

Morgan Stanley's U.S. Cash Equity Order Handling & Routing Practices

Frequently Asked Questions

(Last Updated: March 2021)

This document is part of Morgan Stanley & Co. LLC'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 provides clients with a detailed understanding of Morgan Stanley's U.S. cash 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.

This document is meant to cover high touch and low touch client orders that utilize U.S. cash equity order handling and routing systems, including Morgan Stanley smart order routers and algorithms. This document is not meant to cover: (1) voice trading and disclosed capital commitment; (2) client directed orders; (3) client specific customized routing strategies; (4) the handling and routing of principal orders and hedges of Morgan Stanley and its affiliates, which may utilize these offerings on terms which may differ from those described; and (5) Morgan Stanley's retail broker-dealer offering.

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. For information regarding Morgan Stanley's broader U.S. Institutional Equities Division order handling and risk transactions practices, please refer to Morgan Stanley's annual client disclosure also available at www.morganstanley.com/disclosures/.

I. Cash 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 minimize signaling and maximize fill rates and execution quality. Morgan Stanley strives to provide transparency to clients about how its order handling and routing systems operate and has advocated publicly for improved regulation obligating meaningful public order handling disclosures.

2. Please provide a list of sources of liquidity that Morgan Stanley's U.S. equities order handling and routing systems may access for client orders.

Morgan Stanley's order handling and routing systems 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 through such systems are: U.S. exchanges (both displayed and non-displayed liquidity); FINRA's Alternative Display Facility (ADF) participant(s) (currently no participants); Morgan Stanley internal dark pools (MS POOL, MS Trajectory Cross and MS RPOOL); external dark pools (currently Barclays LX, BIDS, CS Crossfinder, Instinet BlockCross,

Instinet CBX, Intelligent Cross ATS, Deutsche Bank SuperX, Fidelity CrossStream, Goldman Sachs Sigma X2, JPM JPM-X, Level ATS, Liquidnet H2O, Virtu MatchIt and UBS ATS); select external liquidity providers (via Morgan Stanley Alternative Liquidity Facility (ALF)); Morgan Stanley Automated Liquidity (MSAL); Morgan Stanley ETF (MS ETF); and principal liquidity provided at the close via Morgan Stanley Market-on-Close Aggregator (MOCHA).

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 on an agency, agency cross or principal basis or a combination of these. The client configurations and/or instructions for your order flow can vary across various Morgan Stanley desks at the direction of Morgan Stanley and/or the client. Based on a variety of factors, including Morgan Stanley's discretion, interactions with such internal and external sources of liquidity may vary by client. 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 cash credits for orders that provide liquidity to their books and charge explicit fees for orders that extract liquidity from their books (and certain venues invert this practice). 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 of the external U.S. equity trading venues/sources of liquidity identified above does Morgan Stanley have a strategic ownership stake?

An affiliate of Morgan Stanley holds an indirect minority ownership stake Members Exchange (MEMX) and MIAX PEARL. An affiliate of Morgan Stanley also holds warrants to acquire an ownership stake in Miami International Holdings, Inc. (and therefore additional indirect ownership interest in MIAX PEARL), which become exercisable in the event that Morgan Stanley meets certain order execution thresholds on MIAX PEARL Equities.

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 U.S. exchanges.

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 displayed venues to which it routes and uses the SIP feed for any exchange that does not make available a direct exchange market data feed. For backup and regulatory purposes (e.g., regulatory halts), Morgan Stanley's smart order routers also use the SIP feed.

7. How do Morgan Stanley's smart order routers access both displayed and non-displayed venues?

Morgan Stanley's smart order routers ("MS Routers") offer clients 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?

a. SORT

SORT is designed to route marketable orders in a manner that seeks to maximize fill rates and minimize both quote fading and market signaling, including by using randomization. For client orders, SORT is designed to capture a contemporaneous snapshot of the exchanges that generate protected quotations under Regulation NMS and select external liquidity providers to which it routes (collectively, external displayed venues) and certain Morgan Stanley internal sources of liquidity (i.e., MS POOL, MS RPOOL, MSAL and MS ETF). As part of this process, SORT uses direct market data feeds from external displayed venues, when available, to obtain multiple levels of market data depth (when available) for each security. In addition, based on its view of liquidity (i.e., full order book) available in MS POOL and MS RPOOL at prices equal to or better than the best bid and offer ("best bid and offer"), SORT may access such liquidity by sending an immediate or cancel ("IOC") order to the extent it is eligible based on client configurations and/or instructions. SORT seeks to access venues in parallel to accessing MS POOL and MS RPOOL. This parallel routing is intended to allow SORT to access MS POOL and MS RPOOL while minimizing market signaling. SORT may also access MSAL or MS ETF depending on client configurations and/or instructions. MSAL and MS ETF provide Morgan Stanley principal liquidity in an automated and anonymous manner. Based on client configurations and/or instructions, SORT may also access ALF, which provides access to select external liquidity providers in response to indications of interest (IOIs) that they provide.

