NYSE Arca Equities

FEES AND CHARGES

Effective Date: November 1, 2022

NYSE ARCA MARKETPLACE: TRADE RELATED FEES AND CREDITS

EXCHANGE TRANSACTIONS

ETP HOLDERS AND MARKET MAKERS

Round Lots and Odd Lots (Per Share Price $1.00 or Above and Per Share Price Below $1.00)

I. Definitions (applicable for purposes of fees and credits):

- “ADV” means average daily volume.
- “Adding” means the execution of an order on the Exchange that added liquidity.
- “Auction” means Early Open Auction, Core Open Auction, Trading Halt Auction and Closing Auction on NYSE Arca.
- “Cboe BZX Auction” would mean orders routed for execution in the open or closing auction on Cboe BZX.
- “Directed Orders” means a Limit Order with instructions to route on arrival at

---

1 Trade activity on days when the market closes early and on the date of the annual reconstitution of the Russell Investments Indexes does not count toward volume tiers. For purposes of determining trade related fees and credits based on ADV and US CADV (as defined below), the Exchange may exclude any day that (1) the Exchange is not open for the entire trading day and/or (2) a disruption affects an Exchange system that lasts for more than 60 minutes during regular trading hours.

2 These transaction fees do not apply to: (1) Directed Orders, regardless of account type, that are matched within the Directed Order Process; (2) Directed Orders for the account of a retail public customer that are executed partially or in their entirety via the Directed Order, Display Order, Working Order, and Tracking Order processes (however, any unfilled or residual portion of a retail customer’s order that is routed away and executed by another market center or participant will incur this transaction fee); (3) Cross Orders; and (4) participants in the Nasdaq UTP Plan that transmit orders via telephone. Orders with specific rates (e.g., MPL, Tracking, PL, Retail Add, RPI, RMO) may be used to qualify for volume thresholds but are not eligible for tiered rates.
its limit price to a specified alternative trading system (“ATS”) with which the Exchange maintains an electronic linkage.

- “ETP Holders” means ETP Holders and Market Makers.
- “Nasdaq Auction” would mean orders routed for execution in the open or closing auction on Nasdaq.
- “NYSE American Auction” would mean orders routed for execution in the open or closing auction on NYSE American.
- “NYSE Auction” would mean orders routed for execution in the open or closing auction on NYSE.
- “Opening Orders” means Market and Auction-Only Orders executed in an Early Open Auction, Core Open Auction or Trading Halt Auction.
- “Removing” means the execution of an order that removed liquidity.
- “TCADV” means total Customer equity and ETF option ADV as reported by The Options Clearing Corporation (OCC).
- “CADV” means unless otherwise stated, the United States consolidated average daily volume of transactions reported to a securities information processor (“SIP”). Transactions that are not reported to a SIP are not included in the CADV. If CADV is preceded by a reference to a Tape or to Sub-Dollar, then CADV would refer to all consolidated average daily volume of transactions reported to a SIP for all securities in that Tape or to all Sub-Dollar securities.

II. General:

- Tape A, Tape B and Tape C refers to securities executions reported to the Consolidated Tape A, Consolidated Tape B, and Consolidated Tape C, respectively.
- Rebates indicated by parentheses ( ).
- All fees and credits and tier requirements apply to ETP Holders.
- All fees and credits are per share unless noted otherwise.

