



MARKET MAKING

NYSE ARCA



PART 1: MARKET MAKER ACCESS, OBLIGATIONS AND REQUIREMENTS

BECOMING PART OF THE MARKETPLACE

The fully-electronic NYSE Arca trades more than 8,000 exchange-listed equity securities—including listings on Nasdaq and Bats. Traders that use the open, direct, anonymous NYSE Arca Equities platform will make rapid, efficient, electronic executions in multiple U.S. market centers. NYSE Arca's distinct market structure provides significant transparency, tremendous speed, and both displayed and dark liquidity.

NYSE Arca Equities Members also get access to innovative order types, aggressive pricing, ultra-low-latency, opening and closing auctions, and other NYSE markets.

TRADING ACCESS

To trade on NYSE Arca Equities, broker-dealers can get direct trading access by becoming a NYSE Arca Equity Trading Permit (ETP) Holder.

NYSE Arca Equities membership applications and agreements are available on our website at the below link:

<https://www.nyse.com/markets/nyse-arca/membership>

BECOMING A MARKET MAKER FIRM

- Firm must be an ETP Holder and can apply to be a registered Market Maker by filing a written application with NYSE Arca
- The registered Market Makers will be designated as dealer-specialists on NYSE Arca for all purposes under the Exchange Act
- When approving, NYSE Arca will consider, among other things, the ETP Holder's:
 - capital operations
 - personnel
 - technical resources
 - disciplinary history

WHY BECOME A MARKET MAKER (MM)

Member firms can register as Market Makers in securities they continuously quote. End of the month quote and trade activity of market makers may be viewed by Issuers for their listed securities resulting in greater visibility. Registered Market Maker status may also have regulatory benefits.

WHAT IS A LEAD MARKET MAKER (LMM)

NYSE Arca has established the role of the Lead Market Maker (LMM) for Exchange Traded Products (including ETFs) that are primarily listed on NYSE Arca. LMMs are considered a class of registered Market Maker. LMMs have enhanced quoting obligations. In return for meeting enhanced quoting obligations, LMMs have a fee structure superior to other market participants trading on NYSE Arca.

BECOMING A LEAD MARKET MAKER FIRM

Process

To participate in the LMM program, broker-dealers who are ETP Holders must first be registered as Market Makers on NYSE Arca and meet additional selection criteria established for LMMs. These include (but are not limited to):

- Experience with making markets in equities and related underlying markets (if any)
- Adequacy of capital
- Willingness to promote the NYSE Arca marketplace
- Issuer preference
- Operational capacity & support personnel

Additional information on how to become a LMM can be found in the link below:

https://www.nyse.com/publicdocs/nyse/markets/liquidity-programs/arca_lmm_fact_sheet.pdf

REQUIREMENTS FOR MARKET MAKER FIRMS

- Be in good standing with NYSE Arca
- Inform NYSE Arca of any material change in financial or operational condition or in personnel
- Have the capability to clear and settle transactions through the facilities of a registered clearing agency
- Meet minimum net capital requirements and quoting obligations

MINIMUM NET CAPITAL REQUIREMENTS

Market Makers subject to the Aggregate Indebtedness Requirement must maintain minimum net capital that is the greater of:

- \$100,000
- \$2,500 for each security that it is registered as a Market Maker (unless a security in which it makes a market has a market value of \$5 or less, in which event the amount of net capital shall be not less than \$1,000 for each such security) based on the average number of securities that such Market Maker is registered during the 30 days immediately preceding the computation date
- 6 2/3 percent of aggregate indebtedness
- The amount prescribed by SEC Rule 15c3-1

Market Makers subject to the Alternative Net Capital Requirement must maintain minimum net capital that is greater than:

- \$250,000 or
- 2 percent of aggregate indebtedness
- The amount prescribed by SEC Rule 15c3-1

MINIMUM NET CAPITAL REQUIREMENTS

In addition to the applicable minimum net capital requirements detailed before, a registered Market Maker that is provided clearing settlement services by NYSE Arca Clearing must maintain a liquid asset position that is the greater of:

