

EXHIBIT 5

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Nasdaq BX, Inc. Rules

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Options Rules

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Options 3 Options Trading Rules

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Section 4. Entry and Display of Quotes

(a) All bids or offers made and accepted on the Exchange in accordance with the rules shall constitute binding contracts, subject to applicable requirements of the By-Laws and the Rules and the Rules of the Clearing Corporation.

(b) Quotes are subject to the following requirements and conditions:

(1) Market Makers may generate and submit option quotations.

(2) The System shall time-stamp a quote which shall determine the time ranking of the quote for purposes of processing the quote.

(3) Market Makers may enter bids and/or offers in the form of a two-sided quote. Only one quote may be submitted at a time for an option series. Quotes may be submitted as a bulk message.

(i) A “bulk message” means a single electronic message submitted to the Exchange which may contain a specified number of quotations as designated by the Exchange. The bulk message, submitted via SQF, may enter, modify, or cancel quotes. Bulk messages are handled by the System in the same manner as it handles a single quote message.

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(6) **Trade-Through Compliance and Locked or Crossed Markets.** A quote will not be executed at a price that trades through another market or displayed at a price that would lock or cross another market. If, at the time of entry, a quote would cause a locked or crossed market violation or would cause a trade-through, violation, it will be re-priced to the current national best offer (for bids) or the current national best bid (for offers) as non-displayed, and displayed at one minimum price variance above (for offers) or below (for bids) the national best price.

(7) The System automatically executes eligible quotes using the Exchange's displayed best bid and offer ("BBO") or the Exchange's non-displayed order book ("internal BBO") if the best bid and/or offer on the Exchange has been repriced pursuant to Options 3, Section 5(d) below and subsection (6) above.

([7]8) Quotes submitted to the System are subject to the following: minimum increments provided for in Options 3, Section 3 and risk protections provided for in Options 3, Section 15.

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Section 5. Entry and Display of Orders

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(c) The System automatically executes eligible orders using the Exchange's displayed best bid and offer ("BBO") or the Exchange's non-displayed order book ("internal BBO") if the best bid and/or offer on the Exchange has been repriced pursuant to subsection (d) below and Options 3, Section 4(b)(6) above.

(d) Trade-Through Compliance and Locked or Crossed Markets. An order will not be executed at a price that trades through another market or displayed at a price that would lock or cross another market. An order that is designated by the member as routable will be routed in compliance with applicable Trade-Through and Locked and Crossed Markets restrictions. An order that is designated by a member as non-routable will be re-priced in order to comply with applicable Trade-Through and Locked and Crossed Markets restrictions. If, at the time of entry, an order that the entering party has elected not to make eligible for routing would cause a locked or crossed market violation or would cause a trade-through violation, it will be re-priced to the current national best offer (for bids) or the current national best bid (for offers) as non-displayed, and displayed at one minimum price variance above (for offers) or below (for bids) the national best price.

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Section 7. Types of Orders and Order and Quote Protocols

The Exchange may determine to make certain order types and time-in-force, respectively, available on a class or System basis.

(a) The term "Order" shall mean a single order submitted to the System by a Participant that is eligible to submit such orders. The term "Order Type" shall mean the unique processing prescribed for designated orders that are eligible for entry into the System, and shall include:

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(8) "Opening Sweep" is a one-sided order entered by a Market Maker through SQF for execution against eligible interest in the System during the Opening Process. This order type is not subject to any protections listed in Options 3, Section 15, except for Automated

Quotation Adjustments and Market Wide Risk Protection. The Opening Sweep will only participate in the Opening Process pursuant to Options 3, Section 8 and will be cancelled upon the open if not executed.

(9) "PRISM Order" is as described in Options 3, Section 13.

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(b) The term "Time in Force" or "TIF" shall mean the period of time that the System will hold an order for potential execution, and shall include:

(1) An Opening Only order ("OPG") is entered with a TIF of "OPG". This order can only be executed in the Opening Process pursuant to Options 3, Section 8. This order type is not subject to any protections listed in Options 3, Section 15, except Size Limitation and Market Wide Risk Protection. Any portion of the order that is not executed during the Opening Process is cancelled. OPG orders may not route.

(2) "Immediate-or-Cancel" or "IOC" is a Market Order or Limit Order to be executed in whole or in part upon receipt. Any portion not so executed is cancelled.

(A) Orders entered with a TIF of IOC are not eligible for routing.

