

J.P. MORGAN SECURITIES LLC – JPM-X

Frequently Asked Questions – US

DATE: February 2020

Preface

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JPM-X – Alternative Trading System (ATS)

1. Does JPMS operate an ATS?

Yes. JPMS operates two alternative trading systems, JPM-X and JPB-X. These FAQs relate to JPM-X.

2. Where can I locate the Form ATS-N for JPM-X?

The Form ATS-N for JPM-X is available on the SEC’s website at the following link: <https://www.sec.gov/cgi-bin/browse-edgar?action=getcompany&filenum=013-00110>

3. Can clients opt out of JPM-X?

Yes. As with any non-protected venue under Regulation NMS, clients may opt out of executing within JPM-X by instructing their JPMS representative.

4. What order types and attributes does JPM-X accept?

JPM-X accepts non-peg limit, primary peg, midpoint peg, and market peg orders. Peg orders may also have

a limit price. JPM-X supports DAY and IOC time-in-force instructions on orders.

5. What conditional order types and attributes does JPM-X accept?

Yes, JPM-X accepts non-peg limit, primary peg, midpoint peg, and market peg conditional orders. Peg conditional orders may also have a limit price. JPM-X supports only DAY time-in-force instructions on conditional orders.

6. Does JPM-X receive or send indications of interest?

JPM-X does not receive indications of interest. Beginning on or after February 14, 2020, the anonymized, aggregated quantities of resting buy firm orders and resting sell firm orders, per symbol, available in each tier of the JPM-X order book at (i) the National Best Bid, (ii) National Best Offer, or (iii) NBBO midpoint (with non-peg limit orders that could be executed at more than one of the above prices aggregated with orders at the most aggressive of those prices) will be made known to the SOR with a frequency of up to once per second. The SOR will use this information solely to decide whether to route firm orders to JPM-X and will not share the information with any other trading system or desk.

7. What order priority is used to determine a match within JPM-X?

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). With respect to orders and conditional orders at the same price, orders always have priority over conditional orders irrespective of their tier or when they were received by JPM-X.

8. Please explain the JPM-X matching logic.

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 looking for crossing opportunities, JPM-X complies with any applicable participation instruction associated with each order. All orders, once found eligible for crossing, are executed by JPM-X on the basis of price/tier/time priority as described in FAQ 7.

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.

9. Please provide details regarding the participants that contribute to JPM-X's liquidity.

The participants in JPM-X include internal trading desks, affiliates, and clients of JPMS. These clients include issuers, investment companies, banks, asset managers, hedge funds, brokers, dealers, market makers, principal trading firms, governments, and sovereign wealth funds.

10. Does JPM-X internalize client order flow against JPMS' principal and proprietary flow? Can clients opt out of principal and proprietary order flow?

Client orders may be internalized against principal order flow. Clients are able to opt out of interacting with

principal order flow types (see FAQ 14). It is against JPMS policy to engage in proprietary trading activity that JPMS believes would be prohibited under the Volcker Rule (Section 13 of the Bank Holding Company Act of 1956 and the associated rules and regulations). Note, however, that JPMS' understanding and application of the Volcker Rule may evolve over time.

11. Do any JPMS-affiliated entities access JPM-X?

JPMS' algorithms/SOR may route orders and conditional orders from affiliates of JPMS to JPM-X for execution.

12. How do clients access JPM-X?

JPMS' clients, affiliates, and internal traders can access JPM-X through JPMS' algorithms/SOR. JPMS' clients and internal traders also can access JPM-X directly by routing through JPMS' JISU technology, a low-latency platform accessible through a standard FIX messaging protocol (FIX 4.2 API).

13. Please explain JPMS' monitoring of JPM-X.

During the course of a trading day, JPMS personnel monitor various JPM-X parameters, including, for example, burst rates, order and cancellation rates, and other criteria, to better assure that JPM-X is operating appropriately. In addition, on a post-trade basis, JPMS personnel review reports and other information designed to detect certain trading behavior that may affect JPM-X.

14. Does JPM-X offer segmentation and allow participants to opt out of interaction with certain flow?

Participants' orders and conditional orders are assigned to order flow types, each of which corresponds to a tier used for purposes of determining priority (given JPM-X's use of price/tier/time priority as described above). JPMS assigns order flow types based upon an initial review of information received from the participant at onboarding. The order flow types and corresponding tiers are provided below.

