Nasdaq

Nasdq PHLX (PHLX) Opening Process

The Nasdaq PHLX (PHLX) Opening Process begins when (a) a "valid width" (i.e., a bid/ask differential that is compliant with Rule 1014(c)(i)(A)(1)(a)) specialist quote is submitted, (b) valid width quotes from at least two PHLX market participants have been submitted within 30 seconds of the opening trade or quote in the underlying security from the primary exchange, or (c) after 30 seconds of the opening trade or quote in the underlying security from the primary exchange, one PHLX market participant has submitted a valid width quote.

PHLX will open immediately if:

• there is no trade possible, including no trade possible against away markets, in which case PHLX will open with an opening quote by disseminating PHLX's PBBO;

• the Potential Opening Price is at or within the best of the highest bid/lowest offer among Valid Width Quotes ("Pre-Market BBO") and the ABBO;

• the Potential Opening Price is at or within the non-zero bid ABBO if the Pre-Market BBO is crossed; or

• where there is no ABBO, the Potential Opening Price is at or within the Pre-Market BBO which is also within an acceptable bid/ask differential applicable to the best bid/offer from all Valid Width Quotes ("Quality Opening Market") as defined in PHLX Systems Settings document.

If PHLX is unable to open immediately, the system calculates an Opening Quote Range (OQR). The OQR is the price range outside of which PHLX will not open an options series.

• OQR is calculated using the highest available bid and lowest available offer from all valid width quotes on PHLX as well as bids and offers on away exchanges and subtracting/adding a value (See PHLX Systems Settings document) from such best bid/offer to create an acceptable OQR. If PHLX valid width quotes cross each other, and there is no away market, the OQR is the lowest quote bid and highest quote offer of valid width quotes on PHLX.

An imbalance process subsequently ensues:

• An Imbalance Message is broadcast over the PHLX Orders and Depth data feeds and Specialized Quote Feed (SQF) indicating matched volume, imbalance side and size, as well as potential opening price. Imbalance information updates as interest is received by PHLX.

• An Imbalance Timer, currently set at 500 milliseconds, is initiated concurrently with the Imbalance Message, during which time participants may submit opening quotes, opening sweeps and orders.

• If at any point, the imbalance is satisfied, the imbalance process will immediately end.

• If at the end of the Imbalance Timer, there remains an opening order imbalance, the process will be repeated up to three additional times.

As part of the imbalance process, PHLX will initiate a one second route timer. If after the route timer PHLX can satisfy the opening imbalance by routing contracts to away markets, PHLX will route to all other markets reflecting interest priced better than PHLX Opening Price and immediately trade available contracts on PHLX at PHLX Opening Price.

If PHLX has been unable to open during the Imbalance Process, after the conclusion of such process, PHLX will open as many contracts as possible by executing those contracts on PHLX and routing to away markets. The Opening Price will always be at or within the OQR.

Following the opening, any remaining unexecuted contracts priced through the Opening Price will be cancelled back to the entering participant, unless the member that submitted the original order has instructed PHLX, in writing, to re-enter the remaining size, in which case the remaining size will be automatically submitted as a new order.

Please refer to PHLX Systems Settings document for all timer and table values.

**This document is intended to provide a high level overview of PHLX Opening Process. Please refer to PHLX Rule 1017 regarding the Opening Process.