

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 electronic 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 document 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 algorithms and 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" displayed and non-displayed liquidity); internal liquidity (please see Section II below); external Systematic Internalisers (please see Section III below); other external liquidity sources (please see Section IV below).

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?

Certain venues offer negative cost price arrangements for orders that provide liquidity to their books and charge explicit fees for orders that extract liquidity from their books. The amount of negative cost activity that Morgan Stanley undertakes on one or more venues may exceed the amount of positive cost activity undertaken by Morgan Stanley. 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 Systematic Internaliser (“MSSI”; Section II below contains more information about Morgan Stanley’s internal liquidity). In addition, a Morgan Stanley affiliate holds an indirect minority ownership stake in 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?

Morgan Stanley uses direct exchange market data feeds (with depth of book visibility when available) from all major European exchanges. For other European exchange market data, Morgan Stanley may use a third-party provider. Morgan Stanley uses these market data feeds to determine the European best bid and offer (“EBBO”). Morgan Stanley’s EBBO is composed of lit quotes from the continuous trading phase of primary markets, Aquis, Cboe Europe BXE book, Cboe Europe CXE book and Turquoise.

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 router (“MS Router”) offers clients routing strategies for access to displayed and non-displayed liquidity. The type of liquidity sources accessed is determined by the order type received by MS Router, is subject to client configurations and/or instructions and may result in MS Router focussing primarily on lit liquidity sources (SORT) or primarily on dark liquidity sources (NightVision). Certain order types and routing strategies access both displayed and non-displayed liquidity. MS Router may also access certain Morgan Stanley internal sources of liquidity.

8. How does MS Router operate?

As described above, MS Router supports both lit and dark focussed routing offerings:

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, including the use of measures such as randomisation.

For client orders, SORT is designed to capture a contemporaneous snapshot of both external displayed markets and certain Morgan Stanley internal sources of liquidity within Morgan Stanley's Systematic Internaliser "MSSI". As part of this process, SORT uses market data (as described in the response to question 6 above) and data from certain external liquidity providers to obtain multiple levels of market data depth (when available) for each security. In addition, based on its view of liquidity available in MSSI at prices equal to or better than the then-current EBBO (as also defined in the response to question 6 above), SORT may access such liquidity by sending an Immediate or Cancel ("IOC") or day order to the extent it is eligible based on client configurations and/or instructions. SORT seeks to access venues in parallel to accessing MSSI. This parallel routing is intended to allow SORT to access MSSI while minimising market signalling. By default 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 SORT uses when determining which venue(s) to select for marketable orders include instrument price, health of the market, round-trip latency, liquidity size and randomisation factors. 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. 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 external dark liquidity sources or Systematic Internalisers. 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 simulate such functionality) or may access MS internal liquidity.

NightVision

NightVision is used to access MSSI, external periodic auction books, external SIs and select external dark liquidity sources. 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 MSSI at a price equal to or better than the then-current EBBO (as defined in the response to question 6 above), NightVision may, based on client configurations and/or instructions access such liquidity by sending an IOC or day order. Additionally, NightVision may send conditional indications to certain venues.

By default, NightVision is designed to initially seek an execution in MSSI, to the extent eligible based on client configurations and/or instructions, before routing externally, thereby minimising the risk of market signalling associated with sending orders to multiple venues.

If you have questions about Morgan Stanley's other routing strategies, please contact your Morgan Stanley representative.

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.

Morgan Stanley algorithms are designed to work orders in a manner that aims to minimise market signalling and impact whilst also aiming to achieve the execution objective. Morgan Stanley algorithms may use randomisation techniques where Morgan Stanley deems appropriate to manage the placement of orders into the market in a way that is designed to minimise the use of repetitive and predictable behaviours such as regularly scheduled order placement or consistent order sizes.

For external dark liquidity sources that Morgan Stanley accesses, Morgan Stanley may place certain constraints on orders such as minimum fill quantities. Morgan Stanley also monitors fill rates for such venues and evaluates the external liquidity sources that it accesses.

For the external Systematic Internalisers that Morgan Stanley accesses, Morgan Stanley requires that external SIs take certain measures to mitigate the risk of signalling or gaming of its client orders. MS Router also applies additional constraints which may prevent MS Router from accessing a particular SI based on observed characteristics such as round-trip latency, fill rates and the materiality of any price improvement. Section III below also contains additional information regarding the monitoring and surveillance that Morgan Stanley undertakes on external SIs accessed by MS Router, including those undertaken as part of the Firm's best execution framework.