Tier 1 (Order Flow Type I-1) -- Institutional investor client flow and JPMS affiliates' flow accessing JPM-X via the algorithms/SOR;

Tier 2 (Order Flow Type I-2) -- Institutional investor client flow with direct access to JPM-X;

Tier 3 (Order Flow Type I-3) -- U.S.-registered broker-dealer client flow (both agency and principal) accessing JPM-X via the algorithms/SOR;

Tier 4 (Order Flow Type P-1) -- Internal (JPMS) principal trading desk flow accessing JPM-X via the algorithms/SOR;

Tier 4 (Order Flow Type P-2) -- Internal (JPMS) electronic liquidity provider flow with direct access to JPM-X;

Tier 5 (Order Flow Type I-4 / ELP) -- Flow of external broker-dealers categorized as electronic liquidity providers with direct access to JPM-X; and

Tier 5 (Order Flow Type I-5) -- Flow of external broker-dealers not categorized as electronic liquidity providers (both agency and principal) with direct access to JPM-X.

Participants can restrict the order flow types or tiers with which their orders and/or conditional orders interact. Participants can identify order flow type or tier restrictions (i) on an order-by-order basis in the order or conditional order instructions submitted to JPMS or (ii) by contacting the participant's JPMS representative with respect to a subset of orders and/or conditional orders or all order flow. JPMS may further limit the order flow types or tiers with which a participant's orders and/or conditional orders interact based on the participant's trading objectives, consistent with the participant's order instructions (e.g., when

a participant has informed JPMS that the participant seeks a low participation rate and so JPMS, in light of that objective, reduces the liquidity available to the participant in JPM-X by restricting the order flow tiers with which the participant's orders and/or conditional orders would interact). In addition, JPMS can apply self-crossing restrictions and may consult with the participant in determining such restrictions.

15. What market data feeds are used by JPM-X?

JPMS determines the NBBO and protected quotes and executes transactions in JPM-X based on market data received from direct feeds or, in the case of any market data for NYSE American, NYSE Chicago, NYSE National, and the ADF, Securities Information Processors (the "SIP"). In the event of any disruption of services or other issues with any of the direct feeds, JPMS reserves the right to execute transactions in JPM-X based on market data from the SIP for any (or all) market center(s). JPMS may suspend trading in an NMS stock if the market data received by JPM-X for the stock from the SIP is unavailable, unstable, experiencing unacceptable latencies, or detected to be providing quotes that appear to have quality issues. The list of market centers for which JPMS receives market data from direct feeds may change from time to time.

16. How are odd lots taken into account when determining the NBBO based on price information across exchange feeds?

JPM-X refers to a combination of direct feeds and the SIP to calculate the NBBO. If the direct feed received from an exchange includes odd lot quotes, JPM-X considers the best price at which the exchange's odd lot quotes would be aggregated and published to the SIP to be that exchange's protected quote for purposes of determining the NBBO.

17. What is JPMS' expected behavior in the event of a disruption in the ability to trade report to a FINRA trade reporting facility?

Upon determining that JPMS' ability to report to a FINRA trade reporting facility has been compromised, the Firm may take steps to limit impact by ceasing to execute trades in JPM-X.

JPMS will endeavor to notify clients that access JPM-X directly of the Firm's response to such FINRA trade reporting facility systems issues as appropriate.

18. Does JPMS allow clients to co-locate with JPM-X?

Clients that seek to increase the speed of their communication with JPM-X can choose to route orders and conditional orders directly to JPM-X via JPMS' JISU platform rather than having orders and conditional orders routed to JPM-X on their behalf via the algorithms/SOR. Lucera is a third-party connectivity provider that connects such clients to JISU via a 10 GB/sec fiber cross-connect between Lucera and JISU. Clients also can contract directly with Equinix to be located in the Equinix NY4 New York IBX Data Center, the same data center in which the JPMS trading algorithms, SOR, JISU, and JPM-X are located. Clients, however, cannot share the same rack space with the JPMS trading algorithms, SOR, JISU, and JPM-X. Clients, irrespective of their location, can, but are not required to, access JISU.

19. Does JPMS allow electronic liquidity providers to enter orders into JPM-X?

Yes. Electronic liquidity providers are permitted to enter orders in JPM-X, as described in FAQ 14.

20. Can we opt out of trading with electronic liquidity providers?

Yes. See FAQ 14.

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