

U.S. Listed Equity Options Institutional Client Order Handling and Routing Systems

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This document is part of Morgan Stanley & Co. LLC's ("Morgan Stanley") ongoing efforts to provide transparency to its institutional clients¹ about its U.S. listed equity options² order handling via Morgan Stanley's routing systems ("MS Routers"). Orders handled by MS Routers include most low-touch electronic orders and certain agency orders handled by Morgan Stanley's high-touch desk³.

Morgan Stanley's objective in handling client orders is to deliver the best execution reasonably available under the circumstances. Order handling and routing performance are analyzed and reviewed by Morgan Stanley on a regular basis. Morgan Stanley executes client orders by accessing exchange liquidity, which may include Morgan Stanley's principal orders and market making quotes. In addition, client orders are evaluated by MS Routers, which determine whether capital commitment may be provided by a Morgan Stanley risk trading desk ("Principal Liquidity"). This determination is, in part, based upon an assessment of client-specific historical order flow⁴. All Principal Liquidity is provided by initiating an on-exchange auction.

For additional disclosures concerning options order handling and routing please see our [SEC Rule 606 disclosures](#). The contents of this letter will also be available at www.morganstanley.com/disclosures and may be updated from time to time.

I. Options Smart Order Routers:

Morgan Stanley's Single-Leg Options Router (OSORT)

Morgan Stanley's single-leg options router provides access to the single-leg options markets on every U.S. listed options exchange. For both marketable and non-marketable client orders, OSORT is designed to capture a contemporaneous snapshot of the protected quotes on U.S. listed options exchanges, Morgan Stanley's market making quote on exchange, and Principal Liquidity to construct a view of available liquidity. Morgan Stanley uses direct market data feeds and/or Options Price Reporting Authority (OPRA) feeds in order to obtain the protected quotes for a given security on each exchange. Morgan Stanley may also use these direct market data feeds to obtain multiple levels of market data depth for each security. Once it constructs its view of available liquidity, OSORT may directly, or via exchanges' routing functionality, access exchange liquidity and/or access Principal Liquidity. Subject to certain changes in orders or markets, the view of marketability and availability of liquidity will be reevaluated for the life of the order.

¹ The information in this document may differ for Morgan Stanley & Co. LLC's retail broker-dealer offering. For this information, please contact your Morgan Stanley representative.

² SEC Regulated Equity Options

³ For further detail on flow not handled by MS Routers, see Section VIII.

⁴ For further detail on the handling and use of historical client order data, please see Section VII

Subject to OSORT's view of available liquidity and client instructions, for marketable orders, OSORT determines which sources of liquidity to access based upon anticipated execution price. If more than one source of liquidity exists at a given price level, additional factors that OSORT uses when determining which source(s) of liquidity to select include, but may not be limited to, some or all of the following: health of the market; client instructions; whether the order originated from a Morgan Stanley algorithm; available liquidity and/or expectation of liquidity; randomization factors; exchange rebates and fees incurred by the client and/or Morgan Stanley; exchange volume incentive programs including tiers and warrants; client configurations set by Morgan Stanley⁵; economics of Morgan Stanley's market making quote on exchange; and availability and economics of Principal Liquidity.

Subject to OSORT's view of available liquidity, client instructions, and client configurations set by Morgan Stanley, if there is not sufficient liquidity to execute the entirety of the client order at the best available price level, OSORT may either utilize Intermarket Sweep Orders (ISO) to execute at multiple price levels, or continue to work the unfilled quantity at the prevailing market until executed, cancelled, or the price reaches the client limit price, subject to the market order and limit order behaviors outlined in the Order Types section of this document.

Subject to OSORT's view of available liquidity and client instructions, factors that OSORT uses when determining where to route non-marketable orders include, but may not be limited to, some or all of the following: health of the market; client instructions; whether the order originated from a Morgan Stanley algorithm; exchange market structure and liquidity; historical fill rate analysis; randomization factors; exchange rebates and fees incurred by the client and/or Morgan Stanley; exchange volume incentive programs including tiers and warrants; client configurations set by Morgan Stanley; and availability and economics of Principal Liquidity.

Morgan Stanley's Complex Router

A complex order is an order involving the simultaneous purchase and/or sale of two or more different instruments, or "legs", in a client-defined ratio. The complex order is comprised of either (i) two or more options, or (ii) one or more options plus an underlier. This order is sent to the exchange as a net bid or offer, at the leg ratio defined by the client upon order entry. If filled, all legs are executed at the client-defined ratio and at a net price. Consequently, it is possible that executions in the individual legs will be printed by the exchange outside of their respective national best bid or offer.

