

Part III: Manner of Operations

Item 7: Order Types and Attributes

- a. Identify and explain each order type offered by the NMS Stock ATS. In your explanation, include the following:
 - i. priority, including the order type's priority upon order entry and any subsequent change to priority (if applicable); whether and when the order type can receive a new time stamp; the order type's priority vis-à-vis other orders on the book due to changes in the NBBO or other reference price; and any instance in which the order type could lose execution priority to a later arriving order at the same price;
 - ii. conditions, including any price conditions (e.g., how price conditions affect the rank and price at which it can be executed; conditions on the display or non-display of an order; or conditions on executability and routability);
 - iii. order types designed not to remove liquidity (e.g., post-only orders), including what occurs when such order is marketable against trading interest on the NMS Stock ATS when received;
 - iv. order types that adjust their price as changes to the order book occur (e.g., price sliding orders or pegged orders) or have a discretionary range, including an order's rank and price upon order entry and whether such prices or rank may change based on the NBBO or other market conditions when using such order type; when the order type is executable and at what price the execution would occur; whether the price at which the order type can be executed ever changes; and if the order type can operate in different ways, the default operation of the order type;
 - v. whether an order type is eligible for routing to other Trading Centers;
 - vi. the time-in-force instructions that can be used or not used with each order type;
 - vii. the circumstances under which order types may be combined with another order type, modified, replaced, canceled, rejected, or removed from the NMS Stock ATS; and
 - viii. the availability of order types across all forms of connectivity to the NMS Stock ATS and differences, if any, in the availability of an order type across those forms of connectivity.

The following order types are eligible for execution in JPM-X:

--Non-Peg Limit Order -- an order to buy or sell at a specified fixed price or better;

--Primary Peg Order -- an order to buy or sell at the inside quotation of the National Best Bid or Offer ("NBBO") on the same side of the market, even as the NBBO changes (with or without a limit price);

--Midpoint Peg Order -- an order to buy or sell at the midpoint between the inside bid and the inside offer of the NBBO, even as the NBBO changes (with or without a limit price); and

--Market Peg Order -- an order to buy or sell at the inside quotation of the NBBO on the opposite side of the market, even as the NBBO changes (with or without a limit price).

Each of the above order types can have one of the following two time-in-force instructions:

--Immediate-or-Cancel ("IOC"), which is an instruction that the order be executed immediately with any portion of the order that cannot be executed immediately being cancelled; and

-- Day, which is an instruction that the order rest in the book maintained by JPM-X (the "Order Book") until the order is executed, with any portion of the order that cannot be executed by the end of the trading day, or earlier in accordance with the time interval specified by the Subscriber or an algorithm selected by the Subscriber, being cancelled.

A blank time-in-force field is treated as a Day time-in-force instruction. Additionally, any time-in-force instruction other than IOC, Day or "On the Open" (which, as indicated below, is rejected by JPM-X) is treated as a Day time-in-force instruction.

The above order types are available for use by Subscribers that access JPM-X directly or via the algorithms/SOR, irrespective of whether such access occurs through JISU. JPM-X does not offer post-only order types, and none of the above order types is eligible for routing to other Trading Centers. As described in response to Part III, Item 9, JPM-X accepts limit and pegged conditional order messages corresponding to the order types described above with a day (but not IOC) time-in-force instruction.

The above order types cannot be combined (i.e., an order cannot be more than one order type). Subscribers that access JPM-X by routing to it or the SOR directly, and algorithms that access JPM-X via the SOR on behalf of Subscribers, can modify, replace, or cancel day orders routed to JPM-X. The modification or replacement of a day order results in the entry of a replacement order with a new time stamp and lower priority in time than the original order, unless the modification is reduction in the quantity of the order, in which case the replacement order has a new time stamp but the same priority in time that the original order had prior to its replacement.

JPM-X rejects (1) short sale exempt orders, (2) orders priced at or above \$1.00 per share if priced in a sub-penny increment, (3) orders priced below \$1.00 per share if priced in an increment of less than \$.0001, and (4) orders that exceed limits imposed by JPMS pursuant to its obligations under SEC Rule 15c3-5, and (5) orders with a time-in-force instruction of "On the Open."

An order is ineligible for execution in JPM-X unless the price, minimum quantity, and counterparty preference instructions associated with the order, if any, are satisfied. Accordingly, a partially executed order is cancelled if the leaves quantity is less than the minimum quantity instruction associated with the order. An order also is ineligible for execution in JPM-X if the order is a firm-up order or an order committed to a conditional order message during a firm-up period, as described in response to Part III, Item 9.