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, but may not be limited to, some or all of the following: price, health of the market, liquidity size, venue type, fees and rebates, and randomization 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 fees and rebates and may prioritize inverted external displayed venues (i.e., those which typically provide a rebate for taking flow) over other sources of liquidity. Based on a variety of factors, including Morgan Stanley's discretion to set client configurations absent client instructions to the contrary, liquidity source selection for marketable orders may vary by client. If you have questions about the specific configurations for your order flow, please contact your Morgan Stanley representative.

For non-marketable orders, SORT displays all or a portion of orders on exchanges and does not post in any dark pools. SORT may post on multiple exchanges based on order size and the prevailing trading environment. The factors SORT uses when determining which exchange(s) to select for non-marketable orders include, but may not be limited to, some or all of the following: queue length, trade frequency, quote volatility, spread, historical market share, exchange fees,

rebates and tiers, and randomization factors. In the event that SORT does not display the whole order quantity, it will use reserve quantities on exchanges or may access MSAL. 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, rebates and/or tiers and may prioritize posting liquidity on rebate paying venues. Based on a variety of factors, including Morgan Stanley's discretion to set client configurations absent client instructions to the contrary, liquidity source selection for non-marketable orders may vary by client. If you have questions about the specific configurations for your order flow, please contact your Morgan Stanley representative.

b. NightVision

NightVision is used to access MS POOL, MS RPOOL, select external dark pools, and non-displayed liquidity on displayed venues. NightVision may also access MSAL or MS ETF depending on client configurations and/or instructions. 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. Based on its view of liquidity (i.e., full order book) available in MS POOL and MS RPOOL at prices equal to or better than the best bid and offer, 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 seeks non-displayed liquidity in external dark pools and external displayed venues by sending IOC or day orders. NightVision may post on multiple venues based on order size and the prevailing trading environment. The factors NightVision uses when determining which venue(s) to select include, but may not be limited to, some or all of the following: trade frequency, historical market share, venue fees, rebates and tiers, and randomization factors. Based on a variety of factors, including Morgan Stanley's discretion to set client configurations absent client instructions to the contrary, liquidity source selection may vary by client. If you have questions about the specific configurations for your order flow, please contact your Morgan Stanley representative.

Based on client configurations and/or instructions, NightVision may send conditional indications to certain venues. By default, NightVision will initially route conditional indications to MS RPOOL, to the extent eligible based on client configurations and/or instructions, before routing conditional indications to the external venues, thereby minimizing the risk of market signaling associated with sending orders to multiple venues. Should NightVision receive multiple firm-up requests, firm order quantity is directed according to a prioritization process that initially routes to MS RPOOL, which seeks to minimize the risk of market signaling 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 continues to invest significant capital in its order handling and routing systems. Direct feeds over wireless networks combined with low latency order routing technology have

resulted in high fill rates. SORT is designed to route marketable orders in a manner intended to maximize fill rates and minimize both quote fading and market signaling.

For MS POOL, Morgan Stanley employs measures such as restricting order types, not accepting IOC orders from participants and monitoring median resting periods to minimize simulated IOC orders. In addition, MS POOL does not transmit IOIs. MS POOL and MS RPOOL do not accept “post only” orders. The section below called Morgan Stanley Dark Pools contains additional information about anti-gaming controls for MS POOL, MS RPOOL 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 in writing that they take certain measures to mitigate the risk of signaling or gaming of its client orders in their respective dark pools. The section below called External Dark Pools contains additional information about anti-gaming controls for the external dark pools that Morgan Stanley accesses.

Morgan Stanley also monitors fill rates for external liquidity providers. Morgan Stanley evaluates the providers that it accesses and the quality of executions for orders that it sends to such providers. Morgan Stanley also requires external liquidity providers to confirm in writing that Morgan Stanley’s client orders and information regarding those orders are not used for the purpose of trading ahead of such orders and that external liquidity providers have established policies and procedures reasonably designed to preserve the anonymity of Morgan Stanley’s orders.

10. Does Morgan Stanley provide access to external liquidity providers?

Yes. Based on client configurations and/or instructions, MS Routers may access select external liquidity providers via ALF in response to IOIs that they provide. Morgan Stanley expects such external liquidity providers to provide high fill rates and monitors such fill rates. MS Routers do not blindly ping liquidity providers prior to sending orders to other external displayed venues.

11. Does Morgan Stanley send any orders (e.g., IOC orders) 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 via ALF in response to IOIs that they provide. Morgan Stanley expects such external liquidity providers to provide high fill rates and monitors such fill rates.

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

No.

13. 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?

No. MS RPOOL accepts conditional indications from participants and sends firm up requests back to those participants when there is a conditional match. MS Trajectory Cross accepts conditional indications from certain Morgan Stanley algorithms and sends firm up requests back to those Morgan Stanley algorithms when there is a conditional match. See also FAQs regarding conditional indications.

14. Does Morgan Stanley accept inbound conditional indications from participants?

MS RPOOL accepts conditional indications from participants. The section below called Morgan Stanley Dark Pools contains additional information about conditional indication functionality for MS RPOOL.

15. Does Morgan Stanley send outbound conditional indications?

Yes, based on client configurations and/or instructions, Morgan Stanley may send conditional indications for participants to BIDS, Instinet BlockCross, Level ATS, Liquidnet H2O and MS RPOOL.

