

NYSE ARCA

Auctions



Introduction

NYSE Arca conducts three single-price auctions for NYSE Arca primary listings in; the Opening Auction, the Market Order Auction and the Closing Auction.¹ The Opening and Closing Auctions allow NYSE Arca ETP holders to participate in real-time price discovery. As a part of the auction process, NYSE Arca calculates and continually disseminates the indicative match price, indicative match volume and the auction imbalance.

- Limit Order Opening Auction 4:00 a.m. ET
- Market Order Auction 9:30 a.m. ET
- Closing Auction 4:00 p.m. ET

Limit Order Opening and Market Order Auction

NYSE Arca conducts two opening auctions, a Limit Order Opening Auction and Market Order Auction, each trading day. Our limit order opening auctions allows participants to participate in real-time price discovery and matches orders at the price that maximizes the amount of tradable stock.

At 4:00 a.m. ET, Limit Orders designated for the Opening Session are matched and executed in the Opening Auction. NYSE Arca will accept orders for the Opening Auction beginning at 3:30 a.m. ET, and will continue accepting orders until the Opening Auction is conducted.

Limit Order Opening Auction Timeline	
Pre-Opening Session	3:30 a.m. ET
Opening Auction Freeze Period	3:59 a.m. to 4 a.m. ET
Opening Auction	4:00 a.m. ET

Eligible Orders for the Limit Order Opening Auction

All order types are eligible to participate in the Opening Auction with the exception of Passive Liquidity (PL), Midpoint Passive Liquidity (MPL) and Discretionary orders. Only Limit Orders that are eligible for the Opening Session will participate in the Opening Auction. Orders that participate in the Opening Auction cannot be canceled between 3:59 a.m. ET and 4:00 a.m. ET, the conclusion of the Opening Auction.

Determining the Opening Auction Price

The Opening Auction will occur at the Indicative Match Price — the price at which the maximum volume of orders is executable at the time of the auction. If two or more prices can maximize executable volume, the Opening Auction occurs at the price closest to the previous closing price in an effort to maintain continuity. In such a situation, for the purpose of determining the indicative match price, NYSE Arca uses the maximum size of both sides and displays the price closest to the previous close at the larger aggregate size. Unexecuted orders become eligible for the Opening Session immediately upon conclusion of the Opening Auction.

¹ When applicable and the exchange conducts a Post Halt Auction for stocks halted as a result of regulatory halts or a pending IPO on another listing market. The Post Halt Auction follows the principles of the Market Order Auction.

Example:

#1 Book at 4:00 a.m. ET: Previous Closing Price \$18.50

Entry Time	Buy Limit Orders	Sell Limit Orders	Order Price	Matchable Volume	Imbalance	Indicative Match Price
3:44	3,000		\$18.00	0	3,000	\$18.00
3:45		2,000	\$20.00	0	3,000	\$18.00
3:56		5,000	\$19.99	0	5,000	\$19.99

Result: No match. The buy order (3,000 @ 18.00) and sell orders (5,000 @ 19.99, 2,000 @ 20.00) do not overlap.

Example:

#2 Book at 4:00 a.m. ET: Previous Closing Price \$18.50

Entry Time	Buy Limit Orders	Sell Limit Orders	Order Price	Matchable Volume	Imbalance	Indicative Match Price
3:31	1,000		\$19.00	0	1,000	\$19.00
3:38		1,000	\$18.00	1,000	0	\$18.50
3:53	1,000		\$20.00	1,000	1,000	\$19.00
3:56		1,000	\$19.00	2,000	0	\$19.00

Result: Match. 2,000 shares match at \$19.00.

Market Order Auctions

The Market Order Auction serves as a bridge between the Opening Session and the Core Trading Session. The execution of the Market Order Auction is the first trade of the Core Trading Session. NYSE Arca Market Order Auctions offers greater efficiency, transparency and consistency with the National Market. Eligible symbols: The Market Order Auction is run for NYSE Arca primary listed stocks, NYSE listed stock subject to a sub-penny trading conditions and exchange listed ETFs and ETNs. Auction specific order types, such as Limit on Open or Market on Open if submitted in non-NYSE Arca listed symbols are rejected. Market Orders submitted in non-NYSE Arca listed symbols are routed to the primary listing exchange.

