trading platform and existing Algorithmic Trading Strategies. The new platform is based on proprietary fair price-based models to inform decision making across the order lifecycle. Barclays is in the process of replacing the existing Dynamic Router with the new SOR. Some or all of your order flow may remain on the Dynamic Router until the migration is complete. Please review this document in conjunction with the Barclays New Smart Order Router FAQs found on www.barclays.com/equities. For more information or any questions on the below with regards to your specific order flow, please contact your Barclays sales representative.

9. Dynamic Router overview

Barclays’ Dynamic Router is the firm’s primary vehicle by which electronic orders are placed in the market for execution. When an order is marketable, the Dynamic Router will sweep and source liquidity across displayed and non-displayed venues with the objective of maximizing fill rates and minimizing information leakage. When an order is not marketable, the Dynamic Router will post the order on displayed venues to maximize spread capture. The Dynamic Router can also be leveraged to route hidden pegged orders to displayed and non-displayed venues using the Dark Logic and route directed orders to specific venues (e.g., for primary opening and closing auctions, IPOs).

10. Sweep logic

When sweeping, the Dynamic Router routes child orders to both displayed and non-displayed venues in parallel to avoid the consequences of sequential routing. The goal of this approach is to maximize fill rates while minimizing information leakage. Inter-market sweep orders (ISOs) are utilized whenever possible to improve execution performance.

The primary factors considered when making venue selection decisions include price and real-time venue fill rates.

When price is the same at multiple destinations, the Dynamic Router makes venue selection decisions by first separating venues into a top tier and a bottom tier. Venues are placed into the top tier if they meet two criteria: (1) a minimum quote size as a percentage of the order quantity and (2) a minimum observed fill rate for the security being traded. Venues within the top tier are ranked based on observed price improvement net of execution fee. Venues in the bottom tier are ranked based on display size.

Before sweeping, the Dynamic Router will allocate the order size among the venues in rank order to match the displayed order size, starting with LX. The allocated orders are then routed simultaneously to LX and other venues. Note, if there is sufficient liquidity in LX to complete the entire order, the Dynamic Router will route the order to LX first.

11. Posting logic

When posting, the Dynamic Router routes orders to displayed venues based on probability of fill, taking into account real-time trade rates and queue depths on each venue. Depending on order characteristics and market conditions, the router will post the order to the one or two venues most likely to complete the order and will

---

2 Note: The default sweeping logic does not consider all non-displayed venues listed in FAQ 13 when making a routing decision; instead, it only considers LX and the Broker-Dealer IOI off exchange trading venues listed in FAQ 13. For more information, please contact your Barclays Sales representative.

3 Note: The default posting logic does not consider all displayed venues listed in FAQ 13 when making a routing decision. For more information, please contact your Barclays Sales representative.
utilize reserve order types, based on current order book dynamics. Venue execution access fees are not taken into consideration.

12. Dark logic
When placing hidden pegged orders (“dark orders”) across displayed and non-displayed venues, the Dynamic Router utilizes its dark routing logic (“dark logic”). The dark logic supports various dark posting and pinging routing options.

When posting dark orders to multiple venues, the router takes symbol-specific, historical and real-time executions into consideration to determine the quantity to allocate to each venue. Historical executions are assigned progressively less importance in the allocation decision as time lapses. The router reallocates when an order routed to a destination receives a full fill or when a minimum time has elapsed. Upon a re-allocation decision, if one or more venues contain open orders, the router will reallocate orders from other venues prior to reallocating orders from LX where possible. In certain circumstances, dark logic may preference LX over other non-displayed venues when placing orders.

When dark pinging, the router will use the same allocation logic described above but will route Immediate or Cancel (IOC) orders to venues until the order is fully filled or a configurable timer has elapsed.

The dark logic, when utilized by the Hydra algorithm, also supports the ability to post an entire order initially to LX for a short interval (currently 200ms) to allow for potential crossing prior to placing orders across multiple venues. For more information, please contact your Barclays sales representative.

13. Customization options
The same routing logic is applied to both client and Barclays’ internal orders within the Dynamic Router. Clients can choose to opt out of interacting with specific destinations (not including the protected venues under Regulation NMS). In addition, the Dynamic Router has various settings that can be customized to achieve different trading objectives which include, but are not limited to, the following:

A. Sweeping
   1. Disabling interaction with specific non-displayed venues, including LX
   2. Utilize dark logic to route to non-displayed venues prior to sweeping
   3. Preferencing net-cost destinations (venue fees and estimated venue price improvement)

B. Posting
   1. Specifying the amount of shares to display when posting to displayed venues (e.g., “show 500 shares posting on exchange XYZ”)
   2. Limiting the venues to which the Dynamic Router will post (e.g., “Exclude posting to venues where subscriber needs to pay to provide”)
   3. Ability to use Non-routable and Post Only order types