Only certain Morgan Stanley algorithms may send conditional indications to MS Trajectory Cross. Participants cannot send conditional indications to MS Trajectory Cross.

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

Non-marketable orders may be sent to the exchanges as routable orders so that if the order becomes marketable on another exchange, the order can be routed to that other exchange for execution. Only a small portion of orders, however, are actually routed by exchanges for this reason. Morgan Stanley may also send routable orders in an outage situation. In the absence of explicit client instructions, Morgan Stanley instructs exchanges not to route its orders to venues that do not display protected quotations, including dark pools and other dark liquidity providers.

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

Yes.

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

Yes.

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

Yes. However, with respect to routable orders sent to the exchanges, if routed by the initial exchange to another exchange for execution, the actual executing exchange may not be passed back on the fill by the initial exchange.

20. Does Morgan Stanley provide MIC codes on fills?

Yes.

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

Yes, where supported by the execution venue.

22. 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, 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.

23. 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.

24. Can Morgan Stanley's algorithmic and routing strategies be customized?

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

25. Who at Morgan Stanley and its affiliates can access open client 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. Please refer to the ATS-N filings for Morgan Stanley's dark pools for a more detailed description regarding access to confidential trading information in such dark pools.

26. How does Morgan Stanley use client information?

Protecting the confidentiality and security of client order, execution, position 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. Morgan Stanley may also use or disclose internally created aggregated and anonymized information for these purposes and in connection with other products and services.

27. How does Morgan Stanley handle client orders when specific execution instructions for Tag 18 regarding Held or Not Held are not provided?

If Morgan Stanley does not receive Held or Not Held order instructions on the order, such order will be treated as Not Held.

28. Does Morgan Stanley accept market orders? If so, how are market orders handled?

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

29. Does Morgan Stanley support minimum fill quantity on orders?

With respect to MS Routers, NightVision supports minimum fill quantity instructions designated on orders, while SORT does not.

The section below called Morgan Stanley Dark Pools contains information about minimum fill quantity support for orders sent to MS POOL and for orders and conditional indications sent to MS RPOOL.

30. Does Morgan Stanley advertise executed volume?

Morgan Stanley may advertise executed volume. When Morgan Stanley advertises, it does so in the aggregate as “MSCO”. Given different advertising protocols used by Morgan Stanley’s electronic trading desk (“MSET”) and its high touch desks, please contact your Morgan Stanley representative for more information.

II. Morgan Stanley Dark Pools

31. Please describe Morgan Stanley’s internal dark pools.

Morgan Stanley operates three internal dark pools – MS POOL, MS RPOOL and MS Trajectory Cross. Morgan Stanley’s Form ATS-N for each of its dark pools is available on the following Morgan Stanley website: <https://www.morganstanley.com/disclosures/morgan-stanley-dark-pools.html>. These Morgan Stanley Dark Pools FAQs are meant to provide, among other things, relevant information from the Form ATS-N for each dark pool, and should be read in conjunction with the applicable Form ATS-N.

MS POOL is a real-time continuous match dark pool. MS POOL tracks on a real-time basis, for each NMS stock eligible to be matched through it, the best bid and offer. It matches eligible orders at or within the best bid and offer, attempting midpoint execution or as close to midpoint as possible. MS POOL employs price/capacity/size/time matching priority, which encourages size and deemphasizes speed (rather than prioritizing time over size).

MS RPOOL is a real-time continuous match dark pool that matches orders in NMS stocks from SEC registered broker-dealer clients on behalf of retail customers (i.e., retail brokers), eligible institutional customers of Morgan Stanley and its affiliates, including institutional customers who are SEC registered investment advisers, pension funds, endowments and asset managers (i.e., institutional customers), and Morgan Stanley and its affiliates acting as or on behalf of eligible retail brokers or eligible institutional customers or acting as principal. All executions in MS RPOOL occur at midpoint of the best bid and offer, providing price improvement to all orders matched in MS RPOOL. MS RPOOL also accepts orders and conditional indications that represent a non-firm willingness to transact.

MS Trajectory Cross is a dark pool designed to provide matches over time intervals for orders that certain Morgan Stanley algorithms handle. Potential matches are determined based on overlapping trajectories of algorithm orders and executions will receive volume weighted average price (“VWAP”) pricing for the relevant time interval. See FAQ 39 below regarding how MS Trajectory Cross uses conditional indication functionality.

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

MS POOL and MS RPOOL may be accessed directly. MS POOL and MS RPOOL may also be accessed indirectly via MS Routers and Morgan Stanley algorithms.

MS Trajectory Cross cannot be accessed directly and can only be accessed indirectly via certain Morgan Stanley algorithms.