(B) IOC orders may be entered through FIX or SQF, provided that an IOC Order entered by a Market Maker through SQF is not subject to the Order Price Protection, the Market Order Spread Protection, or Size Limitation in Options 3, Section 15(a)(1), (a)(2), and (b)(2), respectively;

(C) Block Orders, Customer Cross Orders, and PRISM Orders[entered into the Price Improvement Auction ("PRISM") Mechanism] are considered to have a TIF of IOC. By their terms, these orders will be: (1) executed either on entry or after an exposure period, or (2) cancelled.

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(e) Entry and Display of Orders and Quotes. Participants may enter orders and quotes into the System as specified below.

(1) The Exchange offers Participants the following protocols for entering orders and quotes respectively:

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(B) "**Specialized Quote Feed**" or "**SQF**" is an interface that allows Market Makers to connect, send, and receive messages related to quotes, Immediate-or-Cancel Orders, and auction responses into and from the Exchange. Features include the following: (1) options symbol directory messages (e.g., underlying instruments); (2) system event

messages (e.g., start of trading hours messages and start of opening); (3) trading action messages (e.g., halts and resumes); (4) execution messages; (5) quote messages; (6) Immediate-or-Cancel Order messages; (7) risk protection triggers and purge notifications; (8) opening imbalance messages; (9) auction notifications; and (10) auction responses. The SQF Purge Interface only receives and notifies of purge requests from the Market Maker. Market Makers may only enter interest into SQF in their assigned options series. Immediate-or-Cancel Orders entered into SQF are not subject to the Order Price Protection, Market Order Spread Protection, or Size Limitation Protection in Options 3, Section 15(a)(1), (a)(2), and (b)(2) respectively.

Section 8. Options Opening Process

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(h) **Potential Opening Price.** The Potential Opening Price indicates a price where the System may open once all other Opening Process criteria are met. To calculate the Potential Opening Price, the System will take into consideration all Valid Width Quotes and orders (including Opening Sweeps) for the option series and identify the price at which the maximum number of contracts can trade (“maximum quantity criterion”). In addition, paragraphs (i)(1)(C) and (j)(5) - (7) below contain additional provisions related to the Potential Opening Price.

(1) More Than One Potential Opening Price. When two or more Potential Opening Prices would satisfy the maximum quantity criterion and leave no contracts unexecuted, the System takes the highest and lowest of those prices and takes the mid-point; if such mid-point is not expressed as a permitted minimum price variation, it will be rounded up to the minimum price variation [that is closest to the closing price for the affected series from the immediately prior trading session. If there is no closing price from the immediately prior trading session, the System will round up to the minimum price variation to determine the Opening Price.]

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(j) The System will calculate an Opening Quote Range (“OQR”) for a particular option series that will be utilized in the Price Discovery Mechanism described below, if the Exchange has not opened subject to any of the provisions above. OQR is constrained by the least aggressive limit prices within the broader limits of OQR. The least aggressive buy order or Valid Width Quote bid and least aggressive sell order or Valid Width Quote offer within the OQR will further bound the OQR.

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(3) If one or more away markets are disseminating a BBO that is not crossed (the Opening Process will stop and an options series will not open if the ABBO becomes crossed pursuant to (d)(3)) and there are Valid Width Quotes on the Exchange that cross each other or [are marketable against] cross the ABBO:

(A) the minimum value for the OQR will be the highest away bid.

(B) the maximum value for the OQR will be the lowest away offer.

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(k) **Price Discovery Mechanism.** If the Exchange has not opened pursuant to paragraphs (f) or (i) above, after the OQR calculation in paragraph (j), the Exchange will conduct the following Price Discovery Mechanism.

(1) First, the System will broadcast an Imbalance Message for the affected series (which includes the symbol, side of the imbalance, size of matched contracts, size of the imbalance, and Potential Opening Price bounded by the Pre-Market BBO) to participants, and begin an "Imbalance Timer," not to exceed three seconds. The Imbalance Timer will be for the same number of seconds for all options traded on the Exchange. Each Imbalance Message is subject to an Imbalance Timer.

(A) An Imbalance Message will be disseminated showing a "0" volume and a \$0.00 price if: (i) no executions are possible, but routable interest is priced at or through the ABBO; or (ii) internal quotes are crossing each other]. Where the Potential Opening Price is through the ABBO, an imbalance message will display the side of interest priced through the ABBO.

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(4) Pursuant to Options 3, Section 8(k)(3)(F), the System will re-price Do Not Route Orders (that would otherwise have to be routed to the exchange(s) disseminating the ABBO for an opening to occur) to the current away best offer (for bids) or the current away best bid (for offers) as non-displayed, and display at a price that is one minimum trading increment inferior to the ABBO, and disseminate the re-priced DNR Order as part of the new BBO.