10. Does Morgan Stanley send outbound Indications of Interest ("IOI"s) from anywhere within its electronic trading infrastructure (i.e., from its smart order routers or algorithms) or messages similar to an IOI?

By default, no. However this feature can be enabled based on client instructions. Please also refer to the below responses on conditional indication handling.

11. Does Morgan Stanley send any orders (e.g., IOCs) related to client orders in response to inbound IOIs (or messages similar to an IOI) from external liquidity providers?

Yes, based on client instructions, Morgan Stanley may send orders to select external liquidity providers in response to indications of interest (IOIs) that they provide. Morgan Stanley expects such external liquidity providers to provide competitive fill rates and monitors such fill rates.

12. Does Morgan Stanley accept inbound conditional indications from clients?

No.

13. Does Morgan Stanley send outbound conditional indications?

Yes, MS Router may send conditional indications to certain venues that support this order type.

NightVision is designed to maximise fill size and reduce the likelihood of receiving multiple, simultaneous conditional firm-up requests by both staggering the initial conditional placement across venues and managing conditional placement relative to firm order placement. When staggering conditional placement across venues, NightVision ranks conditional venues in order of decreasing amount of observed recent fill activity before sending conditional indications in a sequential fashion. Should NightVision receive multiple simultaneous firm-up requests, firm order quantity is directed according to a prioritisation process taking into account factors such as reputational scoring.

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

By default, no. However, based on client instructions, MS Router may send blind IOC orders to external liquidity sources.

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 aggregate executions for multiple orders and provide back a single fill?

Yes. However, given that a single aggregated fill represents two or more orders that can be executed on multiple venues, possibly in a mixed capacity (both as agent and principal) and can both take and provide liquidity, tags indicating capacity, actual execution venue, MIC and liquidity may not be passed back on such fills. If you would like details regarding the underlying executions, please contact your Morgan Stanley representative.

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

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

23. Who at Morgan Stanley can access client open order information?

Access 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.

24. How does Morgan Stanley use client information?

Protecting the confidentiality and security of order, execution and related information is an important part of how Morgan Stanley conducts its business, and Morgan Stanley has implemented controls that are reasonably designed to protect such information. Morgan Stanley may use such information for a variety of purposes including client coverage, supervision, risk management, liquidity provision, and business strategy, and may disclose such information in connection with its global regulatory obligations, pursuant to client instructions and in performing normal course brokerage functions.

25. 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 Internal Liquidity

26. Does Morgan Stanley operate an MTF?

No, however Morgan Stanley continues to monitor regulatory and market developments and will communicate any significant changes to its business model in a timely manner.

27. Is Morgan Stanley a Systematic Internaliser?

Yes, Morgan Stanley is a Systematic Internaliser ("SI") in all MiFID instruments for which a post-trade transparency obligation applies. For a list of instruments, please see the ESMA Transparency Calculations available publically [here](#).

28. Do clients of Morgan Stanley have a post-trade transparency (trade reporting) obligation?

No, unless Morgan Stanley's client is also a SI and is the seller as set out by the trade reporting hierarchy as described by MiFIR and its supplementary regulation.

29. Which APA does Morgan Stanley quote and trade report to?

Morgan Stanley uses Cboe Europe for both SI quote publication and trade reporting for equity and equity-like instruments.

30. Please describe Morgan Stanley's SI.

MSSI is an amalgamation of manual and automated capital commitment mechanisms and workflows. For client orders executing via Morgan Stanley algorithms or MS Router (either directly as an MSET client or indirectly via Morgan Stanley's high-touch trading desks), Morgan Stanley makes the following liquidity categories available within MSSI via MS Router:

- SI1: Client Derivative Hedging – Swap and related trading
- SI2: Automated Liquidity – Automated liquidity provision based on order liquidity demand. Positions will be liquidated in the market no sooner than trade date +1
- SI3: House Inventory – Central Risk Book (“CRB”), client related trading and hedging. Inventory is managed real time
- SI4: Market Making – Automated market making. Inventory is managed real time

When trading against MSSI categorised liquidity, Morgan Stanley make available a FIX tag on executions to allow clients to identify the category of MSSI liquidity they have traded against.

