

J.P. MORGAN SECURITIES LLC – JPB-X

Frequently Asked Questions – US

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Alternative Trading System JPB-X

1. Does JPMS operate an ATS?

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

2. What is JPB-X?

JPB-X is one of the Firm’s alternative trading systems. JPB-X supports two matching types, Volume-Weighted Average Price Match (“VWAP Price Match”) and Close Price Match. VWAP Price Match matches two eligible orders based on one-to-one random matching logic and executes them, fully or partially, at the volume-weighted average price (“VWAP”) based on reported trade prices in the market during a determined period of time (“match period”). Close Price Match matches two or more orders based on time priority and executes them at the official closing price of the security as determined by the closing auction at the security’s primary exchange.

3. Where can I locate the Form ATS-N for JPB-X?

The Form ATS-N for JPB-X is available on the SEC’s website at the following link:

<https://www.sec.gov/cgi-bin/browse-edgar?action=getcompany&filenum=013-00109>.

4. Do orders designated for VWAP Price Match and orders designated for Close Price Match interact with each other?

Orders designated for one matching type do not interact with orders designated for the other matching type.

5. How long is the match period for VWAP Price Match orders?

The default match period is currently five minutes. Changes to an associated parent order, price limitations, the triggering of a Rule 201 price test, production issues, or the closing of the stock at its primary exchange may result in termination of the match period, in which case the quantity of a matched order's fill will be proportional to the duration of the match period and the price of the fill will be the VWAP over the duration of the match period (or, if a Rule 201 price test is in effect, at a price that is allowed by the rule).

6. When does JPB-X stop accepting Close Price Match orders?

JPB-X accepts conditional orders designated for Close Price Match, and amendments and cancellations of such conditional orders, from the algorithms/SOR or from direct subscribers during the regular trading hours set by the primary exchange for the security being traded until the Close Price Match matching time. The Close Price Match matching time for an NMS stock is thirty seconds before the market-on-close cut-off time for that stock's primary exchange.

7. How long does the algorithm/SOR or JPMS client with direct access to JPB-X have to respond to a firm up invitation with a firm order?

The algorithm/SOR or JPMS client with direct access to JPB-X will have one (1) second to respond to the firm-up invitation with a firm order for VWAP Price Match and Close Price Match.

8. What market data feeds are used by JPB-X?

JPB-X uses market data from the Securities Information Processor ("SIP") for all market centers whose market data is distributed by the SIP.

9. Which trade prices reported on the SIP market data feeds are used to calculate the VWAP for the match period for VWAP Price Match orders?

The following UTP sale conditions will be excluded when calculating the VWAP for the match period:

UTP Sale Condition

Condition	Modifier
Price Variation Trade	H
Market Center Official Close	M
Next Day	N
Market Center Official Open	Q
Extended trading hours (Sold Out of Sequence)	U
Average Price Trade	W
Sold (out of sequence)	Z
Derivatively priced	4
Qualified Contingent Trade (QCT)	7

The following CTA sale conditions will be excluded when calculating the VWAP for the match period:

CTA Sale Condition

Value	Code
Average Price Trade	B
Price Variation Trade	H
Market Center Official Close	M
Next Day Trade (Next Day Clearing)	N
Market Center Official Open	Q
Extended Hours Trade	T
Extended Hours Sold (Out of Sequence)	U
Sold (Out of Sequence)	Z
Derivatively Priced	4
Qualified Contingent Trade	7

10. Can clients opt out of JPB-X or one of its matching types?

Yes. As with any non-protected venue under Regulation NMS, clients may opt out of executing within JPB-X by instructing their JPMS representative. Clients that do not opt out of executing within JPB-X nevertheless may opt out of the VWAP Price Match or Close Price Match matching type by instructing their JPMS representative.

11. Does JPB-X send or receive Indications of Interest (IOI)?

No, JPB-X does not send or receive IOIs.

12. Does JPB-X support conditional orders?

Yes, JPB-X supports conditional orders and associated firm-up orders routed by the algorithms/SOR and direct subscribers. JPB-X only accepts conditional orders and firm-up orders.

13. Does JPB-X support odd lot orders?

JPB-X does not accept odd lot orders for Firm/Conditional Orders designated for the VWAP Price Match. Odd lot orders are rejected back to the algorithms/SOR and direct subscribers.

Odd lot Firm/Conditional Orders designated for the Close Price Match are accepted and handled in the same manner as round lot orders.

14. Please provide details regarding the participants that contribute to JPB-X's liquidity.

The participants in JPB-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.

15. Does JPB-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 the principal order flow type (see FAQ 19). 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.

16. Do any JPMS-affiliated entities access JPB-X?

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

17. How do clients access JPB-X?

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

18. Please explain JPMS' monitoring of JPB-X

During the course of a trading day, JPMS personnel monitor various JPB-X parameters, including, for example, order counts, order and cancellation rates, and order resting duration, to better assure that JPB-X is operating appropriately. In addition, on a post-trade basis, JPMS personnel review reports and other information in an effort to detect trading behaviors that may affect JPB-X adversely. JPMS may take action based on the results of these reviews.

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

Participants' conditional orders and firm-up orders are assigned, in JPMS' sole discretion, to an order flow type, each of which corresponds to a tier. 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. (Unlike JPM-X, another alternative trading system operated by JPMS, JPB-X does not have a Tier 5.)