Once JPM-X determines that an order is eligible for execution, it is crossed with other eligible order(s) on the opposite side of the market based on price/tier/time priority (e.g., at a given price level, Tier 1 orders have higher priority than Tier 2 orders, and at a given price level within the same tier, orders received earlier in time have higher priority than orders received later in time). (As described in response to Part III, Item 11(c), as between firm orders and conditional order messages at the same price, firm orders always have priority over conditional order messages irrespective of their tier or when they were received by JPM-X.) When two orders eligible for execution are crossed, they are executed at or within their effective limit prices, as described in response to Part III, Item 11(c). Accordingly, a peg order is executed at its pegged price or better. JPM-X does not execute a cross if the inside quotation of the NBBO is crossed (i.e., the inside bid exceeds the inside offer) or locked (i.e., the inside bid is equal to the inside offer). In addition, JPM-X does not execute a cross in any NMS stock that is subject to a regulatory or trading halt (although, as described in response to Part III, Item 20, JPM-X will continue to accept Firm/Conditional Orders in such an NMS stock and instructions to modify, cancel, or replace Firm/Conditional Orders in that NMS stock using the priority logic described in response to Part III, Item 11(c)).

Although a change in the NBBO would not affect the relative priority of orders (including peg orders) that remain eligible for execution after the change, the change could affect whether an order with a price instruction associated with it (including peg order) is eligible for execution and the execution price at which orders that remain eligible for execution (including peg orders) are crossed.

Item 11: Trading Services, Facilities and Rules

c. Explain the established, non-discretionary rules and procedures of the NMS Stock ATS, including order interaction rules for the priority, pricing methodologies, allocation, matching, and execution of orders and trading interest, and other procedures governing trading, such as price improvement functionality, price protection mechanisms, short sales, locked-crossed markets, the handling of execution errors, and the time-stamping of orders and executions.

JPM-X accepts non-peg limit, primary peg, midpoint peg, and market peg Firm/Conditional Orders unless they (i) are marked short sale exempt, (ii) are priced in a sub-penny increment if priced at or above \$1.00 per share, (iii) are priced in an increment of less than \$.0001 if priced below \$1.00 per share, ~~or~~ (iv) exceed limits imposed by JPMS pursuant to its obligations under SEC Rule 15c3-5, or (v) have a time-in-force instruction of "On the Open."

All Firm/Conditional Orders accepted by JPM-X (whether routed directly by a Subscriber or routed via the SOR by a Subscriber or JPMS trading algorithm on behalf of a Subscriber) -- other than firm-up orders and Resting Orders that are committed to a conditional order message during a firm-up period, as described in response to Part III, Item 9 -- are eligible for matching based on the liquidity available in the Order Book. JPM-X matches Firm/Conditional Orders on opposite side of the market in an NMS stock based on the price, size, and counterparty preference instructions associated with them.

Firm/Conditional Orders, once found eligible for crossing, are matched by JPM-X on the basis of price/tier/time priority, which means, e.g., that (i) at a given price level, orders in lower

numbered tiers have priority over orders in higher numbered tiers and (ii) at a given price level within the same tier, orders received earlier in time have priority over orders received later in time. Accordingly, of two equally priced orders, the one that is in the lower numbered tier will have priority over the one that is in the higher numbered tier regardless of the times at which the orders were received by JPM-X. As between firm orders and conditional order messages at the same price, firm orders always have priority over conditional order messages irrespective of their tier or when they were received by JPM-X.

When crossing two orders matched for execution, JPM-X executes at or within their effective limit prices. For marketable limit orders, the effective limit price is the NBBO inside offer for buy orders and the NBBO inside bid for sell orders. For peg orders, the effective limit price is the better of the limit price specified on the order, if any, and the price defined by the peg instruction. (For example, for a midpoint peg order with a limit price, the effective limit price is the better of the order's limit price and the NBBO midpoint.) If the effective limit prices of two orders overlap, the orders will cross within, or at one of, the effective limit prices. Note that JPM-X does not execute a cross if the inside quotation of the NBBO is crossed (i.e., the inside bid exceeds the inside offer) or locked (i.e., the inside bid is equal to the inside offer). JPM-X also does not execute a cross in any NMS stock that is subject to a regulatory or trading halt. In addition, when a circuit breaker has been triggered for an NMS stock under Rule 201 of Regulation SHO and JPM-X has matched a short sale order for execution, JPM-X will only execute at a price that is above the NBBO inside bid.

JPMS, at the request of a Subscriber or on JPMS' own initiative, may determine to review any transaction in JPM-X to assess whether it was adversely affected by a technical issue or "clearly erroneous" as defined by relevant regulators (e. under FINRA Rule 11891, "the terms of a transaction are 'clearly erroneous' when there is an obvious error in any term, such as price, number of shares, or other unit of trading, or identification of the security"). If JPMS determines that a transaction was adversely affected by a technical issue or clearly erroneous, whether or not as a result of JPMS or Subscriber error, JPMS, depending on the facts and circumstances, may work with the affected Subscriber(s) to resolve the error and may cancel (bust) the transaction or assume responsibility for one side of the transaction and work to cover the resulting position as soon as is practicable. JPM-X also may suspend matching in the event of volatile market conditions (e.g., wide bid/offer spreads).

JPM-X time stamps orders upon receipt and executions at the time they occur and reports them in milliseconds in accordance with applicable FINRA Order Audit Trail System and trade reporting rules. JPM-X determines queue position based on new order receipt times with microsecond precision, except in the case of a reduction in the quantity of an order in which case, the replacement order assumes the queue position of the original order.

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