III. Standard Rates - Transactions (applicable when Tier Rates do not apply):

<table>
<thead>
<tr>
<th>Category</th>
<th>Adding Liquidity&lt;sup&gt;(a)(b)&lt;/sup&gt;</th>
<th>Adding Liquidity - Retail Orders&lt;sup&gt;(c)&lt;/sup&gt;</th>
<th>Adding Liquidity - MPL Orders</th>
<th>Removing Liquidity&lt;sup&gt;(d)&lt;/sup&gt;</th>
<th>Opening Orders&lt;sup&gt;(e)(g)&lt;/sup&gt;</th>
<th>Closing Orders&lt;sup&gt;(f)(g)&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Securities priced at or above $1.00</td>
<td>($0.0020)</td>
<td>($0.0032)</td>
<td>($0.0010)</td>
<td>$0.0030</td>
<td>$0.0015; $0.0005 for Retail Orders</td>
<td>$0.0012; $0.0008 for Retail Orders</td>
</tr>
<tr>
<td>Securities priced below $1.00</td>
<td>0.0% of Dollar Value</td>
<td>(0.05% of Dollar Value)</td>
<td>0.0% of Dollar Value</td>
<td>0.30% of Dollar Value</td>
<td>0.1% of Dollar Value</td>
<td>0.1% of Dollar Value</td>
</tr>
</tbody>
</table>
(a) In securities priced at or above $1.00, an additional credit in Tape B Securities shall apply to LMMs and to Market Makers affiliated with LMMs that add displayed liquidity based on the number of Less Active ETP Securities in which the LMM is registered as the LMM. The applicable tiered-credits are noted below (See LMM Transaction Fees and Credits).

(b) In securities priced below $1.00, this credit applies to all orders that add liquidity.

(c) Retail Order means an order as defined in Rule 7.44-E(a)(3).

(d) In securities priced at or above $1.00, this fee also applies to Non-Displayed Limit Orders that remove liquidity.

(e) In securities priced at or above $1.00, this fee is capped at $20,000 per month per Equity Trading Permit ID.

(f) Fee applies to orders in all Securities.

(g) In securities priced at or above $1.00, this fee applies to executions resulting from Auction Orders. In securities priced below $1.00, this fee applies to all orders executed in the Early Open Auction, Core Open Auction, Trading Halt Auction or Closing Auction.

IV. **Other Standard Rates for Securities with a Per Share Price $1.00 or Above:**

- No fee or credit for Non-Displayed Limit Orders that add liquidity or for executions resulting from IOIs.
- $0.0030 fee for MPL Orders removing liquidity; $0.0010 if such orders are designated as Retail Orders.
- $0.0006 fee for executions in an Auction other than for executions from Auction Orders.
- ($0.0005) credit for Discretionary Pegged Orders that add liquidity.

V. **Standard Rates - Routing:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Orders routed that remove liquidity</th>
<th>Primary Only (“PO”) Orders in Tape A Securities routed to NYSE that add liquidity</th>
<th>Primary Until 9:45 Orders and Primary After 3:55 Orders designated as Retail Orders and routed to the primary market</th>
<th>PO Orders in Tape B Securities routed to NYSE that add liquidity</th>
<th>PO Orders in Tape A Securities routed to NYSE American Auction</th>
<th>PO Orders in Tape B Securities routed to Cboe BZX Auction and in Tape C Securities routed to NASDAQ Auction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Securities priced at or above $1.00</td>
<td>$0.0035</td>
<td>$0.0010</td>
<td>($0.0012)</td>
<td>No Credit</td>
<td>$0.0010</td>
<td>$0.0005</td>
</tr>
</tbody>
</table>
Securities priced below $1.00  |  0.3% of Dollar Value\(^{(a)}\)  |  n/a  |  n/a  |  n/a  |  n/a  |  n/a  |  n/a  \\
---|---|---|---|---|---|---|---
\(^{(a)}\) Applicable to orders of listed and Nasdaq securities routed away and executed by another market center or participant.

VI. Other Standard Rates - Routing (Per Share Price $1.00 or Above)

- No fee for Directed Orders routed to OneChronos LLC.