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

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

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

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

Tier 4 (Order Flow Type P-2) - N/A for JPB-X;

Tier 5 (Order Flow Type I-4 / ELP) - N/A for JPB-X; and

Tier 5 (Order Flow Type I-5) - N/A for JPB-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 conditional orders and/or firm-up orders interact based on the participant's trading objectives, consistent with the participant's conditional or firm-up 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 JPB-X by restricting the order flow tiers with which the participant's conditional orders and/or firm-up orders would interact). In addition, JPMS can apply self-crossing restrictions and may consult with the participant in determining such restrictions.

Restrictions or preferences participants may have requested with respect to agency conditional orders or orders may not necessarily apply to conditional orders or orders handled by JPMS on a riskless principal basis. Such conditional orders or orders may be assigned to an order flow type for internal (JPMS) flow rather than client flow in JPB-X. If you have any questions about the manner in which your conditional orders

or orders are handled by JPMS, please contact your JPMS sales representative.

20. What happens when an order is cancelled?

VWAP Price Match orders: If a client cancels the parent order associated with a conditional order that has been routed to JPB-X, or a client that accesses JPB-X directly cancels the conditional order routed to JPB-X, JPB-X will cancel the conditional order. If any matched firm-up orders are cancelled during the match period as a result of (a) the cancellation or amendment of the associated parent order or the cancellation of a firm-up order by a client that accesses JPB-X directly (b) a response to a production issue, (c) the National Best Bid moving lower than or becoming equal to the limit of a matched sell order or the National Best Offer moving higher than or becoming equal to the limit of a matched buy order, or (d) the stock closing at the primary exchange, JPB-X will issue partial fills at the VWAP before cancelling all matched firm-up orders. The quantity of the fill will be approximately proportional to the duration of the match period up until the time of cancellation of a matched firm-up order. For example, if the full match quantity is 5,000 shares over five minutes and one of the firm-up orders is cancelled two minutes after the match period began, JPB-X will end the match period and will execute 2,000 shares. The price of the fill will be the VWAP over the duration of the match period up until the time of cancellation of a matched firm-up order. FAQs 21-23 below address additional circumstances in which cancellations may occur.

Close Price Match orders: If a client cancels the parent order associated with a conditional order that has been routed to JPB-X, or a client that accesses JPB-X directly cancels the conditional order routed to JPB-X, JPB-X will cancel the conditional order so long as the cancellation instruction was received before the Close Price Match matching time. JPB-X does not accept conditional orders or amendments or cancellations of conditional orders after the Close Price Match matching time. JPB-X accepts firm-up orders and amendments to firm-up orders after the Close Price Matching time. It does not accept cancellations of firm-up orders after the Close Price Matching time. A Close Price Match firm-up order (a) will not be executed if it is cancelled as a result of the primary exchange not publishing a close price as determined by the closing auction for the stock and (b) may not be executed fully or at all if it is partially or fully cancelled as a result of a response to a production issue.

21. What happens if a VWAP Price Match firm-up order becomes unmarketable or nears unmarketability during the match period?

If, during the match period for VWAP Price Match firm-up orders, the National Best Bid moves lower than or becomes equal to the limit of a matched sell order or the National Best Offer moves higher than or becomes equal to the limit of a matched buy order, all matched orders are cancelled with partial fills, as described in response to FAQ 20. If, at the end of the match period for VWAP Price Match firm-up orders, the VWAP is not within the limit of any of the matched orders, all matched orders are cancelled without a fill.

22. What happens if the VWAP cannot be determined for VWAP Price Match orders because there were no eligible trades in the security during the match period?

If there are no eligible trades in the security during the match period for VWAP Price Match firm-up orders and therefore a VWAP cannot be determined, the matched firm-up orders are cancelled without a fill.

23. What is JPB-X's expected behavior during a regulatory or trading halt or a short sale-related circuit breaker?

VWAP Price Match orders: When a regulatory or trading halt is in effect for a security, JPB-X will continue to accept conditional orders and orders and instructions to modify, cancel, or replace conditional orders and orders designated for VWAP Price Match but will not match or execute conditional orders or orders. Firm-up orders that were matched but for which the match period has not elapsed will be cancelled by JPB-X immediately after a regulatory or trading halt goes into effect. If a regulatory or trading halt in an NMS stock occurs during regular trading hours while a firm-up period for one or more conditional orders in that security is underway, JPB-X rejects any firm-up order received during the firm-up period while the halt is in place. When Rule 201 of Regulation SHO is in effect for a security, short sale conditional orders are not eligible for matching, and JPB-X will partially execute matched firm-up orders where at least one of the matched orders is

a short sale order in that security. The quantity of the fill will be approximately proportional to the duration of the match period up until the time that Rule 201 went into effect. The price of the fill will be the VWAP over the duration of the match period up until the time that Rule 201 went into effect, so long as this calculated VWAP is above the National Best Bid. If the calculated VWAP is at or below the National Best Bid, the execution price will be at the midpoint of the National Best Bid and National Best Offer at the time of the execution, unless they are locked or crossed, in which case JPB-X will cancel the matched orders with no execution.

Close Price Match orders: When a regulatory or trading halt is in effect for a security, JPB-X will continue to accept and match conditional orders and accept instructions to modify, cancel, or replace conditional orders designated for Close Price Match but will not execute orders if the primary exchange does not publish a close price as determined by the closing auction for the stock. Unexecuted orders will be cancelled back. Short sale conditional orders and orders designated for Close Price Match are not accepted by JPB-X.

24. 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 JPB-X.

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