

Morgan Stanley's EMEA Equity Order Handling & Routing

Frequently Asked Questions

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This document is part of Morgan Stanley International plc's ("Morgan Stanley") ongoing efforts to provide transparency to its clients about its business practices. The document is based on questions that Morgan Stanley typically receives from its clients and seeks to provide clients with an understanding of Morgan Stanley's European equity order handling and routing systems.

Morgan Stanley's primary objective in handling client orders is to deliver the best execution reasonably available under the circumstances. Morgan Stanley may execute client orders through a variety of means by accessing internal and/or external sources of liquidity.

If after reviewing this document you have additional questions, please contact your Morgan Stanley representative. The contents of this letter are also available at www.morganstanley.com/disclosures/ and may be updated from time to time.

I. Equity Order Handling and Routing Practices

1. Please describe Morgan Stanley's general approach to order handling and routing of its clients' orders.

Morgan Stanley's order handling and routing systems seek to minimise signalling and maximise fill rates and execution quality. Morgan Stanley strives to provide transparency to clients about how its order handling and routing systems operate and advocates meaningful public order handling disclosures.

2. Please provide a list of all sources of liquidity that Morgan Stanley's smart order routers may access for client orders.

Morgan Stanley's algorithms and smart order routers are designed to access internal and/or external sources of liquidity in an attempt to achieve best execution. The liquidity sources that Morgan Stanley may access for client orders through its smart order routers are: European Regulated Markets (displayed and non-displayed liquidity); Multilateral Trading Facilities (MTFs); internal dark pools (please see Section II below); external dark pools (please see Section III below); and MS Automated Liquidity.

Given the variety of means that Morgan Stanley may employ to attempt to achieve best execution, and absent instructions to the contrary, transactions may be executed in an agency/riskless principal or principal basis or a combination of these. The configurations for your order flow can vary across various Morgan Stanley desks. If you have questions about the specific configurations for your order flow, please contact your Morgan Stanley representative.

3. Does Morgan Stanley receive payment for routing to external venues?

As described above, Morgan Stanley may access Regulated Markets (RMs), Multilateral Trading Facilities (MTFs) and other venues such as Broker Crossing Networks (BCNs). Certain venues offer cash credits for orders that provide liquidity to their books and charge explicit fees for orders that extract liquidity from their books. The amount of credits that Morgan Stanley receives from one or more venues may exceed the amount that Morgan Stanley is charged. Morgan Stanley may also receive incremental pricing benefits from venues if certain volume thresholds are met.

4. In which European equity trading venues does Morgan Stanley have a strategic ownership stake?

Morgan Stanley owns and operates its internal dark pools (Section II below contains more information about Morgan Stanley's internal dark pools). In addition, Morgan Stanley or an affiliate holds indirect minority ownership stakes in Bats and Turquoise.

5. Is Morgan Stanley directly connected to all the exchanges or does it use other exchanges or broker-dealers to access certain exchanges?

Morgan Stanley is directly connected to all major European exchanges. If we do not have a membership on a particular exchange, we may access that exchange through an intermediary.

6. What market data feeds does Morgan Stanley use to route orders to the displayed markets?

Morgan Stanley uses direct exchange market data feeds (with depth of book visibility when available) from all major European exchanges. For other European exchanges, Morgan Stanley may use a third-party provider.

7. Does Morgan Stanley use a single smart order router to access both displayed and non-displayed venues or does it use separate routers?

Morgan Stanley's smart order routers ("MS Routers") offer clients distinct routing strategies for access to displayed and non-displayed liquidity. Smart Order Routing Technology ("SORT") provides access to displayed liquidity. NightVision, which is Morgan Stanley's dark router, provides access to non-displayed liquidity. Certain order types and routing strategies access both displayed and non-displayed liquidity. MS Routers may also access certain Morgan Stanley internal sources of liquidity.

8. How do Morgan Stanley's smart order routers operate?

SORT

SORT is designed to route marketable orders in a manner that seeks to maximise fill rates and minimise both quote fading and market signalling.