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Section 11. Auction Mechanisms

For purposes of this Rule, a "broadcast message" means an electronic message that is sent by the Exchange to all Participants, and a "Response" means an electronic message that is sent by Participants in response to a broadcast message. Responses submitted by Participants shall not be visible to other auction participants during the exposure period and can be modified or deleted before the exposure period has ended. Also for purposes of this Rule, the time given to Participants to enter Responses for any of the below auction mechanisms shall be designated by the Exchange via an Options Trader Alert, but no less than 100 milliseconds and no more than 1 second.

(a) **Block Order Mechanism.** The Block Order Mechanism is a process by which a Participant can obtain liquidity for the execution of block-size orders ("Block Order"). The Block Order Mechanism is for single leg transactions only. Block-size orders are orders for fifty (50) contracts or more.

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(4) Penny Prices. Orders and Responses may be entered into the Block Order Mechanism and receive executions at penny increments. Orders and quotes in the market that receive the benefit of the block execution price under paragraph (a)(2)(A) may also receive executions at penny increments.

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Section 13. Price Improvement Auction ("PRISM")

A Participant may electronically submit for execution an order it represents as agent on behalf of a Public Customer, broker dealer, or any other entity ("PRISM Order") against principal interest or against any other order (except as provided in sub-paragraph (i)(F) below) it represents as agent (an "Initiating Order") provided it submits the PRISM Order for electronic execution into the PRISM Auction ("Auction") pursuant to this Rule.

(i) Auction Eligibility Requirements. All options traded on the Exchange are eligible for PRISM. A Participant (the "Initiating Participant") may initiate an Auction provided all of the following are met:

(A) If the PRISM Order is for less than 50 option contracts, and if the difference between the National Best Bid and National Best Offer ("NBBO") or the internal BBO is \$0.01, the Initiating Participant must stop the entire PRISM Order at \$0.01 better than the NBBO or the internal BBO on the opposite side of the market from the PRISM Order, and better than any limit order or quote on the limit order book on the same side of the market as the PRISM Order.

(B) If the PRISM Order is for the account of a Public Customer and such order is for 50 option contracts or more, or if the difference between the NBBO or the internal BBO is greater than \$0.01, the Initiating Participant must stop the entire PRISM Order at a price that is equal to or better than the internal BBO and NBBO on the opposite side of the market from the PRISM Order, provided that such price must be \$0.01 better than any limit order or quote on the limit order book on the same side of the market as the PRISM Order.

(C) If the PRISM Order is for the account of a broker dealer or any other person or entity that is not a Public Customer and such order is for 50 option contracts or more, or if the difference between the NBBO or the internal BBO is greater than \$0.01, the Initiating Participant must stop the entire PRISM Order at a price that is the better of: (i) the BX BBO price improved by at least \$0.01 on the same side of the market as the PRISM

Order, or (ii) the PRISM Order's limit price (if the order is a limit order), provided in either case that such price is at or better than the internal BBO and NBBO.

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(ii) Auction Process. Only one Auction may be conducted at a time in any given series. Once commenced, an Auction may not be cancelled and shall proceed as follows:

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(B) Conclusion of Auction. The PRISM Auction shall conclude at the earlier to occur of (1) through (3) below, with the PRISM Order executing pursuant to paragraph (C)(1) or (C)(2) below if it concludes pursuant to (2) or (3) of this paragraph.

(1) The end of the Auction period;

(2) For a PRISM Auction any time the BX BBO improves beyond [crosses] the PRISM Order stop price on the same side of the market as the PRISM Order;

(3) Any time there is a trading halt on the Exchange in the affected series.

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Section 15. Risk Protections

(a) The following are order risk protections on BX:

(1) **Order Price Protection (“OPP”)**. OPP is a feature of the System that prevents [certain day limit, good til cancelled, and immediate or cancel] limit orders at prices outside of pre-set standard limits from being accepted by the System. [OPP applies to all options but does not apply to market orders.]

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(b) The following are order and quote risk protections on BX:

(1) **Acceptable Trade Range**. After the Opening Process, [T]the system will calculate an Acceptable Trade Range to limit the range of prices at which an order or quote will be allowed to execute. The Acceptable Trade Range is calculated by taking the reference price, plus or minus a value to be determined by the Exchange. (i.e., the reference price - (x) for sell orders/quotes and the reference price + (x) for buy orders/quotes). Upon receipt of a new order/quote, the reference price is the better of the NBB or internal best bid for sell orders/quotes and the better of the NBO or internal best offer for buy orders/quotes or the last price at which the order/quote is posted whichever is higher for a buy order/quote or lower for a sell order/quote. The Acceptable Trade Range will not be available for All-or-None Orders or Minimum Quantity Orders.