VII. Tier Rates - Round Lots and Odd Lots (Per Share Price $1.00 or Above):

<table>
<thead>
<tr>
<th>Tier*</th>
<th>Minimum Requirement</th>
<th>Credit for Adding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tape A</td>
</tr>
<tr>
<td>Tier 1</td>
<td>0.70% Adding of CADV, or 84 million shares Adding ADV</td>
<td>($0.0031)</td>
</tr>
<tr>
<td>Tier 2</td>
<td>0.50% Adding of CADV</td>
<td>($0.0030)</td>
</tr>
<tr>
<td>Tier 3</td>
<td>0.30% Adding of CADV, or 0.25% Adding CADV, 0.40% Tape B Remove of Tape B CADV, and 0.25% Customer and Professional Customer Electronic Posting Volume of TCADV on NYSE Arca Options by OTP Holder or OTP Firm affiliated with the ETP Holder</td>
<td>($0.0029)</td>
</tr>
<tr>
<td>Tier 4</td>
<td>0.20% Adding of CADV</td>
<td>($0.0025)**</td>
</tr>
</tbody>
</table>
ETP Holders that qualify for Tier 1, Tier 2, Tier 3 or Tier 4 and also have combined Adding and Removing of 1.0% of CADV receive a minimum of ($0.0030) for Adding in Tape A, Tape B and Tape C

** ETP Holders that qualify for Tier 4 and add 0.05% of CADV above May 2019 receive an incremental credit of ($0.0002) for Tape A and C Adding

ETP Holders that qualify for Tier 1, Tier 2, Tier 3 or Tier 4 are subject to the following fees:

<table>
<thead>
<tr>
<th>Fees</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routing</td>
<td>$0.0030</td>
</tr>
<tr>
<td>Removing Liquidity in Tape B</td>
<td>$0.0029</td>
</tr>
<tr>
<td>Closing Orders</td>
<td>$0.0010</td>
</tr>
</tbody>
</table>

(a) An additional credit in Tape B shall apply to ETP Holders affiliated with LMMs that add displayed liquidity based on the number of Less Active ETP Securities in which the LMM is registered as the LMM. The applicable tiered-credits are noted below (See LMM Transaction Fees and Credits).

### Step Up Tiers

<table>
<thead>
<tr>
<th>Tier</th>
<th>Adding ADV of CADV</th>
<th>Removing ADV of CADV</th>
<th>Adding Increase of CADV</th>
<th>Adding Increase Baseline</th>
<th>Tape A</th>
<th>Tape B</th>
<th>Tape C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step Up Tier 1</td>
<td>0.22%</td>
<td>0.06%</td>
<td></td>
<td>May 2018</td>
<td>($0.0028)</td>
<td>($0.0022)</td>
<td>($0.0028)</td>
</tr>
<tr>
<td>Step Up Tier 2</td>
<td></td>
<td></td>
<td></td>
<td>September 2019</td>
<td>($0.0033)</td>
<td>($0.0034)</td>
<td>($0.0033)</td>
</tr>
<tr>
<td>Step Up Tier 3</td>
<td>0.35% or 0.50%</td>
<td>0.25%</td>
<td></td>
<td>September 2019</td>
<td>($0.0031)</td>
<td>($0.0031)</td>
<td>($0.0031)</td>
</tr>
</tbody>
</table>

(b) ETP Holders that qualify for Step Up Tier 2 shall not receive additional Tape B Tier credits for adding displayed liquidity, including any additional credits associated with Less Active ETP Securities, however, ETP Holders that are registered as a LMM may receive up to a combined credit of $0.0036 per share on all its adding volume if that ETP
Holder, together with its affiliates, executes Tape B adding ADV that is at least 40% over the ETP Holder’s adding ADV in Q3 2019, as a percentage of Tape B CADV.