1. \$250,000 plus \$2,500 for each security over 50 securities that such Market Maker is registered to trade with a maximum amount not to exceed \$2,000,000 unless required by item (ii)
2. The amount equal to 25% of the aggregate market value of all positions in securities in which such Market Maker is registered

MARKET MAKER OBLIGATIONS- TRADING

1. Market Makers must maintain continuous, two-sided quotes for each security in which the firm is registered as set forth by the parameters in NYSE Arca Rule 7.23

2. Lead Market Makers must also meet minimum performance requirements which include a BBO requirement, minimum displayed size, minimum quoted spread and participation requirements for opening and closing auctions
 - Performance requirements will be determined by NYSE Arca and detailed in the LMM Requirements document

MARKET MAKER OBLIGATIONS: TEMPORARY WITHDRAWAL

- May apply to NYSE Arca to withdraw temporarily from its Market Maker status
- Request must be based on demonstrated legal or regulatory requirements that necessitate temporary withdrawal

BOOKS AND RECORDS REQUIREMENTS AND DISCLOSURES

Market Makers are required to

- Provide monthly and quarterly financial statements consisting of FOCUS Part IIA to FINRA for Market Maker capital compliance review
- Disclose promptly any material change in financial or operational condition, or in personnel in accordance with the rules and procedures of NYSE Arca (including any financial arrangements with any other person or entity)
- Disclose any financial arrangements with any person or entity pursuant to NYSE Arca Rule 6.11
- Establish, maintain, and enforce written procedures to supervise the business in which it engages and to supervise the activities of its associated persons

INFORMATION BARRIER PROCEDURES

- A Market Maker on NYSE Arca may engage in other business activities, or it may be affiliated with a broker-dealer that does, only if there is an Information Barrier between the market making activities and the other business activities
- Every ETP Holder must establish, maintain, and enforce written policies and procedures reasonably designed, to prevent the misuse of material, non-public information by such ETP Holder or persons associated with such ETP Holder
- Any ETP Holder or associated person who becomes aware of a possible misuse of material, non-public information must promptly notify NYSE Arca's Surveillance Department

REGISTRATION OF MARKET MAKER FIRMS

- Registration will become effective upon notice from NYSE Arca
- Registration may be suspended or terminated upon a determination of any substantial or continued failure by the Market Maker to engage in dealings in accordance with the Market Maker's obligations under NYSE Arca rules
- Market Maker may voluntarily withdraw its registration by giving written notice to NYSE Arca; the withdrawal will become effective upon notice from NYSE Arca
- Each Market Maker firm must apply in writing to NYSE Arca to register a Market Maker Authorized Trader (MMAT)
- MMATs must not be subject to statutory disqualification

SECURITY TERMINATION AND SUSPENSION

- NYSE Arca may terminate a Market Maker's registration in a security if the Market Maker fails to enter quotations in the security within five business days after registration becomes effective
- NYSE Arca may suspend or terminate the Market Maker's registration in a security or securities whenever, in NYSE Arca's judgment, required market maker obligations are not met
- A Market Maker may voluntarily terminate its registration in a security by providing NYSE Arca with a one-day written notice

ABOUT MMATS

- A MMAT is an Authorized Trader that performs market making activities
- Must be an officer, partner, employee, or another associated person of a Market Maker, who is properly qualified to perform market making activities and has been trained and certified in the use of NYSE Arca systems
- Must be Series 7 registered (prior to May 1, 2016) or Series 57 registered (effective May 1, 2016) or be approved for a waiver of the Series 57
- May only submit orders for the account of its own Market Maker
- NYSE Arca may suspend the registration of an MMAT for failure to comply with Exchange and/or SEC Rules
- The Market Maker may withdraw the registration of an MMAT upon written request to NYSE Arca and a filing of a U5 via FINRA's Web CRD



PART 2: ORDER TYPES AND ORDER PROCESSING

ORDER TYPES

NYSE Arca Pillar Order Types

Order Types

https://www.nyse.com/publicdocs/nyse/markets/nyse-arca/NYSE_Arca_Order_Suite.xlsx