Orders executed within MSSI via MS Router can be executed at or within the EBBO (as defined below). Additionally, orders executed in MSSI via Morgan Stanley algorithms may, subject to client configurations and/or instructions, execute at the Volume Weighted Average Price (“VWAP”) over a pre-determined time interval. Morgan Stanley's VWAP is calculated based on eligible publicly reported primary market, Aquis, Cboe Europe BXE and CXE lit book and Turquoise lit book trades during continuous trading.

Other dedicated Morgan Stanley capital commitment mechanisms and workflows exist to provide clients with access to MSSI liquidity but Morgan Stanley does not formally categorise the type of liquidity available. Examples of uncategorised liquidity include manual interaction with MSSI via the high-touch desks, Morgan Stanley's Direct to Capital (“DTC”) and Actionable Indication of Interest (“AIOI”) products. Responses in this document referring to MSSI are provided with respect to the categorised liquidity provision from MS Router described above.

31. Are client-specific parent order characteristics a factor in the decision to commit capital within MSSI?

When providing capital in categories SI1, SI3 and SI4, Morgan Stanley does not consider any client-specific parent order characteristics. Traders responsible for managing the liquidity available in each of these categories will have visibility of executions but not client-specific parent order characteristics such as client name or type.

For category SI2, MS Automated Liquidity is liquidity provided in an automated and anonymous manner by Morgan Stanley. As described above the decision to provide liquidity to client orders may be based on client order liquidity demand.

Other capital commitment mechanisms provided by Morgan Stanley are tailored to specific clients with access permitted on a pre-arranged basis according to Morgan Stanley internal processes and procedures. For these mechanisms, information regarding the client submitting the order is made available.

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

Yes, orders accessing MSSSI via NightVision can be designated with a minimum fill quantity instruction. In such circumstances MSSSI does not aggregate multiple contra-side orders to satisfy a minimum fill quantity on a single order.

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, except when the remainder of the order is less than the minimum fill quantity, in which case MSSSI will execute that quantity.

34. During which hours does MSSSI operate?

MSSSI will provide continuous quoting between the hours of 7:00 GMT and 16:40 GMT, in line with the continuous trading hours of the primary market of issuance for each instrument. During this time, quotes for individual liquid instruments will be available via the Cboe Europe market data feed, except during periods of exceptional market conditions or periods where the primary market is not in continuous trading, including auctions. Depending on the mode of access, clients may be able to execute trades with MSSSI outside of continuous quoting hours. Morgan Stanley may suspend access to MSSSI during market hours under exceptional market conditions. MSSSI generally does not provide liquidity to clients in a stock until there is an execution for that stock on the primary exchange.

35. Does Morgan Stanley provide preferential access to MSSSI for a fee?

No.

36. Where is Morgan Stanley's electronic trading infrastructure located?

In Morgan Stanley's Heathrow and Croydon datacentres.

37. Does Morgan Stanley offer cross-connect or co-location to datacentre cages hosting MSSSI?

No.

38. Will MSSSI execute in a locked or crossed market?

No. MSSSI will not execute client orders via MS Router with respect to securities that are the subject of a locked or crossed market.

39. What is the MIC code for MSSSI?

MSSI. Additionally, Morgan Stanley makes available to clients the category of liquidity that they have interacted with via FIX tag 2405.

40. Does MSSI provide rebates or offer negative cost pricing arrangements to solicit order flow?

No.

III. External Systematic Internalisers

41. Does Morgan Stanley connect to external Systematic Internalisers?

Yes, Morgan Stanley is planning to provide clients with access to two different categories of external SI:

1. IOI SI: External SI's which provide Morgan Stanley with streaming IOIs indicating willingness to trade. Morgan Stanley expects SI's in this category will generally be operated by electronic liquidity providers.

2. Blind SI: External SI's which require a "blind" mode of interaction (i.e., without sending IOIs). Morgan Stanley expects SI's in this category will be operated by global brokers. Morgan Stanley will only interact with those brokers that can limit the type of liquidity that Morgan Stanley accesses to client derivative hedging liquidity.

Each of the external SI categories will require explicit opt-in by clients and the MIC code of each external SI will be passed back to clients on execution messages.