For client orders, SORT is designed to capture a contemporaneous snapshot of both external displayed markets and certain Morgan Stanley internal sources of liquidity (i.e., MS POOL and MS Automated Liquidity). As part of this process, SORT uses direct market data feeds from all

major European exchanges to obtain multiple levels of market data depth (when available) for each security. In addition, based on its view of liquidity available in MS POOL at prices equal to or better than the then-current EBBO (as defined in Section II below), SORT may access such liquidity by sending an IOC to the extent it is eligible based on client configurations and/or instructions. SORT seeks to access venues in parallel to accessing MS POOL. This parallel routing is intended to allow SORT to access MS POOL while minimising market signalling. SORT may also access MS Automated Liquidity depending on client configurations and/or instructions. MS Automated Liquidity is liquidity provided in an automated and anonymous manner by Morgan Stanley's electronic market making desk. SORT does not blindly ping liquidity providers prior to sending orders to the displayed markets.

Subject to the above, SORT primarily determines which sources of liquidity to access based upon price. If there is more aggregate liquidity available than is necessary to fill the order, the factors used to rank quotations include price, health of the market, the size of the quotation and a randomisation factor that considers exchange fees, rebates, and/or tiers. Certain configurations of SORT rank these factors, as well as the priority for accessing multiple sources of liquidity, differently. For instance, one configuration places a higher weight on exchange fees and rebates. If you have questions about the specific configurations for your order flow, please contact your Morgan Stanley representative.

For non-marketable orders, SORT sends orders to exchanges and does not post in any dark pools. SORT may post on multiple exchanges based on order size and the prevailing trading environment. In the event that SORT does not display the whole order quantity, it will use reserve quantities on exchanges or may access MS Automated Liquidity.

NightVision

NightVision is used to access MS POOL and select external dark pools. NightVision will send an order (or portion(s) of an order) to some or all of these venues and may reallocate based on executions received from these venues. In addition, based on its view of liquidity available in MS POOL at a price equal to or better than the then-current EBBO (as defined in Section II below), NightVision may access such liquidity by sending an IOC or day order to the extent it is eligible based on client configurations and/or instructions.

NightVision is generally accessed via algorithms that control the order. These algorithms can access NightVision in a number of ways based upon the client's level of urgency in completing the order. Certain configurations initially seek an execution in MS POOL, to the extent eligible based on client configurations and/or instructions, before routing to the other sources of non-displayed liquidity that NightVision accesses, thereby minimising the risk of market signalling associated with sending orders to multiple venues.

9. What anti-gaming controls does Morgan Stanley have in place?

Morgan Stanley has invested significant capital in its order handling and routing systems. SORT is designed to route marketable orders in a manner intended to maximise fill rates and minimise both quote fade and market signalling.

For MS POOL, Morgan Stanley employs measures such as restricting order types, not accepting IOCs from users and monitoring median resting periods to minimise simulated IOCs. In addition, MS POOL does not transmit IOIs. Section II below contains additional information about anti-gaming controls for MS POOL and MS Trajectory Cross.

For external dark pools that Morgan Stanley accesses, Morgan Stanley may place certain constraints on orders such as minimum fill quantities (in terms of number of shares and/or notional value). Morgan Stanley also monitors fill rates for such venues, evaluates the dark pools that it accesses and requires them to represent that they take certain measures to mitigate the risk of signalling or gaming of its client orders in their respective dark pools. Section III below (External Dark Pools) contains additional information about anti-gaming controls for the external dark pools that Morgan Stanley accesses.

10. Does Morgan Stanley send outbound IOIs from anywhere within its electronic trading infrastructure (*i.e.*, from its dark pools, smart order routers or algorithms) or messages similar to an IOI, including an RFQ, RFL, SOI, SOQ or SOL?

No.

11. Does Morgan Stanley send outbound conditional orders?

Yes, based on client configurations and/or instructions, MS Routers may send conditional orders to certain venues that support this order type.