Order Types Executed Usage

https://www.nyse.com/publicdocs/nyse/markets/nyse-arca/NYSE_Arca_Order_Type_Usage.pdf

FIX and Binary Technical Specifications

NYSE Arca FIX Protocol

https://www.nyse.com/publicdocs/nyse/markets/nyse-arca/NYSE_Arca_UGW_FIX_Gateway_Spec.pdf

NYSE Arca Binary Protocol

https://www.nyse.com/publicdocs/nyse/markets/arca-options/Binary_Gateway_Spec.pdf

ORDER RANKING AND DISPLAY

Order Ranking and Display (Rule 7.36P)

Definitions for purposes of Rule 7 Equities Trading:

- "Display Price" means the price at which a Limit Order is displayed, which may be different from the limit price or working price of the order
- "Limit Price" means the highest (lowest) specified price at which a Limit Order to buy (sell) is eligible to trade
- "Working Price" means the price at which an order is eligible to trade at any given time, which may be different from the limit price or display price of the order
- "Working Time" means the effective time sequence assigned to an order for purposes of determining its priority ranking

Order Ranking and Display (Rule 7.36P) Cont.

Display

The Exchange displays all non-marketable Limit Orders, unless the order or modifier instruction specifies that all or a portion of the order is not to be displayed.

- An order is considered displayed for ranking purposes if the price, side, and size of the order are disseminated via a market data feed. Odd-lot sized Limit Orders and the displayed portion of Reserve Orders are considered displayed for ranking purposes
- Except as otherwise permitted by Rule 7.7, all non-marketable displayed Limit Orders will be displayed on an anonymous basis
- The best-ranked non-marketable displayed Limit Order(s) to buy and the best ranked non-marketable displayed Limit Order(s) to sell in the NYSE ArcaBook and the aggregate displayed size of such orders associated with such prices will be collected and made available to quotation vendors for dissemination pursuant to the requirements of Rule 602 of Regulation NMS under the Exchange Act. If non-marketable odd-lot sized orders at multiple price levels can be aggregated to equal at least a round lot, such odd-lot sized orders will be displayed as the best ranked displayed orders to sell (buy) at the least aggressive price at which such odd-lot sized orders can be aggregated to equal at least a round lot

Order Ranking and Display (Rule 7.36P) Cont.

Priority Categories

At each price point, all orders are assigned a priority category. If at a price point there are no orders in a priority category, the next priority category has first priority.

- Priority 1 - Market Orders: Unexecuted Market Orders have priority over all other same-side orders with the same working price
- Priority 2 - Display Orders: Non-Marketable Limit Orders with a displayed working price have second priority
- Priority 3 - Non-Display Orders: Non-Marketable Limit Orders for which the working price is not displayed, including reserve interest of Reserve Orders, have third priority
- Priority 4 - Tracking Orders: Tracking Orders have fourth priority

Order Ranking and Display (Rule 7.36P) Cont.

Time

Within each priority category, orders are ranked based on time priority.

- An order is assigned a working time based on its original entry time, which is the time when an order is first placed in the NYSE Arca Book
 - An order that is fully routed to an Away Market on arrival is not assigned a working time unless and until any unexecuted portion of the order returns to the NYSE ArcaBook
 - For an order that is partially routed to an Away Market on arrival, the portion that is not routed is assigned a working time. If any unexecuted portion of the order returns to the NYSE ArcaBook and joins any remaining resting portion of the original order, the returned portion of the order is assigned the same working time as the resting portion of the order. If the resting portion of the original order has already executed and any unexecuted portion of the order returns to the NYSE ArcaBook, the returned portion of the order is assigned a new working time

Order Ranking and Display (Rule 7.36P) Cont.

Time cont.