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

MS POOL and MS RPOOL use direct exchange market data feeds (or the SIP feed for any exchange that does not make available a direct exchange market data feed) to determine the best bid and offer from all markets that display protected quotations as defined in Regulation NMS. The bid and offer is used, in turn, to determine the midpoint (or, in the case of MS POOL, other relevant price for execution). MS POOL and MS RPOOL also use the SIP feeds for regulatory purposes (e.g., to determine whether a market is open or closed; whether a security is subject to a halt; whether short sale restrictions are in effect) and for backup purposes. Morgan Stanley uses the SIP feed as a backup when there is an issue or the perception of an issue with a market’s direct feed or with Morgan Stanley’s ability to receive and process the data from such feed. Morgan Stanley makes such determinations on a market-by-market basis.

MS Trajectory Cross executes orders using an interval VWAP price calculated by MS Trajectory Cross based on executions reported to the consolidated tape. Accordingly, MS Trajectory Cross uses SIP feeds. It uses such SIP feeds to determine executions reported to the consolidated tape, to determine marketability of limit orders against quotations in the consolidated quotation system, and for regulatory purposes (e.g., to determine whether a market is open or closed; whether a security is subject to a halt; and whether short sale restrictions are in effect).

34. Describe the types of participants in Morgan Stanley’s dark pools.

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

SEC registered broker-dealer clients on behalf of retail customers (i.e., retail brokers), eligible institutional customers of Morgan Stanley and its affiliates, including institutional customers who are SEC registered investment advisers, pension funds, endowments and asset managers (i.e., institutional customers), and Morgan Stanley and its affiliates acting as or on behalf of such retail brokers or institutional customers or acting as principal can access MS RPOOL. Institutional customers are deemed eligible based on the nature of their trading activity (or for a new institutional customer, its anticipated trading activity). Morgan Stanley evaluates the nature of an institutional customer's trading activity based upon the amount and frequency with which the customer provides liquidity rather than takes liquidity and the status of the institutional customer – that is, whether it is a broker-dealer, registered investment advisor, pension fund, endowment or asset management.

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

Participants have the ability to opt out of interacting with principal orders in MS POOL. Participants have the ability to opt out of interacting with principal orders and principal conditional indications in MS RPOOL and MS Trajectory Cross. Please refer to the ATS-N filings for Morgan Stanley's dark pools for a more detailed description.

Morgan Stanley also allows participants who are not classified as professional traders to opt out of interacting with participants classified as professional traders in MS POOL.

Orders that access MS RPOOL, by default, do not interact with conditional indications. Participants can elect to have their orders interact with conditional indications in MS RPOOL. Conditional indications cannot opt out of interaction with orders or other conditional indications in MS RPOOL. A trader or sales trader acting on behalf of clients is considered a participant. In addition, participants can opt out of interacting with odd-lot orders and odd-lot conditional indications in MS RPOOL. The ability to opt out of only odd-lot orders or only odd-lot conditional indications is not supported.

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

A participant can be classified as a professional trader based on the nature and frequency of that participant's activities (or for a new participant, its anticipated activities) in MS POOL. Morgan Stanley evaluates the nature and frequency of a participant's activity based upon average daily message count and the number of shares executed per order.

37. How do Morgan Stanley's dark pools prioritize orders?

MS POOL employs price/capacity/size/time matching priority, which encourages size and deemphasizes speed (rather than prioritizing time over size). Orders from participants not classified as professional traders are given priority over both principal orders and orders from participants classified as professional traders. The price used to determine order priority is the price at or closest

to midpoint at which the order can be executed. An order may be designated with an instruction to be pegged to the near side of the best bid and offer or the midpoint of the best bid and offer. Because the orders in MS POOL cannot be executed at a price higher than the best offer or lower than the best bid, all orders in MS POOL without a peg instruction will be treated as if they were pegged to the far side of the best bid or offer, subject to any applicable limit price. An order pegged to the near side of the best bid and offer that has ever been repriced to a peg price other than its limit price yields time priority to other orders with the same price, capacity and size. An order could lose execution priority to a later arriving order at the same price if the later arriving order ranks higher with respect to other priority factors such as size or capacity. This is because MS POOL prioritizes size over time and capacity over both size and time. In addition, as described above, an order pegged to the near side of the best bid and offer that has ever been repriced to a peg price other than its limit price yields time priority to other orders with the same price, capacity and size. An order receives a new time stamp when it enters MS POOL and when any term of the order is subsequently amended by the party entering it, other than a decrease in quantity/size.

Orders and conditional indications in MS RPOOL that are eligible to participate at midpoint of the best bid and offer are prioritized for matching based on type of interest (i.e., orders have priority over conditional indications), capacity, size, and time. However, orders and conditional indications subject to a conditional match enter a firm-up period. Such orders and conditional indications can only interact with those conditional indications and orders during that firm-up period and cannot interact with other orders and/or conditional indications in MS RPOOL that are not subject to the conditional match. An order could lose execution priority to a later arriving order eligible to trade at midpoint of the best bid and offer if the later arriving order ranks higher with respect to other priority factors such as size or capacity. Additionally, an order that elects to interact with conditional indications and is subject to a conditional match will not be eligible to match other orders or conditional indications during the firm up period, but will regain priority with respect to any unexecuted quantity at the end of the firm-up period. An order receives a new time stamp when it enters MS RPOOL and when any term of the order is subsequently amended by the party entering it, other than a decrease in quantity/size.