C. Dark logic customization options
   1. Specify routing options which include Dark Posting Only, Dark Pinging Only, and Dark Ping Then Dark Post
   2. Specify Dark Ping style (e.g., parallel or sequential)
   3. Configure the Dark Ping timer
   4. Limit routing to selected displayed and non-displayed venues (e.g., “Exclude posting to ATS XYS”)

---

Note: The dark logic does not consider all displayed and non-displayed venues listed in FAQ 13 and may differ based on algorithm selected. For more information, please contact your Barclays Sales representative.
5. Disable initial order placement to LX
6. Specify a minimum execution quantity when posting or pinging (e.g., “Do not execute for less than 500 shares at dark pool Y”)

To discuss further customization options or if you have questions on these options, please contact your Barclays sales representative.
14. Accessible venues

For Reg NMS securities, the following trading venues\(^5\) are accessible through Barclays Electronic Trading.

<table>
<thead>
<tr>
<th>Venue</th>
<th>Near</th>
<th>Mid</th>
<th>Far</th>
<th>Conditionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchanges</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BATS Y</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>BATS Z</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Chicago Stock Exchange(^7)</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Edge A</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Direct Edge X</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>IEX</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>NASDAQ</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>NASDAQ BX</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NASDAQ PSX</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYSE</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYSE Arca</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>NYSE MKT</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYSE National</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATSs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aqua</td>
<td></td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Barclays LX</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIDS(^8)</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blockcross</td>
<td></td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>CS CrossFinder</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CODA Markets</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DB Super-X</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fidelity CrossStream</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instinet CBX</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITG Posit</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LeveL</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS Pool</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UBS ATS</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virtu MatchIt</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broker-Dealer IOI Off-Exchange Venues</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citadel Connect</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jane Street JX</td>
<td></td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two Sigma Securities</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virtu Americas VEQ</td>
<td>●</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: This table represents the venues that are accessible through Barclays Equities Electronic Trading. Actual interactions may vary by strategy and by client. To request custom settings, please contact your Barclays sales representative.

15. Order types and features

Currently, Barclays may utilize the following categories of order types when routing to displayed and non-displayed venues. Note: not all venues of a certain type accept the same order types. This may not be a comprehensive list of order types.

<table>
<thead>
<tr>
<th>Venue type</th>
<th></th>
</tr>
</thead>
</table>

\(^5\) List is subject to change and updated periodically. Also, Barclays may not offer the full range of functionalities or order types that each venue offers.

\(^6\) Barclays clients may send directed orders to some of the venues listed in this FAQ. The venues that Barclays offers may change from time to time and it is at Barclays’ discretion as to which venues clients have the ability to route orders to at any given time. For non-directed orders, the venues to which Barclays may route depends on the Barclays strategy or service selected. Please see the Order Routing FAQs regarding logic above for additional details on venue utilization.

\(^7\) Barclays uses a third-party order router to direct orders to the Chicago Stock Exchange.

\(^8\) Barclays has an indirect ownership interest in BIDS.
<table>
<thead>
<tr>
<th>Category of order type</th>
<th>Displayed</th>
<th>Non-displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day/IOC</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Limit</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>ISO</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Non-routable/Do-not-ship</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Price Sliding</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Reserve</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Post Only</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Pegged (MinQty optional)</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Conditional Orders</td>
<td>•</td>
<td>select</td>
</tr>
</tbody>
</table>

Please contact your Barclays sales representative for additional information.

16. **Dynamic Router interaction with Barclays LX**

As described in LX FAQ 28, to aid Barclays in meeting its best execution obligations to customers, LX provides information about posted orders (other than about Conditional Orders, as described in Part III, Item 9 of Form ATS-N) to the Router on a real-time basis. When sweeping, the Dynamic Router uses this information solely to determine whether to route an order to LX, and only at the time a routing decision is made. This information is not shared with any other Barclays trading system or desk or any third party. The feed contains aggregate buy and sell interest per symbol within the current NBBO. No client information is present. Clients can opt out of having their LX order information included in the aggregated information provided to the Dynamic Router. Note that crossing rates in LX may be adversely affected by client-elected features such as counterparty blocking and minimum quantity requirements.

17. **Dynamic Router market data**

The Dynamic Router uses a combination of direct and SIP market data feeds when making sweeping and posting decisions. The direct feeds used by the router include the following exchanges:\(^9\): NASDAQ, NYSE (Level I Only), NYSE ARCA, BATS Z, Direct Edge X, and Direct Edge A. The SIP market feeds used by the router include for the following exchanges: BATS Y, NASDAQ BX, NASDAQ PSX, NYSE MKT, NYSE National and Chicago Stock Exchange.