<table>
<thead>
<tr>
<th>Cross-Asset Tier</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimum Requirement</strong></td>
</tr>
<tr>
<td>Equity Volume Adding ADV of CADV</td>
</tr>
<tr>
<td><strong>All Issues</strong></td>
</tr>
<tr>
<td>0.30%</td>
</tr>
<tr>
<td>0.50%</td>
</tr>
<tr>
<td>0.65%</td>
</tr>
<tr>
<td>0.75%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MPID Adding Tier</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimum Requirement by MPID</strong></td>
</tr>
<tr>
<td>Tier</td>
</tr>
<tr>
<td>MPID Adding Tier 2</td>
</tr>
<tr>
<td>MPID Adding Tier 1</td>
</tr>
</tbody>
</table>
## BBO Setter Tier

<table>
<thead>
<tr>
<th>Tier</th>
<th>Minimum Requirement</th>
<th>Credit for Orders that set a new BBO&lt;sup&gt;(c)&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tape A</td>
</tr>
<tr>
<td>BBO Setter Tier</td>
<td>Adding ADV of CADV</td>
<td>ETP ID Adding ADV of CADV</td>
</tr>
<tr>
<td></td>
<td>0.70%</td>
<td>0.20%</td>
</tr>
</tbody>
</table>

<sup>(c)</sup> This credit shall be in addition to the ETP Holder’s Tiered or Basic Rate credit(s), and for Tape B and Tape C, the credit shall be in addition to any capped credit.

## Retail Tiers

<table>
<thead>
<tr>
<th>Tier</th>
<th>Minimum Requirement of CADV</th>
<th>Rates for Retail Orders</th>
<th>Credit for Retail Adding</th>
<th>Fee for Retail Removing with a Time-in-force of Day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Retail Orders with a time-in-force of Day that add and remove that is an increase over April 2018</td>
<td>Adding ADV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail Tier 1&lt;sup&gt;(d)(e)&lt;/sup&gt;</td>
<td>0.50% or 1.00%</td>
<td>1.00%</td>
<td>($0.0038)</td>
<td>No Fee</td>
</tr>
<tr>
<td>Retail Tier 2&lt;sup&gt;(e)&lt;/sup&gt;</td>
<td>0.35%</td>
<td></td>
<td>($0.0037)</td>
<td>No Fee</td>
</tr>
<tr>
<td>Retail Tier 3&lt;sup&gt;(e)&lt;/sup&gt;</td>
<td>0.20%</td>
<td></td>
<td>($0.0036)</td>
<td>No Fee</td>
</tr>
<tr>
<td>Retail Tier 4</td>
<td>0.10%</td>
<td></td>
<td>($0.0034)</td>
<td></td>
</tr>
<tr>
<td>Retail Step-Up Tier&lt;sup&gt;(e)&lt;/sup&gt;</td>
<td>0.075%</td>
<td></td>
<td>($0.0035)</td>
<td>No Fee</td>
</tr>
</tbody>
</table>
(d) ETP Holders that qualify for Retail Tier 1 are subject to the following rates in Tape C:
- ($0.0035) for Adding displayed liquidity.
- $0.0027 for Removing.
- Additional ($0.0002) for Adding non-displayed liquidity.

(e) ETP Holders that qualify for Retail Tier 1, Retail Tier 2, Retail Tier 3 and Retail Step-Up Tier are subject to the following rates:
- No fee charged or credit paid for Retail Orders where each side of the executed order (1) shares the same MPID and (2) is a Retail Order with a time-in-force of Day.