Subject to exchange rules, a complex order can execute against resting orders in the complex order book, execute in an exchange auction, or execute each leg on an exchange's single-leg order book. Unlike single-leg orders, complex orders are not protected⁶ across multiple exchanges. As a result, complex orders will not be routed by the executing exchange if a better price is displayed at an away exchange, and may execute at a price that is inferior to the price displayed at an away exchange's

⁵ See Section VII for details on client configurations set by Morgan Stanley.

⁶ The Options Order Protection and Locked/Crossed Market Plan requires participants to establish, maintain and enforce policies and procedures reasonably designed to prevent "trade-throughs" (the execution of a trade at prices inferior to the protected quotations (aka NBBO)) and to avoid displaying locked or crossed markets.

complex order book or the Synthetic National Best Bid or Offer (“SNBBO”) which is comprised of the best bid or offer for each instrument comprising the complex product from its single-leg and/or cash order book.

To determine its view of marketability for an order, the complex router will construct the relevant SNBBO by capturing a contemporaneous snapshot from OPRA and/or the Securities Information Processor (SIP) for each of the legs. In addition to the SNBBO, Morgan Stanley’s complex router captures a view of Principal Liquidity as part of its overall view of available liquidity. Subject to certain changes in orders or markets, the view of marketability and availability of liquidity will be reevaluated for the life of the order.

Subject to the complex router’s view of available liquidity and client instructions, for orders that are deemed marketable as compared to the SNBBO, it will send the entire initial or unfilled quantity of the order to one or multiple exchanges’ complex order book(s) and/or interact with Principal Liquidity on exchange. These orders will initially be sent priced at the far side of the SNBBO. Unfilled quantity will be resent at increasingly aggressive price levels until executed, cancelled, or the price reaches the client limit price, subject to the market order and limit order behaviors outlined in the Order Types section of this document. The order will be reevaluated and may be rerouted based on observed fills for the order.

Subject to the complex router’s view of available liquidity and client instructions, for orders that are deemed non-marketable as compared to the SNBBO, it will send the entire initial or unfilled quantity of the order to one or multiple exchanges’ complex order book(s) and/or interact with Principal Liquidity on exchange. Non-marketable orders will rest on the exchange, but may be periodically reevaluated for further routing or interaction with Principal Liquidity.

Morgan Stanley’s complex router provides access to the complex markets on the following exchanges: Cboe Options Exchange, Cboe C2 Options Exchange, Cboe EDGX Exchange, MIAX Options Exchange, MIAX Emerald Exchange, Nasdaq ISE, Nasdaq PHLX, NYSE American Options, and NYSE Arca Options. Complex orders are routed based on factors that include, but may not be limited to, some or all of the following: health of the market; client instructions; whether the order originated from a Morgan Stanley algorithm; anticipated and observed fill rates; size of the order; randomization factors; exchange rebates and fees incurred by the client and/or Morgan Stanley; exchange volume incentive programs including tiers and warrants; client configurations set by Morgan Stanley; and availability and economics of Principal Liquidity.

II. Routing Behavior During Opening (including Reopening), or Nonstandard Markets

Opening/Reopening

There is no consolidated opening/reopening price for options series due to the fact that each options exchange runs their own opening process contingent on the underlier opening on the primary listing market. As a result, price instability in the options market can occur during the opening/reopening process.

OSORT evaluates orders it receives while the market is not in a continuous trading state against pre-determined reference prices to assess marketability. If the order is determined to be non-marketable, the order will be routed to one of the exchanges for placement in the exchange's order book to allow participation in the exchange's opening/reopening process. For options listed on multiple exchanges, if the order is determined to be marketable, the order will be held until MS Routers receive a message from the primary listing exchange of the underlying product stating that the market for that product is open, or until a Morgan Stanley configured period of time has passed. For options listed on a single exchange, if the order is determined to be marketable, the order may be routed to participate in that exchange's opening process. These orders may be subject to the nonstandard market conditions behaviors outlined below.

Nonstandard Market Conditions

MS Routers attempt to detect conditions that indicate nonstandard market conditions, for example, wide spread markets, which may affect the manner in which an order is handled. When these conditions are detected, Morgan Stanley will route, hold, cancel, or reject an order in whole or in part at its sole discretion.

III. Cancelled, Amended, and Rejected Orders

Subject to regulations and internal practices concerning market access, Morgan Stanley may amend or cancel any accepted orders at its sole discretion. In addition, Morgan Stanley may reject orders that exceed certain Morgan Stanley-set execution limits.

IV. Order Types

Morgan Stanley accepts the following order types, which may be amended or cancelled as outlined below. For information on additional order types, please contact your Morgan Stanley representative.