- An order is assigned a new working time any time the working price of an order changes
- An order is assigned a new working time if the size of an order increases
- An order retains its working time if the size of the order is decreased
- An order retains its working time if the order marking is changed from: (A) sell to sell short; (B) sell to sell short exempt; (C) sell short to sell; (D) sell short to sell short exempt; (E) sell short exempt to sell; and (F) sell short exempt to sell short

Ranking Restrictions

The Exchange will enforce ranking restrictions applicable to specific order or modifier instructions as provided for in Rules 7.31P and 7.44P.

Order Execution and Routing (Rule 7.37P)

Order Execution

An incoming marketable order will be matched for execution against contra-side orders in the NYSE Arca Book according to the price-time priority ranking of the resting orders, subject to the following:

- Orders that are routed to an Away Market on arrival will not be assigned a working time or matched for execution on the NYSE ArcaBook
- Unless an order qualifies for an exception from the Order Protection Rule in Rule 611 of Regulation NMS, an order will not trade at prices that trade through a protected quotation
- Limit Orders will be executed at prices that are equal to or better than the PBBO
- Market Orders and Inside Limit Orders will be executed at prices that are equal to or better than the NBBO

Order Execution and Routing (Rule 7.37P) Cont.

Routing

Unless an order has an instruction not to route, after being matched for execution with any contra-side orders in the NYSE ArcaBook pursuant to paragraph (a) of this Rule, marketable orders will be routed to Away Market(s).

- An order that cannot meet the pricing parameters of paragraph (a) of this Rule may be routed to Away Market(s) before being matched for execution against contra-side orders in the NYSE ArcaBook
- If an order with an instruction not to route would trade through or lock or cross a protected quotation and is not eligible for an exception to Rule 610 or 611 of Regulation NMS, it will cancel, re-price, or be held undisplayed on the NYSE Arca Book, as provided for in Rules 7.31P and 7.44P
- Orders eligible to route will be routed to all available Away Markets unless the order includes an instruction to bypass Away Markets that are not displaying protected quotations
- Limit Orders that are routed to Away Market(s) may be routed to more than one price level, up (down) to the limit price of an order to buy (sell)

ORDER EXECUTION AND ROUTING

Order Execution and Routing (Rule 7.37P) Cont.

- Except for orders routed to the primary listing market on arrival pursuant to Rule 7.34P or designated to route to the primary listing market pursuant to Rule 7.31P, orders routed to Away Market(s) will be sent as IOC ISOs
- Any order or portion thereof that has been routed is not eligible to trade on the NYSE Arca Book, unless all or a portion of the order returns unexecuted
- An order marked "short" when a short sale price test restriction is in effect will not be routed

Order Execution and Routing (Rule 7.37P) Cont.

Requests to cancel an order that has been routed will be processed as follows:

- (A) For orders that are eligible to be matched for execution against orders in the NYSE ArcaBook, the request to cancel will not be processed unless and until all or a portion of the order returns unexecuted
- (B) For orders routed to the primary listing market on arrival pursuant to Rule 7.34P or designated to route to the primary listing market pursuant to Rule 7.31P, the request to cancel will be routed to the primary listing market
- (C) For MOC Orders or LOC Orders in NYSE or NYSE MKT-listed securities, requests to cancel or reduce in size that are electronically entered after the times specified in NYSE Rule 123C(3)(b) and NYSE MKT Rule 123C(3)(b) - Equities and Supplementary Materials .40 to those rules will be rejected

NYSE Arca Trading Sessions

Early Trading Session

Will begin at 4:00 a.m. ET and conclude at the commencement of the Core Trading Session. Orders will begin accepting 30 minutes before the Early Trading Session begins. The Early Open Auction will begin the Early Trading Session.

Core Trading Session

Will begin for each security at 9:30 a.m. Eastern Time and end at the conclusion of Core Trading Hours or the Core Closing Auction, whichever comes later. The Core Open Auction will begin the Core Trading Session.

Late Trading Session

Will begin following the conclusion of the Core Trading Session and conclude at 8:00 p.m. Eastern Time.