42. Which external SIs will Morgan Stanley connect to?

Morgan Stanley is currently connected to Citadel Securities, Jane Street Financial and Tower Research Capital. Additionally Morgan Stanley expects to connect to Sun Trading in early 2018.

Morgan Stanley is also planning to connect to "blind" SIs as described above, however these discussions are ongoing.

43. How do Morgan Stanley's order routers prioritise between external SIs and MSSI?

SORT prioritises available liquidity against criteria such as instrument price, health of the market, round-trip latency, liquidity size and randomisation factors. Additionally, based on its view of liquidity available in MSSI at prices equal to or better than the then-current EBBO (as defined in Section II above), SORT may access such liquidity by sending an IOC to the extent it is eligible based on client configurations and/or instructions. MS Router is designed to seek an execution against internal liquidity (i.e., within MSSI) prior to routing externally with the objective of minimising market signalling and achieving a higher likelihood of execution.

In addition to the above, SORT is designed to disregard quotes from external SIs that do not meet Morgan Stanley's requirements for price and size. SORT is also designed to only trade with

external SIs where IOC fill rates and round-trip latencies are observed to be within an acceptable performance window.

Subject to client configurations and instructions, NightVision may also route to external SIs. NightVision employs price, size, time prioritisation of external SI liquidity which encourages size and deemphasises speed.

44. What order information will Morgan Stanley make available to external SIs?

MS Router will not identify any client specific order characteristics to external SIs. Additionally Morgan Stanley will not commit to only sending orders with certain characteristics to external SIs. For example Morgan Stanley neither commits to sending orders only to a single external SI, nor to only sending orders that are nearing completion.

45. What measures does Morgan Stanley take to minimise information leakage when routing to external SIs?

Morgan Stanley sets price and size constraints around external SI quote eligibility, sets thresholds with regard to fill rate and round-trip latency and makes no commitment to external SIs with regard to outbound client-specific order characteristics. Additionally MS Router will not oversize an outbound order to an electronic liquidity provider's SI relative to the size of the quote received.

46. What monitoring will Morgan Stanley put in place for external SIs?

Morgan Stanley will regularly monitor various liquidity characteristics for the external SIs it connects to, such as:

- Parent Order Measurement – Assessing the effect of executing child slices in an SI
- Fill Rate per SI – IOC interaction statistics
- Round Trip Latency (“RTL”) - Time based measurement of the roundtrip between MS Router and the SI
- Reversion – Price movement relative to time of fill

IV. Other External Liquidity Sources

47. What are the different types of external liquidity accessed by Morgan Stanley?

In addition to lit primary market and MTF liquidity, Morgan Stanley accesses the following types of external liquidity sources:

- Systematic Internalisers (as described in Section III above)
- Dark liquidity (i.e. Regulated Markets and MTFs)
- Conditional Large In Scale dark liquidity
- Periodic auction books

Additionally Morgan Stanley may make use of venue provided Negotiated Trade mechanisms to undertake eligible activity on exchange.

48. Which external dark liquidity sources does Morgan Stanley currently access?

Morgan Stanley currently accesses Cboe Europe BXE dark book, Cboe Europe CXE dark book, ITG Posit, Liquidnet H2O, Nasdaq Nordic@mid, Turquoise Plato continuous, Turquoise Plato Uncross, SwissAtMid and UBS MTF.

49. Which external conditional Large In Scale (“LIS”) dark liquidity sources does Morgan Stanley currently access?

Morgan Stanley currently accesses Turquoise Plato Block Discovery, Cboe Europe LIS and ITG Posit.

50. Which periodic auction books does Morgan Stanley currently access?

Morgan Stanley currently accesses Cboe Europe Periodic Auction, Nasdaq Auction On Demand and Turquoise Lit Auctions.

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

Yes, however Morgan Stanley has opted out of this functionality for those external dark liquidity sources that offer choice with regard to minimum fill handling. A client can also opt its orders out of accessing one or more dark liquidity sources that might aggregate in this manner.

52. Do the external dark liquidity sources that Morgan Stanley accesses execute at prices other than mid-point?

Morgan Stanley generally sends mid-point pegged orders to external dark liquidity sources.

53. Has Morgan Stanley suspended routing to any external dark liquidity sources?

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.

54. Can clients opt out of any external dark liquidity sources?

Yes.

This information is being provided at your request for your exclusive use to aid in your understanding and evaluation of Morgan Stanley’s European electronic 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.