18. **Dynamic Router interaction with Broker-Dealer IOI Off-Exchange Venues**

The Dynamic Router receives IOIs from several non-displayed liquidity venues, including venues that send IOIs from registered broker-dealers as well as from their unregistered affiliates. When sweeping, IOI quantity is used as an input for the non-displayed venue in the venue ranking logic, analogous to how a market data feed is used for a displayed venue. In response to these IOIs, the Dynamic Router may send IOC orders to the non-displayed liquidity venues, which may or may not execute the IOC order. Clients that wish to opt out of having their orders routed to any of these non-displayed liquidity venues should contact their Barclays sales representatives. The Dynamic Router itself does not dissemiante IOIs.

19. **Directed orders**

Client directed orders sent to Barclays (not including client orders sent to LX via direct connection) are handled through the Dynamic Router. Client-directed orders are routed straight to the indicated exchange and are not subject to any of the Dynamic Router’s order placement logic.

---

\(^9\) This list is subject to change by Barclays from time to time. In addition, the market data used for routing to a particular exchange may vary under certain conditions, including but not limited to instances requiring a failover to back-up market data sources.
When clients send a directed day order to the Dynamic Router, by default such orders may be rerouted by a receiving exchange (e.g., if the market for the security locks or crosses, if a better price is available at another venue). Clients may change the default for such orders so that they are not rerouted by a receiving exchange.

Note, for orders sent to the Dynamic Router by an algorithm, the default is that such orders may not be rerouted by the receiving exchange.

20. Routing in foreign jurisdictions
In foreign jurisdictions, Barclays may use third-parties and affiliates as (a) executing brokers for execution purposes and/or (b) for routing technology.

21. Location of smart order router
The Dynamic Router is hosted in Barclays’ private data centers located in Cranford and Piscataway, NJ.
Algorithms

22. **Algorithms and routing logic**
Barclays’ algorithms utilize the Dynamic Router to route orders for execution. The Dynamic Router (also available as a stand-alone strategy) is utilized by the algorithms to sweep displayed and non-displayed venues (see FAQ 9), to post orders passively on displayed venues (see FAQ 10), or to place hidden orders across displayed and non-displayed venues (see FAQ 13). For complete details on which algorithms utilize which functionality please contact your Barclays sales representative.

23. **Algorithm market data**
The majority of Barclays’ algorithms use SIP market data feeds when making decisions on order placement and pricing. However, two of Barclays’ algorithms, Rapid and Spread Trader, utilize a combination of direct and SIP market data feeds. Please contact your Barclays sales representative for further details. (For information on market data used by the Dynamic Router to make sweeping and posting decisions, please refer to FAQ 16.)

24. **Performance evaluation of algorithms**
Performance evaluation of our algorithms is a continuous process. The performance of our algorithms is evaluated against several measures, which include but are not limited to, average slippage from the relevant benchmark (e.g., VWAP, arrival price); effective participation rate; and price movement before, during, and after the trade. Performance is also evaluated across various market capitalizations, spreads, durations, and order sizes. Outlier trades may be analyzed to identify potential improvements.

25. **Information leakage prevention and anti-gaming protection**
Barclays’ algorithms employ various techniques to help minimize information leakage and avoid gaming activity. These techniques include, but are not limited to, the following:

A. **Symbol-specific analytics**
   1. Volume profiles
   2. Average spreads and quote depth
   3. Volatility estimates

B. **Dynamic scheduling and volume forecasting**
   1. Intraday real-time volume adjustments to react to deviations from typical volume profile

C. **Chase protection**
   1. Symbol-specific block exclusion logic for all participation tracking
   2. Symbol-specific volatility bands prevent algorithms from immediately chasing new price levels

D. **Price impact detection**
   1. Real-time tracking and prevention of excessive market impact created by our orders

E. **Randomization of Time/Size in child order placement**
   1. Release time of passive and aggressive child orders is randomized
   2. Child order sizes are randomized and set to match order book dynamics

F. **Dynamic Limit Pricing for Hidden Non-Displayed Orders**
   1. When routing pegged hidden orders, a local limit is applied to prevent unfavorable executions due to short-term market movements

Please note, not all techniques are used for all algorithms.
26. Internal algorithm use
In general, Barclays Equities sales and trading personnel who execute and facilitate client orders utilize the same suite of algorithms as those made available to clients, except when testing new functionality (see FAQ 8).

27. Conditional orders support
Barclays’ algorithms utilize conditional orders and conditional-eligible firm orders with LX. Additionally, Barclays’ algorithms support conditional orders to select external venues.

Clients have the ability to opt out of LX or any external conditional-supported venue upon request. Opting out of LX conditional orders will also opt out of conditional-eligible firm orders.