Early Open Auction

- The Early Open Auction will be conducted at the beginning of the Early Trading Session
- Only Limit Orders in Auction-Eligible Securities designated for the Early Trading Session will be eligible to participate in the Early Open Auction
- If there is no Matched Volume for the Early Open Auction, the NYSE Arca Marketplace will open the Early Trading Session with a quote
- Thirty minutes before the Early Trading Session begins, the NYSE Arca Marketplace will begin disseminating the Early Open Auction Imbalance Information. The non-displayed quantity of Reserve Orders eligible to participate in the Early Open Auction will not be included in the Matched Volume or Total Imbalance until the Early Open Auction Imbalance Freeze begins
- The Early Open Auction Imbalance Freeze will begin one minute before the scheduled time for the Early Open Auction
- Limit Orders eligible to trade in the Early Open Auction will be matched and traded at the Indicative Match Price following Auction Ranking as of the time of the Early Open Auction
- The Early Open Auction trade will be designated with a modifier to identify it as an extended hour .T trade

Core Open Auction

The Core Open Auction will be conducted at the beginning of the Core Trading Session. Orders in Auction-Eligible Securities that include a designation for the Core Trading Session and that are eligible to participate in an auction will be eligible to participate in the Core Open Auction.

- The NYSE Arca Marketplace will begin publishing Core Open Auction Imbalance Information at 8:00 a.m. Eastern Time. The non-displayed quantity of Reserve Orders that are eligible to participate in the Core Open Auction will not be included in the Matched Volume, Total Imbalance, or Market Imbalance until the Core Open Auction Imbalance Freeze begins
- Beginning one minute before the scheduled time for the Core Open Auction, requests to cancel and requests to cancel and replace MOO Orders and LOO Orders will be rejected

Core Open Auction Cont.

- The Core Open Auction Imbalance Freeze will begin five seconds before the scheduled time for the Core Open Auction. Order entry and cancellation will be processed during the Core Open Auction Imbalance Freeze as follows:
 - MOO Orders and LOO Orders will be rejected
 - Market Orders (other than MOO Orders) and Limit Orders designated for the Core Trading Session only will be accepted but will not be included in the calculation of the Indicative Match Price or the Core Open Auction Imbalance Information. Such orders will participate in the Core Open Auction only to offset the Imbalance that is remaining after all orders entered before the Core Open Auction Imbalance Freeze, including the non-display quantity of Reserve Orders, are allocated in the Core Open Auction, and will be allocated in price-time priority under Rule 7.36P(c) - (g) consistent with the priority ranking associated with each order

Core Open Auction Cont.

- Requests to cancel and requests to cancel and replace Market Orders (other than MOO Orders) and Limit Orders designated for the Core Trading Session only will be accepted, but not processed, until after the Core Open Auction concludes
- All other order instructions will be accepted
- All orders eligible to trade in the Core Open Auction will be matched and traded at the Indicative Match Price following Auction Ranking as of the time of the Core Open Auction
- The Core Open Auction trade will be designated with a modifier to identify it as a Core Open Auction trade

Closing Auction

The Closing Auction will be conducted at the end of the Core Trading Session. Orders in Auction-Eligible Securities that include a designation for the Core Trading Session and that are eligible to participate in an auction will be eligible to participate in the Closing Auction.

- The NYSE Arca Marketplace will begin publishing Closing Auction Imbalance Information one hour before the scheduled time for the Closing Auction. The non-displayed quantity of Reserve Orders that are eligible to participate in the Closing Auction will not be included in the Matched Volume, Total Imbalance, or Market Imbalance until the Closing Auction Imbalance Freeze begins

Closing Auction Cont.