Market Orders

When accessing the market for a client's market order, MS Routers may apply a limit price on the order, including in circumstances when the order is directed to a particular destination. Limit prices applied by MS Routers may be less aggressive than the NBBO or SNBBO. Therefore, it is possible that a client's market order may not be completely filled.

Limit Orders

When accessing the market for a client's limit order, MS Routers may apply a limit price that is less aggressive than the client's original limit price, including in circumstances when the order is directed to a particular destination. Limit prices applied by MS routers may be less aggressive than the NBBO or SNBBO. Therefore, it is possible that a client's limit order may not be completely filled.

Good 'Til Cancelled (GTC) Orders

GTC orders are routed to the exchange(s) as day orders until they are executed, cancelled by the client or Morgan Stanley, or the contract expires.

V. Additional Liquidity

Algorithmic Orders

Morgan Stanley offers clients a suite of algorithms which are designed to aid in price discovery and scheduling of orders. These algorithms leverage MS Routers for accessing on-exchange liquidity and Principal Liquidity.

Parent Order Liquidity for Options

As part of its algorithmic suite, Morgan Stanley offers the Parent Order Liquidity for Options platform to clients. This platform utilizes the parent order information to aid in routing and Principal Liquidity decisions. In addition, use of this platform may result in the parent order completing earlier than it otherwise would have. Clients can elect to enable their low-touch orders for interaction with this platform by contacting their Morgan Stanley representative. Agency orders for clients choosing to interact with Morgan Stanley's high-touch desks will be enabled for this platform by default.

Inputs to Algorithmic Orders

For certain algorithms, Morgan Stanley may utilize confidential and proprietary values such as option theoretical values, delta estimates, and/or volatility offsets ("MS Values") if those values are not provided by the client. Morgan Stanley bases the MS Values upon information that it believes to be reliable, but cannot warranty that such information is complete, accurate, or free from error. To the extent that MS Values are being provided to the client, those values are being provided for informational purposes only, might not be provided in real-time, and should not be relied upon.

VI. Open Client Order Information

Access to open 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.

VII. Historical Client Order Information

Subject to internal governance, Morgan Stanley analyzes all client historical options order flow for a variety of reasons, including reviewing MS Routers performance, optimizing routing and algorithm practices, and determining economics of routing decisions for Morgan Stanley and its clients. Based on this analysis, while adhering to Morgan Stanley's objective to deliver the best execution reasonably available under the circumstances, client configurations set by Morgan Stanley may be updated for flow

handled by MS Routers, including on a client-by-client basis. These configuration adjustments may result in routing decisions that lead to varying levels of interaction on exchange with Morgan Stanley's market making quotes and Principal Liquidity.

VIII. Flow Not Handled by MS Routers

Cboe Global Trading Hours and Curb Trading Hours

Morgan Stanley may provide access upon request to the Cboe Global Trading Hours and Curb Trading Hours sessions. Orders designated for these sessions are not routed via MS Routers and therefore are not subject to the behavior and limit checks outlined in this document. For additional disclosures about the material trading risks for these trading sessions, please see the Cboe Options Global Trading Hours and Curb Trading Hours Disclosure available at www.morganstanley.com/disclosures or contact your Morgan Stanley representative.

High-Touch Trading Desks

Morgan Stanley also may provide access to its high-touch sales and trading desks to clients upon request. The high-touch desks have the ability to route and execute client orders via a variety of channels, including Morgan Stanley's electronic offering, as outlined in this document, capital commitment from its risk trading desks via an on exchange auction, and/or execution via floor or interdealer broker markets ("IDB").

If the high-touch trader selects Morgan Stanley's electronic offering to execute the client order, it will be subjected to the behavior outlined in this document. All other flows including use of Floor Broker, IDB, or exchange-specific trading system would not be subject to the behavior outlined in this document.

IX. Morgan Stanley Strategic Ownership Stakes

An affiliate of Morgan Stanley holds a minority ownership stake in Miami International Holdings, Inc. (who is the parent company of MIAX, MIAX Pearl, MIAX Pearl Equities, and MIAX Emerald). An affiliate of Morgan Stanley also holds an indirect ownership stake in Miami International Holdings, Inc., which become exercisable in the event that Morgan Stanley meets certain order execution thresholds on MIAX Pearl Equities.

For additional information, please see our U.S. Listed Options Disclosure available at <https://www.morganstanley.com/disclosures>

If you have questions about Morgan Stanley's U.S. listed equity options order handling and routing systems, please contact your Morgan Stanley representative. Morgan Stanley welcomes a conversation with you about this subject.

This information is being provided for your exclusive use to aid in your understanding and evaluation of Morgan Stanley's U.S. option order handling and routing systems. This information is proprietary to Morgan Stanley and describes current practices, which may change without notice.