12. Does Morgan Stanley send any orders (e.g., IOCs) related to client orders in response to inbound IOIs (or messages similar to an IOI, including an RFQ, RFL, SOI, SOQ or SOL) from external liquidity providers?

No.

13. Does Morgan Stanley send blind IOCs (*i.e.*, blind ping) to external liquidity providers prior to routing orders to the displayed markets?

No.

14. Does Morgan Stanley allow re-routing of client orders by external venues (*i.e.*, does Morgan Stanley send routable orders)?

Morgan Stanley does not allow external venues to re-route our orders to other non-affiliated venues. However where one exchange operator runs multiple matching books, MS Routers may utilise sweep order types between such books where these order types are supported.

15. Can clients opt out of interacting with Morgan Stanley principal liquidity?

Yes.

16. Does Morgan Stanley identify the capacity in which it acted on fills?

Yes.

17. Does Morgan Stanley provide the actual execution venue on fills?

Yes.

18. Does Morgan Stanley provide MIC codes on fills?

Yes.

19. Can Morgan Stanley provide liquidity tags on fills to indicate whether orders took or provided liquidity?

Yes, where supported by the execution venue.

20. Can Morgan Stanley show a liquidity map for a client's order flow that shows venues and the percentage of liquidity provided versus taken at each venue?

Yes.

21. Can Morgan Stanley's algorithmic and routing strategies be customised?

Yes. Morgan Stanley can customise algorithmic and routing strategies upon client request.

22. Who at Morgan Stanley can see client order information?

Access to client order information is limited to account coverage, personnel handling client orders, and supervisors, as well as certain legal, compliance, risk management, senior management and other support personnel in the performance of their responsibilities. Other clients, traders and sales traders do not have access to this information. Depending on respective personnel responsibilities, there are different levels of permissioned access pursuant to our internal policies.

23. Does Morgan Stanley accept market orders and if so, how are they handled?

Yes, Morgan Stanley accepts market orders. However, to mitigate the risk of adverse market impact, Morgan Stanley may place limit prices on orders when accessing the market, including in circumstances when clients direct market orders to a particular destination. Therefore, it is possible that a market order does not get completely filled.

II. Morgan Stanley Dark Pools

24. Please describe Morgan Stanley's internal dark pools.

MS POOL is a real-time continuous crossing dark liquidity pool. It crosses eligible orders at or within the European best bid and offer as compiled by Morgan Stanley ("EBBO"), attempting midpoint execution or as close to midpoint as possible. MS POOL employs price/category/size/time priority, which encourages size and deemphasises speed.

MS Trajectory Cross is a dark pool designed to provide internal crosses over pre-determined, scheduled intervals for eligible orders that are traded via certain Morgan Stanley algorithms.

Potential crosses are determined based on overlap of the individual order trajectories and executions will receive VWAP pricing.

MS Pool and MS Trajectory Cross are each operated as a Broker Crossing Network (“BCN”).

25. How can Morgan Stanley’s dark pools be accessed?

“Professional traders” (as described in question 29 below) and mutual access agreement users access MS POOL directly. MS POOL may also be accessed indirectly via MS Routers (as described in Section I above) and Morgan Stanley algorithms.

MS Trajectory Cross can only be accessed via certain Morgan Stanley algorithms.

26. What market data feeds do Morgan Stanley’s dark pools use?

MS POOL uses direct exchange market data feeds to determine the EBBO. Morgan Stanley’s EBBO is composed of primary markets, Aquis, Bats BXE book, Bats CXE book and Turquoise lit quotes.

MS Trajectory Cross executes orders using a VWAP price calculated based on eligible publicly reported primary market, Aquis, Bats BXE book, Bats CXE book and Turquoise trades.

27. Describe the types of users of Morgan Stanley’s dark pools.

Clients, traders and sales traders of Morgan Stanley and its affiliates can utilise MS POOL and MS Trajectory Cross.

28. Does Morgan Stanley allow users to opt out of interacting with certain flow in its dark pools?

Users have the ability to opt out of interacting with principal orders in both MS POOL and MS Trajectory Cross. Morgan Stanley also allows users who are not classified as “professional traders” to opt out of interacting with participants classified as “professional traders” in MS POOL.