<table>
<thead>
<tr>
<th>Tier</th>
<th>Minimum Requirement</th>
<th>Credit for MPL Adding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MPL Adding ADV</td>
<td>Tape A</td>
</tr>
<tr>
<td></td>
<td>MPL Adding ADV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increase over May 2019</td>
<td>($0.0015)</td>
</tr>
<tr>
<td>MPL Orders</td>
<td>3.0 Million</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.5 Million</td>
<td>($0.0015)</td>
</tr>
<tr>
<td>MPL Orders</td>
<td>2 Million</td>
<td>($0.0026)</td>
</tr>
<tr>
<td>Step Up Tier 1</td>
<td>1 Million</td>
<td>($0.0025)</td>
</tr>
<tr>
<td>MPL Orders</td>
<td>0.02%</td>
<td></td>
</tr>
<tr>
<td>Step Up Tier 2</td>
<td>0.05%</td>
<td>($0.0004)</td>
</tr>
<tr>
<td></td>
<td>0.10%</td>
<td>($0.0010)</td>
</tr>
<tr>
<td></td>
<td>0.15%</td>
<td>($0.0020)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier</th>
<th>Minimum CADV Requirement</th>
<th>Credit for Limit Non-Displayed Orders Adding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Limit-Non-Display and MPL Order Combined ADV Increase over July 2020</td>
<td>All Tapes</td>
</tr>
<tr>
<td>Limit Non-Display Order Step Up Tier</td>
<td>0.02%</td>
<td>($0.0004)</td>
</tr>
<tr>
<td></td>
<td>0.05%</td>
<td>($0.0010)</td>
</tr>
<tr>
<td></td>
<td>0.10%</td>
<td>($0.0015)</td>
</tr>
<tr>
<td></td>
<td>0.15%</td>
<td>($0.0020)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier</th>
<th>Minimum ADV Requirement</th>
<th>Credit for Tracking Orders that result in executions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tracking Order Tier 1</td>
<td>1 Million</td>
<td>($0.0010)</td>
</tr>
</tbody>
</table>
### Tape B Tiers

<table>
<thead>
<tr>
<th>Tier</th>
<th>Minimum Requirement for Tape B</th>
<th>Minimum Requirement for NYSE Arca Options</th>
<th>Credit for Tape B Adding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adding ADV of Tape B CADV</td>
<td>Adding Increase in Tape B of Tape B CADV</td>
<td>Market Maker Electronic Posting Volume of TCADV by OTP Holder or OTP Firm affiliated with the ETP Holder</td>
</tr>
<tr>
<td>Tier 1&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td>1.50%</td>
<td>($0.0030)</td>
<td></td>
</tr>
<tr>
<td>Tier 2&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td>1.00% or 0.25% above April 2020</td>
<td>($0.0028)</td>
<td></td>
</tr>
<tr>
<td>Tier 3&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td>0.15% above April 2020 or 0.20%</td>
<td>($0.0025)</td>
<td></td>
</tr>
<tr>
<td>Step Up</td>
<td>0.50% 20% Q3 2019</td>
<td>($0.0002)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.50% 30% Q3 2019</td>
<td>($0.0003)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.50% 40% Q3 2019</td>
<td>($0.0004)</td>
<td></td>
</tr>
</tbody>
</table>

<sup>(f)</sup> This credit shall be in addition to the ETP Holder’s Tiered or Standard credit(s) and such combined credit(s) in Tape B shall not exceed $0.0032, except that for ETP Holders registered as a Lead Market Maker or Market Maker in at least 100 Less Active ETPs in which it meets at least two Performance Metrics, where the ETP Holder, together with any affiliates, has Adding Tape B ADV that is an increase of at least 60% over the ETP Holder’s Adding ADV in Q3 2019, as a percentage of Tape B CADV, in which case the ETP Holder can receive a combined credit of up to:
• $0.0033 per share if the ETP Holder, together with any affiliates, has Tape B Adding ADV equal to at least 0.65% of Tape B CADV, or
• $0.0034 per share if the ETP Holder, together with any affiliates, has Tape B Adding ADV equal to at least 0.70% of Tape B CADV.

LMMs cannot qualify for this Tier.

<table>
<thead>
<tr>
<th>Tape C Tiers for Adding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Tier 3</td>
</tr>
<tr>
<td>Tier 2</td>
</tr>
<tr>
<td>Tier 1</td>
</tr>
</tbody>
</table>

$0.0029 fee for Removing Liquidity

VIII. Tier Rates - Round Lots and Odd Lots (Per Share Price Below $1.00)³

<table>
<thead>
<tr>
<th>Sub-Dollar Adding Step Up Tier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Requirement</td>
</tr>
<tr>
<td>Tier</td>
</tr>
<tr>
<td>Sub-Dollar Adding Step Up Tier</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