- The Closing Auction Imbalance Freeze will begin one minute before the scheduled time for the Closing Auction. Order entry and cancellation will be processed during the Closing Auction Imbalance Freeze as follows:
 - LOC Orders and MOC Orders that are on the same side of the Imbalance, would flip the Imbalance, or would create a new Imbalance will be rejected
 - Requests to cancel and requests to cancel and replace MOC Orders and LOC Orders will be rejected
 - All other order instructions will be accepted
- All orders eligible to trade in the Closing Auction will be matched and traded at the Indicative Match Price following Auction Ranking as of the time of the Closing Auction
- The Closing Auction trade will be designated with a modifier to identify it as a Closing Auction trade. The Corporation will publish an Official Closing Price for all securities that trade on the NYSE Arca Marketplace

CLEARLY ERRONEOUS POLICY

ETP Holders that receive an execution on NYSE Arca that they consider to be erroneous may request a review of the transaction(s):

- Review requests must be submitted via the website “Customer Submission for Clearly Erroneous Execution Review”
<https://www.nyse.com/cee>
- If the website is not accessible, ETP Holders may submit a request via a Word document available at
https://www.nyse.com/publicdocs/nyse/markets/nyse-arca/nyse_arca_cee_submission_form.doc
 - To process the request in this manner, please save the form to your computer desktop with the relevant information and email the attachment to NYSE Arca at
ceenysearca@theice.com
- The request must be submitted within thirty (30) minutes of the execution time
- Once the request has been received, a review of the execution(s) will be conducted and a determination will be made as to whether or not the execution(s) submitted for request are clearly erroneous pursuant to Rule 7.10

TRADING AHEAD OF CUSTOMER LIMIT ORDERS

No ETP Holder may accept and hold an unexecuted limit order from its customer (whether its own customer or a customer of another ETP Holder) and continue to trade the security on NYSE Arca for its own account at prices that would satisfy the customer's limit order, without executing that limit order.

An ETP Holder may negotiate specific terms and conditions applicable to the acceptance of limit orders only with respect to limit orders that are for institutional customer accounts (10,000 shares or more, unless such orders are less than \$100,000 in value).

CLEARANCE AND SETTLEMENT

- Each ETP Holder must be a clearing firm, clear transactions on NYSE Arca through a clearing firm, or clear transactions through an entity duly authorized by NYSE Arca
- Clearing firm must be an ETP Holder
- An ETP Holder must identify the clearing firm through which each transaction on NYSE Arca will be cleared
- If there is a subsequent change in identity of the clearing firm through whom the transaction on NYSE Arca will be cleared, the ETP Holder shall report such change at least five (5) business days in advance to crs@nyse.com

COMMUNICATION, EQUIPMENT REQUIREMENTS AND RTO

- Every ETP Holder must have reasonable procedures to ensure that it maintains the physical security of the equipment for accessing NYSE Arca
- ETP Holders must identify the means of connection as well as the intended use of the connection on the NYSE Arca Equities Connectivity Application & Questionnaire (CQ)
- By signing the CQ, the ETP Holder represents that it has established effective regulatory policies and procedures pursuant to NYSE Arca Equities Rules 6.18 and 9.2(b), as well as Regulatory Bulletin RBE-07-01, to review for violations of NYSE Arca Equities and federal rules over the order flow that is sent through this connection
- ETP Holders registered as market makers must have adequate written policies and procedures and systems in place to ensure compliance with the quoting obligations set forth in Rule 7.23 (a)(1)(B). Failure to meet the quoting obligations set forth in that rule may result in disciplinary action

REGULATION

- ETP Holders must include their Market Maker ID (MMID) in order for their market making interest to receive credit for satisfying the “Two-Sided Obligation” within Exchange Rule 7.23
 - Market Makers that connect using FIX must include their Market Maker ID in FIX Tag 50
 - Market Makers that connect using ArcaDirect version 3.2 must include their Market Maker ID in the “Account” field
 - Market Makers that connect using ArcaDirect version 4.0 must include the Market Maker ID in the “SenderSubID” field
(<http://www.nysearca.com/content/regulation/reg/rbe/2011/RBE-11-05.pdf>)
- ETP Holders registered as market makers should immediately inform NYSE Arca Regulation of any issues that result in the inability to fulfill their obligations as market makers on NYSE Arca (mmquoterelief@theice.com)

SIGNATURE PAGE

I, _____, confirm that I reviewed and that I understand the policies and procedures set forth in NYSE Arca's Market Maker Orientation Training Program.

Name (Sign)

CRD Number

Firm

Date

*Please return completed signature page to crs@nyse.com