29. How does Morgan Stanley determine which users will be classified as “professional traders” in MS POOL?

A user can be classified as a “professional trader” based on the nature and frequency of that participant’s activities (or for a new user, its anticipated activities) in MS POOL.

30. How do Morgan Stanley’s dark pools prioritise orders?

MS POOL employs price/category/size/time priority, which encourages size and de-emphasises speed (rather than prioritizing time over size). For MS POOL, orders from users not classified as “professional traders” or broker-dealers have the highest matching priority followed by broker-dealers and then “professional traders”. An order pegged to the near side of the best bid and offer that has ever been re-priced to a peg price other than its limit price yields time priority to other orders with the same price, category and size.

MS Trajectory Cross is designed to optimise the size of each crossing opportunity from eligible orders, and so prioritises based on order size. Given the forward-looking nature of the crossing rounds, certain assumptions are made regarding the forward-looking volume and price when determining eligible order quantity for each crossing round. As a result, orders (or portions thereof) that may otherwise be eligible to cross in MS Trajectory Cross may not get executed in a crossing round. For example, where a limit order is priced close to the then-current market price for that security, MS Trajectory Cross may not consider all or a portion of that order as eligible for a crossing round. This applies irrespective of the size of the order.

31. What order types are supported by Morgan Stanley's dark pools?

MS POOL accepts day orders with and without limit prices, which may also be designated with a peg instruction. MS POOL accepts IOC and conditional orders only via MS Routers and certain other automated Morgan Stanley trading systems. If liquidity is available in MS POOL at a price equal to or better than the then-current EBBO (as defined above), MS Routers, based on their view of liquidity available in MS POOL, may access such liquidity by sending IOC, day and/or conditional orders to MS POOL. Users accessing MS POOL directly are permitted to enter day orders only.

MS Trajectory Cross accepts day orders from certain Morgan Stanley algorithms with and without limit prices that are eligible to be matched in MS Trajectory Cross.

32. Can users specify a minimum fill quantity in MS POOL? If so, will MS POOL aggregate orders to satisfy the minimum fill quantity?

Orders sent to MS POOL can be designated with a minimum fill quantity instruction. MS POOL does not aggregate multiple contra-side orders to satisfy a minimum fill quantity on a single order in MS POOL.

33. Does the minimum fill quantity constraint apply to just the first execution or to every execution?

The minimum fill quantity constraint applies to every execution in MS POOL, except when the remainder of the order is less than the minimum fill quantity, in which case MS POOL will execute that quantity.

34. Do Morgan Stanley's dark pools send outbound IOIs (or messages similar to an IOI, including an RFQ, RFL, SOI, SOQ or SOL) to solicit order flow?

No.

35. During which hours do Morgan Stanley's dark pools execute?

Generally, the hours of operation for MS POOL and MS Trajectory Cross are the primary markets' continuous matching trading hours. Morgan Stanley may suspend crossing in its dark pools during market hours under anomalous conditions.

36. Does Morgan Stanley provide preferential access to its dark pools or to categories of flow in its dark pools for a fee? Do orders in MS POOL from other brokers with which Morgan Stanley has a mutual access agreement receive preferential treatment?

No.

37. Where are Morgan Stanley's dark pool servers located?

The MS POOL and MS Trajectory Cross trading infrastructure is located in Morgan Stanley's Heathrow and Croydon data centres.

38. Does Morgan Stanley offer cross-connect or co-location to MS POOL or MS Trajectory Cross?

No.

39. Does MS POOL execute in a locked or crossed market?

No. MS POOL does not execute with respect to securities that are the subject of a locked or crossed market.

40. What is the MIC code for MS POOL?

MS POOL's MIC code is MSPL.

41. What is the MIC code for MS Trajectory Cross?

MS Trajectory Cross' MIC code is MSTX.

42. Do Morgan Stanley's dark pools employ a maker-taker pricing model or provide rebates to solicit order flow?

No.