MS Trajectory Cross employs a capacity/size/time matching priority when seeking to pair conditional indications on a bilateral basis. Given the forward-looking nature of the crossing rounds, MS Trajectory Cross makes certain assumptions regarding the forward-looking volume and price when determining eligible quantity for each crossing round. As a result, conditional indications (or portions thereof) that may otherwise be eligible to be paired in MS Trajectory Cross may not get paired in a crossing round. For example, where a conditional indication with a limit is priced close to the then-current market price for the subject stock (such that, for example, the limit order could become non-marketable during a forward-looking crossing round), MS Trajectory Cross may not consider all or a portion of that conditional indication as eligible for a crossing round. This applies without regard to the capacity of the conditional indication.

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

MS POOL accepts market and limit orders (including buy, sell, short sell, and short sell exempt orders), which, in each case, may also be designated with a peg instruction. MS POOL accepts day

orders and IOC orders (as Time in Force attributes), although only MS Routers and certain other automated Morgan Stanley trading systems are permitted to send IOC orders to MS POOL to seek an immediate match. If liquidity is available in MS POOL at a price that is at or within the best bid and offer from markets that display protected quotations as defined within Regulation NMS (the best bid and offer), MS Routers, based on their view of liquidity in MS POOL (i.e., full order book), may access such liquidity by sending an IOC order to MS POOL. Participants accessing MS POOL directly are permitted to enter day orders, but not IOC orders.

MS RPOOL accepts market and limit orders (including buy, sell, short sell, and short sell exempt orders). MS RPOOL accepts day orders and IOC orders (as Time in Force attributes). MS RPOOL also accepts conditional indications that represent a non-firm willingness to interact. Conditional indications (including buy, sell, short sell, and short sell exempt conditional indications) can be at the market or designated with a limit price. Conditional indications, by default, interact with other conditional indications and do not interact with orders. Participants can elect to have their orders interact with conditional indications.

MS Trajectory Cross accepts market and limit day orders (in response to firm-up requests) and conditional indications from certain Morgan Stanley algorithms that are eligible to be matched in MS Trajectory Cross.

MS POOL and MS RPOOL do not support post-only orders.

39. Describe the conditional indication functionality for MS RPOOL.

MS RPOOL matches orders at the midpoint of the best bid and best offer from markets that display protected quotations as defined in Regulation NMS and accepts conditional indications that can be conditionally matched with other conditional indications and with orders that elect to interact with conditional indications and, following a firm-up period, can result in a midpoint match.

A conditional indication that is able, by its terms, to interact with one or more eligible contra-side orders and/or conditional indications will receive a firm-up request. Matches resulting from such interactions are called conditional matches. When there is a conditional match, MS RPOOL will send a firm-up request to the participant or system that sent the conditional indication generating the conditional match. Depending upon the source of the applicable conditional indication, such firm-up request may be sent to the participant, to MS Routers or to a Morgan Stanley algorithm, as applicable. The firm-up request includes symbol, side, and a firm-up quantity. When responding to a conditional indication sent to MS RPOOL by MS Routers or Morgan Stanley algorithms, the firm-up quantity on the firm-up request represents the actual size of the conditional match, in order to efficiently manage messaging and queue position on other markets. When responding to a conditional indication sent directly to MS RPOOL by a participant, to minimize information leakage, the firm-up quantity on the firm-up request represents the quantity of such Participant's conditional indication.

In a conditional match, the conditional indication and the contra-side conditional indications and orders that are subject to the conditional match enter into a firm-up period. During a firm-up period, applicable conditional indications and contra-side conditional indications and orders can be matched in MS RPOOL only against each other. For clarity, during the firm-up period, such conditional indications and orders cannot be matched with other orders or other conditional indications in MS RPOOL. A conditional match may occur between two conditional indications

or between a conditional indication and an order that has elected to interact with conditional indications.

If all participants in a conditional match receiving a firm-up request respond with an executable order, MS RPOOL will execute at the midpoint of the best bid and offer. The firm-up period currently is 500 milliseconds. Morgan Stanley monitors firm-up rates for participants whose conditional indications receive firm-up requests. If a participant engages in a pattern of not timely responding to firm-up requests, Morgan Stanley will take appropriate action, which could range from contacting the participant to bring about a change in the participant's behavior or designating the participant as no longer eligible as a participant for MS RPOOL.

Orders that have elected to participate and that do participate in a conditional match but are not executed during the firm-up period will retain their original time priority at the end of the firm-up period and are eligible for matching with other contra-side orders and conditional indications in MS RPOOL. Conditional indications expire once they participate in a conditional match.

40. Please describe conditional indication functionality for MS Trajectory Cross.

MS Trajectory Cross accepts conditional indications from certain Morgan Stanley algorithms. Before explaining the use of conditional indications, it is necessary to provide background on the interaction between those algorithms and MS Trajectory Cross and on the operation and structure of MS Trajectory Cross.

MS Trajectory Cross is a dark pool designed to provide matches over time intervals for orders that certain Morgan Stanley algorithms handle. MS Trajectory Cross executes at VWAP over the relevant time interval.