Market Order Auction Timeline	
Market Order Freeze Period	9:29 a.m. to 9:30 a.m. ET
Market Order Auction	9:30 a.m. ET

Limit Orders (eligible for either the Opening Session and/or Core Trading Session), Market Orders and auction-only limit orders will participate in the Market Order Auction. Orders that participate in the Market Order Auction cannot be canceled between 9:29 a.m. ET and the conclusion of the Market Order Auction. This restriction does not apply to Limit Orders eligible in the Opening Session because these orders will be accessible in NYSE Arca during continuous trading between 9:29 a.m. and 9:30 a.m. ET.

Any Limit Orders designated for the Core Trading Session cannot be cancelled between 9:29 a.m. and 9:30 a.m. Market orders and auction-only limit orders that would participate on the same side as a market order imbalance cannot be entered into the Market Order Auction between 9:29 a.m. ET and the conclusion of the auction. For example, if the aggregate volume of market sell orders in the Market Order Auction is 30,000, and the aggregate volume of buy orders (including market and limit orders) is 25,000 shares, a market order imbalance on the sell side exists — so NYSE Arca will not accept market or auction-only limit orders to sell between

9:29 a.m. ET and the conclusion of the Market Order Auction. As with the Opening Auction, NYSE Arca will calculate and continually disseminate the indicative match price, the indicative match volume and the auction imbalance. At 9:30 a.m. ET, the Market Order Auction will execute at a single price and all unexecuted orders will be released into the Core Trading Session. In the event that NYSE Arca does not receive any limit orders to price the auction and only market orders for the Market Order Auction, the auction will execute at the midpoint of the NBBO as of 9:30 a.m. ET.

The match price is the price that maximizes the volume that can be executed. The Market Order Auction will use the match price closest to the closing price of the previous trading day (based on normal market hours) if more than one indicative match price is valid. Imbalances and indicative match prices in the Market Order Auction reflect market orders only. In the following examples, the limit orders are “auction only” limit orders.

Example:

#1 9:30 a.m. ET: Previous closing price of \$17.00

Entry Time	Buy Limit Orders	Sell Limit Orders	Order Price	Matchable Volume	Imbalance	Indicative Match Price
8:30	1,000		\$19.00	0	0	-
9:00		1,000	Market	1,000	0	\$19.00
9:05	1,000		\$20.00*	1,000	0	\$20.00
9:25		1,000	\$18.00*	2,000	0	\$18.00

*Limit orders designated as auction only orders. Result: all orders executed at \$18.00.

#2 9:30 a.m. ET: First NBBO disseminated is \$15.00 - \$15.10

Entry Time	Buy Limit Orders	Sell Limit Orders	Order Price	Matchable Volume	Imbalance	Indicative Match Price
8:31	1,000		Market	0	1,000	-
8:38		1,000	Market	1,000	0	\$15.05

Result: Orders are crossed at \$15.05

Closing Auction

Like NYSE Arca's current Opening Auctions, the Closing Auction is a single-price Dutch auction that matches buy and sell orders at a price that maximizes the amount of tradable stock. NYSE Arca will calculate and continually disseminate the indicative closing price, indicative closing volume and the auction imbalance prior to the Closing Auction.

Closing Auction	
Initial Order Collection	9:30 a.m. ET
Initial Broadcast of Imbalance Info.	3:00 p.m. ET
Freeze Period Begins	3:59 p.m. ET
Closing Auction Run	4:00 p.m. ET

Eligible Symbols

The Closing Auction is run for NYSE Arca primary listed stocks, NYSE listed stocks subject to a sub-penny trading conditions and exchange listed ETFs and ETNs. Auction specific order types, such as Limit on Close or Market on Close, submitted in non-NYSE Arca listed primaries are rejected.

Eligible Orders for the Closing Auction

Orders eligible for the auction include all live displayed orders participating in the Core Trading session, in addition to Market on Close (MOC) and Limit on Close (LOC) order types.

- Market on Close (MOC) Order Type – A Market Order that is to be executed only during the Closing Auction.
- Limit on Close (LOC) Order Type – A Limit Price Order that is to be executed only during the Closing Auction.
- Auction Only Orders – A Market Order that is to be executed in an Auction only. If the symbol is halted during Core Trading session and the order participates in a Halt Auction, the order will participate in the Closing Auction.

The non-displayed portions of reserve orders, will participate in the NYSE Arca Closing Auction. The reserve portion of an order will not display in the indicative matched volume, but will contribute to the indicative match price.