(A) If an order/quote reaches the outer limit of the Acceptable Trade Range (the "Threshold Price") without being fully executed, it will be posted at the Threshold Price for a brief period, not to exceed one second ("Posting Period"), to allow more liquidity to be collected. Upon posting, either the current Threshold Price of the order/quote or an updated NBB for buy orders/quotes or the NBO for sell orders/quotes (whichever is higher for a buy order/quote or lower for a sell order/quote) then becomes the reference price for calculating a new Acceptable Trade Range. If the order/quote remains unexecuted after the Posting Period, a new Acceptable Trade Range will be calculated and the order/quote will execute, route, or post up to the new Threshold Price. This process will repeat until either (i) the order/quote is executed, cancelled, or posted at its limit price or (ii) the order/quote has been subject to a configurable number of instances of the Acceptable Trade Range as determined by the Exchange (in which case it will be returned).

(B) During the Posting Period, the Exchange will disseminate as a quotation: (i) the Threshold Price for the remaining size of the order/quote triggering the Acceptable Trade Range and (ii) on the opposite side of the market, the best price will be displayed using the "non-firm" indicator message in accordance with the specifications of the network processor. Following the Posting Period, the Exchange will return to a normal trading state and disseminate its best bid and offer.

(C) There will be three categories of options for Acceptable Trade Range: (1) Penny Interval Program Options trading in one cent increments for options trading at less than \$3.00 and increments of five cents for options trading at \$3.00 or more, (2) Penny Interval Program Options trading in one-cent increments for all prices, and (3) Non-Penny Interval Program Options.

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Section 18. Detection of Loss of Communication

(a) When the SQF Port detects the loss of communication with a Participant's Client Application because the Exchange's server does not receive a Heartbeat message for a certain time period ("n" seconds), the Exchange will automatically logoff the Participant's affected Client Application and automatically cancel all of the Participant's open quotes. Quotes will be cancelled across all Client Applications that are associated with the same BX Options Market Maker ID and underlying issues.

(1) A "Heartbeat" message is a communication which acts as a virtual pulse between the SQF[,or] FIX [or OTTO] Port and the Client Application. The Heartbeat message sent by the Participant and subsequently received by the Exchange allows the SQF[,or] FIX[or OTTO] Port to continually monitor its connection with the Participant.

(2) SQF Port is the Exchange's System component through which Participants communicate their quotes from the Client Application.

(3) FIX [and OTTO] Port[s are]is the Exchange's System components through which Participants communicate their orders from the Client Application.

(4) Client Application is the System component of the Participant through which the Exchange Participant communicates its quotes and orders to the Exchange.

(b) When the FIX Port detects the loss of communication with a Participant's Client Application because the Exchange's server does not receive a Heartbeat message for a certain time period (“nn” seconds), the Exchange will automatically logoff the Participant's affected Client Application and if the Participant has elected to have its orders cancelled pursuant to subparagraph ([e]d) automatically cancel all open orders posted.

[(c) When the OTTO Port detects the loss of communication with a Participant's Client Application because the Exchange's server does not receive a Heartbeat message for a certain time period (“nn” seconds), the Exchange will automatically logoff the Participant's affected Client Application and if the Participant has elected to have its orders cancelled pursuant to subparagraph (f) automatically cancel all open orders posted.]

[(d)c] The default time period (“nn” seconds) for SQF Ports shall be fifteen (15) seconds. A Participant may determine another time period of “nn” seconds of no technical connectivity, as required in paragraph (a) above, to trigger the disconnect and must communicate that time to the Exchange. The period of “nn” seconds may be modified to a number between one hundred (100) milliseconds and 99,999 milliseconds for SQF Ports prior to each session of connectivity to the Exchange. This feature is enabled for each Participant and may not be disabled.

(1) If the Participant systemically changes the default number of “nn” seconds, that new setting shall be in effect throughout the current session of connectivity and will then default back to fifteen seconds. The Participant may change the default setting systemically prior to each session of connectivity.

(2) If a time period is communicated to the Exchange by calling Exchange operations, the number of “nn” seconds selected by the Participant shall persist for each subsequent session of connectivity until the Participant either contacts Exchange operations and changes the setting or the Participant systemically selects another time period prior to the next session of connectivity.