28. Capital Commitment Features
Automated capital commitment (“CapComm”) features are available through Barclays’ algorithmic and smart order routing strategies. Once the pre-determined execution threshold or criteria is reached and certain order conditions are met, the remainder of the order is facilitated by Barclays. For more information, please refer to the CapComm FAQs document available from your Barclays sales representative.

29. Location of Algos
Barclays Algos are hosted in Barclays’ private data centers located in Cranford and Piscataway, NJ.
DISCLAIMER

This communication has been prepared by Barclays. “Barclays” means any entity within the Barclays Group of companies, where “Barclays Group” means Barclays Bank PLC, Barclays PLC and any of their subsidiaries, affiliates, ultimate holding company, and any subsidiaries or affiliates of such holding company. BARCLAYS IS A FULL SERVICE INVESTMENT BANK. In the normal course of offering investment banking products and services to clients, Barclays may act in several capacities (including issuer, market maker and/or liquidity provider, underwriter, distributor, index sponsor, swap counterparty, and calculation agent) simultaneously with respect to a product, giving rise to potential conflicts of interest which may impact the performance of a product. This document is from a Barclays Trading and/or Distribution desk and is not a product of the Barclays Research department. Any views expressed may differ from those of Barclays Research. Barclays may at any time acquire, hold, or dispose of long or short positions (including hedging and trading positions) and trade or otherwise effect transactions for their own account or the account of their customers in the products referred to herein, which may impact the performance of a product. THIS COMMUNICATION IS PROVIDED FOR INFORMATION PURPOSES ONLY AND IT IS SUBJECT TO CHANGE. IT IS INDICATIVE ONLY AND IS NOT BINDING. Barclays is not offering to sell or seeking offers to buy any product or enter into any transaction. Any offer or entry into any transaction requires Barclays’ subsequent formal agreement which will be subject to internal approvals and execution of binding transaction documents. Neither Barclays nor any of its directors, officers, employees, representatives or agents, accepts any liability whatsoever for any direct, indirect or consequential losses (in contract, tort or otherwise) arising from the use of this communication or its contents or reliance on the information contained herein, except to the extent this would be prohibited by law or regulation. Barclays is not acting as a fiduciary. Barclays does not provide, and has not provided, any investment advice or personal recommendation to you in relation to the transaction and/or any related securities described herein and is not responsible for providing or arranging for the provision of any general financial, strategic, or specialist advice, including legal, regulatory, accounting, model auditing, or taxation advice or services, or any other services in relation to the transaction and/or any related securities described herein. Accordingly, Barclays is under no obligation to, and shall not, determine the suitability for you of the transaction described herein. You must determine, on your own behalf or through independent professional advice, the merits, terms, conditions, and risks of the transaction described herein. Barclays is not responsible for information stated to be obtained or derived from third-party sources or statistical services. Any past or simulated past performance, including back-testing, modeling, or scenario analysis contained herein is no indication as to future performance. No representation is made as to the accuracy of the assumptions made within, or completeness of, any modeling, scenario analysis, or back-testing. All opinions and estimates are given as of the date hereof and are subject to change. The value of any investment may also fluctuate as a result of market changes. Barclays is not obliged to inform the recipients of this communication of any change to such opinions or estimates. This document is being directed at persons who are professionals and is not intended for retail customer use.

For important regional disclosures you must read, visit the link relevant to your region. Please contact your Barclays representative if you are unable to access.

EMEA https://www.home.barclays/disclosures/important-emea-disclosures.html,
APAC https://www.home.barclays/disclosures/important-apac-disclosures.html,

This communication is confidential and is for the benefit and internal use of the recipient for the purpose of considering the securities/transaction described herein, and no part of it may be reproduced, distributed, or transmitted without the prior written permission of Barclays. Barclays offers premier investment banking products and services to its clients through Barclays Bank PLC. Barclays Bank PLC is authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority and is a member of the London Stock Exchange. Barclays Bank PLC is registered in England No. 1026167 with its registered office at 1 Churchill Place, London E14 5HP. Barclays Capital Securities Limited is authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority and is a member of the London Stock Exchange. Barclays Capital Securities Limited is registered in England No. 1929333 with its registered office at 1 Churchill Place, London E14 5HP. Barclays Capital Inc. is a US registered broker/dealer affiliate of Barclays Bank PLC and a member of SIPC, FINRA and NFA. Barclays Capital Inc. operates out of 745 Seventh Avenue, New York, NY 10019. Where required pursuant to applicable US laws, rules and/or regulations, Barclays Capital Inc. accepts responsibility for the distribution of this document in the United States to US Persons. Where a communication is being directed at persons who are professionals, it is directed at institutional investors in the US as defined by FINRA Rule 2210(a)(4).

BARX is a registered trademark of Barclays

© Barclays 2019