- Between 3:59 and 4:00 p.m. ET (the freeze period), MOC and LOC orders cannot be canceled.
- LOC and MOC orders that decrease the imbalance will be accepted for Auction processing during the freeze. LOC and MOC orders that increase the imbalance or would otherwise flip the imbalance will not be accepted (e.g. if there is a buy imbalance, no buy LOC or MOC orders will be accepted).
- Orders participating in Core Trading can be cancelled during the freeze period.
- Market Orders entered during Core Trading that are not identified as MOC orders will be eligible for execution in the core session, they will not be included in auction calculations or participate in the Closing Auction.
- The Market-on-Close Orders that are eligible for, but not executed in, the Closing Auction shall be cancelled immediately upon conclusion of the Closing Auction.

Publishing Order Imbalances

Beginning at 3:00 p.m. ET and updated real-time thereafter, the Indicative Match Price, the volume available to trade at that price, and any order imbalances associated with the Closing Auction, if any, will be published by NYSE Arca in both the ArcaBook data feed and on the website.

Visit the NYSE Euronext website for access to NYSE Arca auctions website: <http://www.nyse.com/NYSEArcaAuctions>.

The most recent version of the ArcaBook binary specification can also be found on the NYSE Euronext website by visiting <http://www.nyse.com/connecting>.

The following information will be published:

Market Imbalance - The imbalance of any remaining buy (sell) MOC Orders that are not already matched for execution in the auction.

Total Imbalance - Reflects the total net imbalance of MOC, LOC and orders displayed in the NYSE Arca Book.

Matched Volume - The volume already matched for execution at the indicative match price.

Indicative Match Price - The price at which the maximum volume of shares are executable.

Symbol	Market Imbalance	Total Imbalance	Matched Volume	Indicative Match Price	Indicative Net Change	Total \$ Value of Delta	Bid Price	Ask Price
ADY	0	0	100	\$8.63	-\$0.02	--	\$8.62	\$8.65
AGG	0	-2,385	7	\$99.91	\$0.01	--	\$99.90	\$99.91
BE	0	2,171	1,200	\$0.98	\$0.00	--	\$0.98	\$0.99
CML	0	-200	200	\$13.08	\$0.01	--	\$13.02	\$13.08
COW	0	-4,198	300	\$44.43	\$0.03	--	\$44.29	\$44.43
CSJ	0	-4,150	50	\$101.60	\$0.01	--	\$101.26	\$101.60
DFR	0	200	6,700	\$0.72	-\$0.00	--	\$0.72	\$0.75
DJP	0	-1,735	485	\$69.97	\$0.06	--	\$69.86	\$69.91
EEE	0	-133	1,400	\$1.57	\$0.01	--	\$1.26	\$1.57
EEM	0	-846	1,491,003	\$138.88	\$0.05	--	\$138.82	\$138.83
EFA	80,846	80,846	82,776	\$71.28	\$0.33	\$83,615	\$70.32	\$70.33
FFP	0	2,344	283	\$139.34	-\$0.04	--	\$139.34	\$139.42
EWB	0	2,700	10,800	\$27.14	-\$0.01	--	\$27.15	\$27.16
EWJ	0	2,748	15,490	\$17.64	-\$0.01	--	\$17.65	\$17.66
EWK	0	214,680	70,500	\$12.76	-\$0.01	--	\$12.77	\$12.78
EWL	0	4,900	100	\$20.48	-\$0.03	--	\$20.48	\$20.50
EWV	0	300	200	\$24.12	-\$0.01	--	\$24.12	\$24.13
EWY	0	0	200	\$35.52	-\$0.06	--	\$35.47	\$35.52
EWZ	0	4,900	200	\$56.17	-\$0.05	--	\$56.17	\$56.23
EWS	0	-1,900	10,000	\$12.71	\$0.00	--	\$12.70	\$12.71

Determining the Closing Auction Price

Until the time the Closing Auction is run, orders entered in the Core Session will continue to trade in the Core Session. At 4:00 p.m. ET, all orders entered for the Closing Auction in addition to all displayed orders in the NYSE Arca Book will be included in the Closing Auction.

Any Imbalance in the Closing Auction may be reduced by new orders, entered on the side of the market opposite the Imbalance. This is done in the following order of priority:

1. Market-on-Close Orders
2. Limit Orders on Book
3. Limit-on-Close Orders

If there are no order imbalances, orders will be executed in the Closing Auction at the Indicative Match Price as of 4:00 p.m. ET. The indicative match price will be the price at which the maximum number of shares in the total imbalance can execute.

- If there are multiple prices at which the total imbalance can equally execute, the indicative price will be based on the price closest to the Consolidated Tape last sale.
- If the price closest to the Consolidated Tape last sale would trade through the NYSE Arca Book, the indicative match price will be the best price available where no trade through occurs.