43. Do Morgan Stanley's dark pools charge different rates for access to different types of order flow?

No.

44. What anti-gaming controls does Morgan Stanley have in place for MS POOL?

MS POOL employs measures such as restricting order types, not accepting IOCs from users and not transmitting IOIs, among other things. MS POOL employs price/category/size/time priority, which encourages size and de-emphasises speed. In MS POOL, Morgan Stanley also allows users who are not classified as "professional traders" to opt out of interaction with "professional traders", but users classified as "professional traders" are not permitted to opt out of interacting with each other. MS POOL affords users the option to specify minimum fill quantities. Orders from users not categorised as "professional traders" or broker-dealers have the highest matching priority followed by orders from broker-dealers and then orders from "professional traders". In addition, Morgan Stanley reviews the activity of MS POOL users and may take action, which may include denial of access.

45. What anti-gaming controls does Morgan Stanley have in place for MS Trajectory Cross?

MS Trajectory Cross does not raise the type of concerns commonly associated with continuous match dark pools that permit direct access and execute orders based on the best bid and offer. Access to MS Trajectory Cross is only available through certain Morgan Stanley algorithms. Orders are eligible to execute in MS Trajectory Cross when there is an overlapping trajectory of algorithmic orders that would otherwise trade in the market. Executions in MS Trajectory Cross are based on VWAP pricing over a pre-determined time interval.

III. External Dark Pools

46. What external dark pools does Morgan Stanley currently access?

Morgan Stanley currently accesses the following external dark pools: JPMorgan JPM-X, ITG Posit, Liquidnet H2O, Bats BXE dark book, Bats CXE dark book, Nasdaq Nordic@mid, Smartpool, Turquoise Plato continuous, Turquoise Plato Uncross, UBS MTF and Xetra midpoint.

47. How does Morgan Stanley evaluate new dark pools for addition to its dark pool router?

Morgan Stanley carefully evaluates potential new dark pool providers to assess their order handling and execution practices and whether they will handle our orders in the manner that Morgan Stanley instructs. As a result of this evaluation process, Morgan Stanley does not access every available dark pool.

48. Do the external dark pools that Morgan Stanley accesses aggregate orders to fulfil minimum quantity, as opposed to fulfilling minimum quantity with a single order?

Morgan Stanley has opted out of this functionality for those third party dark pools that permit us to opt out. A client can also opt its orders out of accessing one or more dark pools that might aggregate in this manner.

49. Do the external dark pools that Morgan Stanley accesses execute at prices other than mid-point?

External dark pools have different crossing and price improvement logic, but most support midpoint pegged orders which is the order type that Morgan Stanley generally sends to external dark pools.

50. Do the external dark pools that Morgan Stanley accesses allow executions to take place prior to a stock's opening print on the primary exchange?

Morgan Stanley routes to external dark pools in a manner designed to receive executions during regular trading hours.

51. Has Morgan Stanley stopped routing to any external dark pools?

Yes, as a result of Morgan Stanley's analysis of the executions received, low fill rates and/or based on regulatory actions or reputational concerns.

52. Can clients opt out of any external dark pools?

Yes.

53. Does Morgan Stanley allow users to opt out of interacting with certain flow in external dark pools?

No, interaction with certain flow is not configurable on a user by user basis.

54. What anti-gaming controls does Morgan Stanley have in place for external dark pools?

Morgan Stanley may place certain constraints on orders that it routes to external dark pools such as minimum fill quantities (in terms of number of shares and/or notional value), where available. Morgan Stanley also monitors fill rates for such venues, evaluates the dark pools that it accesses and requires them to represent that they take certain measures to mitigate the risk of signalling or gaming of Morgan Stanley's client orders in their respective dark pools.

This information is being provided at your request for your exclusive use to aid in your understanding and evaluation of Morgan Stanley's European equity order handling and routing systems. This information is proprietary to Morgan Stanley and describes current practices, which may change without notice. Morgan Stanley welcomes a conversation with you about this subject.