[(e)d] The default period of “nn” seconds for FIX Ports shall be thirty (30) seconds for the disconnect and, if elected, the removal of orders. If the Participant elects to have its orders removed, in addition to the disconnect, the Participant may determine another time period of “nn” seconds of no technical connectivity, as required in paragraph (b) above, to trigger the disconnect and removal of orders and communicate that time to the Exchange. The period of “nn” seconds may be modified to a number between one (1) second and thirty (30) seconds for FIX Ports prior to each session of connectivity to the Exchange. This feature may be disabled for the removal of orders, however the Participant will be disconnected.

(1) If the Participant systemically changes the default number of “nn” seconds, that new setting shall be in effect throughout the current session of connectivity and will then default back to thirty seconds. The Participant may change the default setting systemically prior to each session of connectivity.

(2) If the time period is communicated to the Exchange by calling Exchange operations, the number of “nn” seconds selected by the Participant shall persist for each subsequent session of connectivity until the Participant either contacts Exchange operations and changes the setting or the Participant systemically selects another time period prior to the next session of connectivity.

[(f) The default time period (“nn” seconds) for OTTO Ports shall be fifteen (15) seconds for the disconnect and, if elected, the removal of orders. If the Participant elects to have its orders removed, in addition to the disconnect, the Participant may determine another time period of “nn” seconds of no technical connectivity, as required in paragraph (c) above, to trigger the disconnect and removal of orders and communicate that time to the Exchange. The period of “nn” seconds may be modified to a number between one hundred (100) milliseconds and 99,999 milliseconds for OTTO Ports prior to each session of connectivity to the Exchange. This feature may be disabled for the removal of orders, however the Participant will be disconnected.

(1) If the Participant systemically changes the default number of “nn” seconds, that new setting shall be in effect throughout the current session of connectivity and will then default back to fifteen seconds. The Participant may change the default setting systemically prior to each session of connectivity.

(2) If a time period is communicated to the Exchange by calling Exchange operations, the number of “nn” seconds selected by the Participant shall persist for each subsequent session of connectivity until the Participant either contacts Exchange operations and changes the setting or the Participant systemically selects another time period prior to the next session of connectivity.]

[(g)e] The trigger for the SQF[,]and FIX [and OTTO]Ports is event and Client Application specific. The automatic cancellation of the BX Options Market Maker’s quotes for SQF Ports and open orders for FIX [and OTTO] Ports entered into the respective SQF[,]or FIX [or OTTO] Ports via a particular Client Application will neither impact nor determine the treatment of the quotes of other BX Options Market Makers entered into SQF Ports or orders of the same or other Participants entered into the FIX [or OTTO] Ports via a separate and distinct Client Application.

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Options 5 Order Protection and Locked and Crossed Markets

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Section 4. Order Routing

(a) BX offers two routing strategies, FIND and SRCH. Each of these routing strategies will be explained in more detail below. An order may in the alternative be marked Do Not Route or "DNR". The Exchange notes that for purposes of this Rule the System will route FIND and SRCH Orders with no other contingencies. Immediate or Cancel ("IOC") Orders will be cancelled immediately if not executed, and will not be routed. The System checks the Order Book for available contracts for potential execution against the FIND or SRCH Orders. After the System checks the Order Book for available contracts, orders are sent to other available market centers for potential execution. When checking the Order Book, the System will seek to execute at the price at which it would send the order to an away market. For purposes of this Rule, a Route Timer shall not exceed one second and shall begin at the time orders are accepted into the System, and the System will consider whether an order can be routed at the conclusion of each Route Timer. Finally, for purposes of this Rule, "exposure" or "exposing" an order shall mean a notification sent to participants with the price, size, and side of interest that is available for execution. Exposure notifications will be sent to participants in accordance with the routing procedures described in Options 5, Section 4(a)(iii) below except if an incoming order is joining an already established BBO price when the ABBO is locked or crossed with the BBO, in which case such order will join the established BBO price and no exposure notification will be sent. An order exposure will be sent if the order size is modified. For purposes of this Rule BX's opening process is governed by Options 3, Section 8 and includes an opening after a trading halt ("Opening Process"). Routing options may be combined with all available order types and times-in-force, with the exception of order types and times-in-force whose terms are inconsistent with the terms of a particular routing option. [The term "System routing table" refers to the proprietary process for determining the specific trading venues to which the System routes orders and the order in which it routes them. The Exchange reserves the right to maintain a different System routing table for different routing options and to modify the System routing table at any time without notice.] The order routing process shall be available to Participants from 9:30 a.m. Eastern Time until market close and shall route orders as described below. Participants can designate orders as either available for routing or not available for routing. All routing of orders shall comply with Options 5, Options Order Protection and Locked and Crossed Market Rules.

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