If an imbalance exists, or if equilibrium exists between buy Market-on-Close Orders and sell Market-on-Close Orders and an Indicative Match Price does not exist, as many buy Market-on-Close Orders and sell Market-on-Close Orders as possible shall be matched, on a time priority basis:

- At the midpoint of the National Best Bid and Offer (NBBO) at 4:00 p.m. ET, provided that the NBBO of the market centers that are still open are not locked or crossed.

- At the locked price, if the NBBO is locked at 4:00 p.m. ET.
- At the bid (offer) side of the BBO which is crossed with the NBBO, if the NBBO is crossed at 4:00 p.m. ET and the crossed market is posted by NYSE Arca and another market center.
- At the last sale during the regular market hours as determined by the consolidated tape, if the NBBO is crossed at 4:00 p.m. ET and the crossed market is not posted by NYSE Arca.

Buy Volume	Price	Sell Volume	Order Description
1,000	\$50.00		LOC
	\$49.75	5,000	LOC
	Market	2,000	MOC

The following information will be disseminated via the ArcaBook data feed and displayed on NYSE Arca's Auction web page:

Market Order Imbalance - 2,000 shares to sell

Indicative Match Price - \$49.75 (the LOC at 49.75 sets the price)

Matched Volume - 1,000 shares

Total Imbalance - 6,000 shares (there are 1,000 shares to buy and 7,000 shares to sell)

In this example, the 5,000-share LOC to sell has priced the auction at \$49.75 though it would not participate in the auction and the balance of 1,000 to the MOC seller is rejected and sent back. If after 3:59 p.m. ET, we had received a MOC or LOC to buy 1,000 shares would be permitted because it achieves equilibrium. However, a Market-on-Close Order or Limit-on-Close Order to buy 2,000 shares would not be permitted as it would flip the Imbalance from a sell side to an Imbalance of 1,000 shares on the buy side.

Buy Volume	Price	Sell Volume	Order Description
2,000	Market		MOC
1,000	41.50		LOC
	\$41.00	1,000	LOC
	\$41.25	1,000	LOC
	Market	1,000	MOC

The Consolidated Tape last sale was \$41.25.

The following information will be disseminated via the ArcaBook data feed and displayed on NYSE Arca's Auction web page:

Market Order Imbalance - 2,000 to buy (2,000 shares to buy minus 1,000 MOC shares to sell)

Indicative Match Price - \$41.25 (price closest to the last sale)

Matched Volume - 3,000 shares (3,000 shares MOC and LOC to buy equals 3,000 MOC and LOC shares to sell)

Total Imbalance - 0 (3,000 shares MOC and LOC to buy equals 3,000 MOC and LOC shares to sell)

Since there are multiple prices at which the total imbalance can be equally executed in this example, the Consolidated Tape last sale is used to determine the indicative match price.

Closing Auction Price Collars

Utilizing the NYSE Arca Clearly Erroneous Execution Policy, the Closing Auction will not execute at a price that is greater than \$1.00 away from the consolidated last sale for stocks priced \$10 and above or 10% away from the consolidated last sale for stocks priced under \$10. The Closing Auction will automatically execute eligible orders within the parameters of the Policy.

Example:

- If the consolidated last sale is \$20, the Closing Auction could only execute between \$19 and \$21.
- If the consolidated last sale is \$5, the Closing Auction could only execute between \$4.50 and \$5.50 (plus or minus 10% from the last sale of \$5).

NYSE Arca may change these thresholds periodically upon prior notice to ETP Holders.

Reporting Trades

All trades that participate in the Opening Auction will be disseminated to the Consolidated Tape with the ".Q" extension. All trades that participate in the Closing Auction will be disseminated to the Consolidated with the ".M" extension. These same trades will include the official opening price and the volume of shares executed in either auctions and reported as regular-way.

For example, if 10,000 shares of RZ are matched in the Closing Auction at \$13.00, resulting in 5 regular way prints of 2,000 shares each, there will be an additional ".M" print showing 10,000 shares @ \$13.00.

Technical Information

The ArcaBook specifications include a new value of "C" in the AuctionType field for Imbalance Messages. To enter MOC and LOC order types via FIX:

Market Order Auction Only (MOC)

OrdType (40)=5

Limit Order Auction Only (LOC)

OrdType (40)=B

Contact Information

More information on NYSE Arca Auctions can be found at: www.nyse.com/auctions.

Please contact your Client Relationship Manager or the NYSE Arca Trade Support Desk if you have any additional questions at 888 513 9873.