For context, Morgan Stanley offers certain algorithms that allow users to target certain trading benchmarks and other trading objectives. Those algorithms do so by generating a trading trajectory, which is a plan to trade certain amounts of a security over certain periods of time. The algorithm may then seek to trade all or a portion of the trading trajectory's planned trades in MS Trajectory Cross. To do so, the algorithm will create a trajectory it is willing to enter in MS Trajectory Cross in the near term (up to ten minutes) and will communicate information relating to that near-term trajectory to MS Trajectory Cross in the form of a conditional indication. MS Trajectory Cross determines potential pairings of such conditional indications. Note that the applicable algorithms determine the trading trajectory independent of MS Trajectory Cross and that MS Trajectory Cross does not alter any trading trajectory created by such algorithms.

MS Trajectory Cross accepts conditional indications from certain Morgan Stanley algorithms that represent a non-firm willingness to trade. Each conditional indication indicates the number of shares willing to buy or sell over certain future time intervals that comprise potential durations of a crossing round. Specifically, a conditional indication will indicate the number of shares willing to buy (or sell) if a crossing round lasts one minute, the number of shares if a crossing round lasts two minutes, and so on, up to if a crossing round lasts ten minutes. MS Trajectory Cross evaluates, for conditional indications on each side of the market, the number of shares willing to be paired in a crossing round of various potential durations and seeks to pair them on a bilateral basis. The primary consideration for the duration of a crossing round is determining the longest period of time for which the greatest number of shares per minute can be paired. There can be at most one crossing round per security at any given point in time. The duration of a crossing round may vary from crossing round to crossing round and, regardless of duration, a crossing round will not exceed the end of regular trading hours. The duration of a crossing round is not security specific and will vary

for each crossing round and each security, based upon the terms of the conditional indications to be paired, as described above.

Upon selecting a crossing round duration, MS Trajectory Cross pairs conditional indications for such duration and then generates a bilateral firm-up request for each side of each pair to the Morgan Stanley algorithms that entered the paired conditional indications. Those algorithms can then send corresponding orders to MS Trajectory Cross that are firm. Each firm-up request contains ID numbers for each bilateral pairing, the size on which each conditional indication is being requested to firm-up, and the duration of the crossing round that will occur following the entry of firm orders in response to the firm-up request. Each conditional indication expires when MS Trajectory Cross sends the firm-up request to the Morgan Stanley algorithm(s) for each side of the bilateral pairing. Firm-up requests must be responded to within one second. MS Trajectory Cross may send multiple firm-up requests for an individual conditional indication as one message; however, each resulting order will correspond to a distinct contra-side pairing. Orders resulting from paired conditional indications are matched in MS Trajectory Cross at a price equal to the interval VWAP over the crossing round. If the Morgan Stanley algorithm or algorithms that entered both conditional indications that are the subject of a bilateral pairing do not respond to the firm-up request with a firm order, both conditional indications in the bilateral pairing will already have expired once the corresponding firm-up request was sent by MS Trajectory Cross and therefore will no longer exist for any subsequent pairing. A conditional indication entered in MS Trajectory Cross during an ongoing crossing round is eligible to participate in the next crossing round.

41. Can clients specify a minimum fill quantity in MS POOL and MS RPOOL? If so, will MS POOL and MS RPOOL aggregate orders to satisfy the minimum fill quantity?

Participants and MS Routers and algorithmic trading products can designate orders sent to MS POOL and MS RPOOL with a minimum fill quantity instruction. MS POOL and MS RPOOL do not aggregate multiple contra-side orders to satisfy a minimum fill quantity on a single order.

Conditional indications sent to MS RPOOL can be designated with a minimum fill quantity instruction. MS RPOOL does not aggregate multiple contra-side orders or conditional indications to satisfy a minimum fill quantity on a single conditional indication in MS RPOOL.

42. 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 and MS RPOOL, except where the unexecuted portion of the order is less than the minimum fill quantity, in which case MS POOL and MS RPOOL will not cancel the unexecuted quantity and such quantity will remain in MS POOL and MS RPOOL for execution. The only exception to the above is if a participant has opted out of interacting with odd-lot orders and odd-lot conditional indications in MS RPOOL and the unexecuted quantity is an odd-lot, then the unexecuted odd-lot quantity will be cancelled back to the participant, otherwise it will remain in MS RPOOL.

The minimum fill quantity constraint applies to every conditional match in MS RPOOL.

43. Do Morgan Stanley's dark pools send outbound IOIs (or messages similar to an IOI)?

No, except that MS RPOOL accepts conditional indications from participants and sends firm up requests back to those participants when there is a conditional match and MS Trajectory Cross only

accept conditional indications from certain Morgan Stanley algorithms and sends firm up requests back to those Morgan Stanley algorithms when there is a conditional match. See also FAQs regarding conditional indications.

44. Do Morgan Stanley's dark pools route orders to other venues?

No.

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

Morgan Stanley's dark pools operate on regular business days during normal trading hours (9:30 a.m. to 4:00 p.m. Eastern Time, unless delayed, shortened, or otherwise modified by an exchange), but MS POOL and MS RPOOL do not trade a stock, and MS Trajectory Cross does not initiate a crossing round in a stock, until there is an execution for that stock on the primary exchange. MS POOL and MS RPOOL accept orders beginning at 8:00 a.m.

As an exception to this practice, Morgan Stanley may choose to operate its dark pools during normal trading hours when the primary exchange is not operating if Morgan Stanley deems there to be sufficient liquidity in the marketplace in the applicable NMS stock. Morgan Stanley may suspend crossing in its dark pools during market hours under anomalous conditions. Examples of such conditions include market data issues, technology issues, or reporting issues, all with respect to either Morgan Stanley or the market generally.

46. Where are Morgan Stanley's dark pool servers located and does Morgan Stanley permit participants to cross-connect?

The primary location of Morgan Stanley's dark pools trading infrastructure is leased space in the NY5 data center in Secaucus, NJ.

Morgan Stanley permits participants to cross-connect directly to a FIX gateway for the trading infrastructure, which includes MS POOL and MS RPOOL, from servers located in the same data center as MS POOL and MS RPOOL. Such cross-connect is provided by Equinix, Inc., the operator of the data center.

MS Trajectory Cross is only accessible indirectly via certain Morgan Stanley algorithms. Accordingly, cross-connections are not available for MS Trajectory Cross.

47. Does Morgan Stanley offer co-location in Morgan Stanley's dark pool cages?

No.

48. How do Morgan Stanley's dark pools handle odd-lot and mixed-lot orders?

MS POOL rejects odd-lot orders. MS POOL will accept mixed-lot orders, but will cancel the odd-lot portion of mixed lot orders after the round lot portion is fully executed.

MS RPOOL accepts odd-lot and mixed lot orders and odd-lot conditional indications.

Participants can opt out of interacting with odd-lot orders and odd-lot conditional indications in

MS RPOOL. The ability to opt out of only odd-lot orders or only odd-lot conditional indications is not supported.

MS Trajectory Cross does not accept either odd-lot or mixed-lot conditional indications and orders.

49. Do Morgan Stanley's dark pools execute in a locked or crossed market?

MS POOL and MS RPOOL do not execute transactions in stocks that are the subject of a locked or crossed market.

MS Trajectory Cross executes at the internal VWAP over the duration of a crossing round and not at a price determined with respect to the best bid and offer for a stock. As a result, MS Trajectory Cross will continue to execute in a locked or crossed market.

50. What is the MPID, the MIC code and the clearing number for MS POOL?

MS POOL's MPID and MIC are MSPL. The DTCC clearing number is 0050.

51. What is the MPID, MIC code and clearing number for MS RPOOL?

MS RPOOL's MPID and MIC are MSRP. The DTCC clearing number is 0050.

52. What is the MPID, MIC code and clearing number for MS Trajectory Cross?

MS Trajectory Cross's MPID and MIC are MSTX. The DTCC clearing number is 0050.

53. Does Morgan Stanley charge an explicit transaction fee for executions in any of its dark pools?

No, there is no standard fee schedule for its dark pools and there is no explicit transaction fee for executions in any of its dark pools.

Morgan Stanley negotiates commission rates (and, where applicable, financing rates) with clients that cover all of the broker-dealer services provided to that client, which could include access to one or more of its dark pools. Such services may include high-touch trading services, low-touch trading services, financing services, and access to research. The negotiation process is the same even when the only service the client seeks to access is one or more of its dark pools. Commission rates range from zero cents per share to 5% of the value of the transaction in the respective dark pool, although commission amounts have exceeded such rates under very limited circumstances based on the nature of the transaction. In addition, certain clients may negotiate a commission rate under which the client agrees to pay the fees and receive the rebates of venues to which the client's orders were routed and that result from removing or providing liquidity on those venues. At times, the amount of rebates that a client receives may exceed the amount charged, which could result a net rebate to such client irrespective of the negotiated commission rate.

54. What is the average daily volume of Morgan Stanley's dark pools?

FINRA publishes alternative trading system ("ATS") trade and volume information on its website, accessible via this link: <https://otctransparency.finra.org/>

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

MS POOL employs measures such as restricting order types, not accepting IOC orders from participants and not transmitting IOIs, among other things. MS POOL employs price/capacity/size/time matching priority, which encourages size and deemphasizes speed. MS POOL rejects odd-lot orders and cancels the odd-lot portion of mixed lot orders after the round lot portion is fully executed. MS POOL does not support post-only orders.

In MS POOL, Morgan Stanley also allows participants who are not classified as professional traders to opt out of interacting with participants classified as “professional traders”, but participants classified as professional traders cannot opt out of interacting with each other. Orders sent to MS POOL can be designated with a minimum fill quantity instruction. Orders from participants not classified as professional traders are given priority over orders from participants classified as professional traders. In addition, Morgan Stanley reviews activity of MS POOL participants and may take action, which may include denial of access.

56. What anti-gaming controls does Morgan Stanley have in place for MS RPOOL?

All executions in MS RPOOL occur at midpoint of the best bid and offer, providing price improvement to all orders matched in the pool. MS RPOOL does not support post-only orders.

Morgan Stanley monitors firm-up rates for participants whose conditional indications receive firm-up requests. If a participant engages in a pattern of not timely responding to firm-up requests, Morgan Stanley will take appropriate action, which could range from contacting the participant to bring about a change in the participant’s behavior or designating the participant as no longer eligible as a participant for MS RPOOL.

57. 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 indirectly 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 the relevant time interval.

58. Do Morgan Stanley’s dark pools execute orders for stocks that may be suspended for purposes of the 5% volume threshold of Regulation ATS and Regulation SCI volume/notional thresholds, or that are restricted and/or halted?

No. MS POOL will accept orders for stocks that are halted and will resume matching in those stocks once the halt is lifted. During a halt, participants can cancel or modify an order. MS POOL rejects orders for stocks that have been suspended for purposes of the 5% volume threshold of Regulation ATS, Regulation SCI volume/notional thresholds, and for restricted stocks.

MS RPOOL will accept orders and conditional indications for stocks that are halted and will resume matching in those stocks once the halt is lifted. During a halt, participants can cancel or modify an order or conditional indication. MS RPOOL rejects orders and conditional indications for stocks

that have been suspended for purposes of the 5% volume threshold of Regulation ATS, Regulation SCI volume/notional thresholds, and for restricted stocks.

MS Trajectory Cross will end the crossing round and cancel back any orders to be executed over that crossing round up for stocks that are halted. Unpaired conditional indications will remain in eligible for pairing once the halt is lifted. Morgan Stanley will suspend the pairing of conditional indications (which will prevent the entry of orders, as no order can result without a paired conditional indication) for stocks that have been suspended for purposes of the 5% threshold of Regulation ATS, Regulation SCI volume/notional thresholds, and for restricted stocks.

III. Other Automated Liquidity Programs

59. What is MSAL?

MSAL is an automated capital commitment offering, managed by Morgan Stanley Electronic Trading (MSET), that provides Morgan Stanley liquidity to eligible orders. MSAL is anonymous to the risk desk providing capital.

MSET clients may choose to participate in the MSAL program by opting-in via a Morgan Stanley representative. Clients choosing to interact with Morgan Stanley's high touch offering will be enabled for MSAL by default. Morgan Stanley may also elect to enable MSAL for certain principal flow, including for transactions that hedge client swaps.

Please contact your Morgan Stanley representative if you have questions about the specific configurations for your order flow.

60. What is MOCHA?

MOCHA is an offering that provides market-on-close (MOC) orders a principal guarantee of the closing price of the primary listing exchange by a risk trading desk. MOCHA is anonymous to the risk desk providing capital.

Clients may choose to participate in MOCHA by opting in via a Morgan Stanley representative. Morgan Stanley may also elect to enable MOCHA for certain principal flow, including for transactions that hedge client swaps.

Please contact your Morgan Stanley representative if you have questions about the specific configurations for your order flow.

61. What is ALF?

ALF provides client orders access to additional sources of off-exchange liquidity from external broker-dealers referred to as external liquidity providers. Client identifiable information, client flow segments and order type information is not provided to external liquidity providers.

Clients may choose to participate in the ALF program by opting in via a Morgan Stanley representative. Morgan Stanley may also elect to enable ALF for certain principal flow, including for transactions that hedge client swaps.

Please contact your Morgan Stanley representative if you have questions about the specific configurations for your order flow.

62. What is MS ETF?

MS ETF is an automated capital commitment offering that provides MS liquidity to eligible exchange traded funds (ETF) orders. MS ETF is anonymous to the risk desk providing capital.

Clients may choose to participate in the MS ETF program by opting in via a Morgan Stanley representative. Morgan Stanley may also elect to enable MS ETF for certain principal flows, including transactions that hedge client swaps.

Please contact your Morgan Stanley representative if you have questions about the specific configurations for your order flow.

IV. External Dark Pools

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

Morgan Stanley currently accesses the following external dark pools: Barclays LX, BIDS, CS Crossfinder, Instinet BlockCross, Instinet CBX, Intelligent Cross ATS, Deutsche Bank SuperX, Fidelity CrossStream, Goldman Sachs Sigma X2, JPM JPM-X, Level ATS, Liquidnet H2O, Virtu MatchIt and UBS ATS.

64. 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.

65. Do the external dark pools that Morgan Stanley accesses aggregate orders to fulfill 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.

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

Yes. External dark pools have different matching and price improvement logic; however, most support midpoint pegged orders. If clients seek to restrict executions to midpoint only or better, Morgan Stanley has the ability to send midpoint pegged orders on their behalf to those external dark pools that support the order type.

67. 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.

68. 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.

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

Yes.

70. What is the average daily volume of the external dark pools Morgan Stanley accesses?

FINRA publishes ATS trade and volume information on its website, accessible via this link: <https://otctransparency.finra.org/>

71. 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 in writing that they take certain measures to mitigate the risk of signaling or gaming of Morgan Stanley's client orders in their respective dark pools. Morgan Stanley does not post orders in external dark pools that primarily use the SIP feed.

This information is being provided at your request for your exclusive use to aid in your understanding and evaluation of Morgan Stanley's U.S. cash 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.