³ These fees are consistent with the limitations of Regulation NMS, SEC Rule 610(c), for securities with a price of less than $1.00. Rebates will not be paid for executions in securities priced under $1.00.
<table>
<thead>
<tr>
<th>ETP Fee</th>
<th>$15,000 per year per ETP Holder (billed monthly for each month during which the ETP is held for any portion of the month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETP Application Fees</td>
<td>Waived</td>
</tr>
<tr>
<td>Initial Processing Fee</td>
<td>Waived</td>
</tr>
<tr>
<td>Investigation Fee</td>
<td>$125 fee per individual for registration as an ETP Holder (includes any Approved Person(^4) listed on Schedule A or B of Form BD or Market Maker Authorized Trader for whom required information is not available on Web CRD ®)</td>
</tr>
</tbody>
</table>

### REGULATORY FEES

<table>
<thead>
<tr>
<th>FOCUS Filing Fee</th>
<th>$100 annual filing fee for ETP Holders for which NYSE Arca is the Designated Examining Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross FOCUS Fee: Amount per $1,000 Gross FOCUS Revenue</td>
<td>$0.075 monthly fee per firm $0.069 as of January 1, 2021</td>
</tr>
<tr>
<td>DEA Fee</td>
<td>$2,000 monthly fee per firm $250 annual fee per trader</td>
</tr>
<tr>
<td>Application Resulting in Statutory Disqualification Proceedings</td>
<td>$2,000 fee per application</td>
</tr>
</tbody>
</table>

### Late Payment of Dues, Fees, Fines and Charges

<table>
<thead>
<tr>
<th>Number of Times Late Within Previous Twelve Months</th>
<th>Amount of Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$250 or 1.0% of Invoice Amount, Whichever is Greater</td>
</tr>
<tr>
<td>2</td>
<td>$500 or 1.5% of Invoice Amount, Whichever is Greater</td>
</tr>
</tbody>
</table>

CRD Fees for ETP Holders that are not FINRA Members

<table>
<thead>
<tr>
<th>Each initial Form U4 filed for the registration of a representative or principal</th>
<th>$125</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional processing of each initial or amended Form U4, Form U5 or Form BD that includes the initial reporting, amendment, or certification of one or more disclosure events or proceedings</td>
<td>$110</td>
</tr>
</tbody>
</table>

\(^4\) As defined by NYSE Arca Rule 1.1(c).
<table>
<thead>
<tr>
<th>Description</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processing and posting to the CRD system each set of fingerprints submitted electronically to FINRA, plus any other charge that may be imposed by the U.S. Department of Justice for processing each set of fingerprints</td>
<td>$15</td>
</tr>
<tr>
<td>Processing and posting to the CRD system each set of fingerprint cards submitted in non-electronic format to FINRA, plus any other charge that may be imposed by the U.S. Department of Justice for processing each set of fingerprints</td>
<td>$30</td>
</tr>
<tr>
<td>Processing and posting to the CRD system each set of fingerprint results and identifying information that have been processed through another self-regulatory organization and submitted to FINRA</td>
<td>$30</td>
</tr>
<tr>
<td>System processing for each registered representative and principal</td>
<td>$45 annually</td>
</tr>
</tbody>
</table>

### NYSE ARCA MARKETPLACE: MARKET MAKER FEES AND CREDITS

Lead Market Maker (“LMM”) Transaction Fees and Credits

**Round Lots (Per Share Price $1.00 or Above)**

**I. Definitions for purposes of LMM Transaction Fees and Credits**

1. “**CADV**” means the consolidated average daily volume in a security in the prior month.

2. “**ETP**” means Exchange Traded Products listed on NYSE Arca.

3. “**ETP Price**” means the average Official Closing Price in that ETP in the prior month.

4. “**Less Active ETPs**” means ETPs that have a **CADV** in the prior calendar quarter that is the greater of either less than 100,000 shares or less than 0.013% of Consolidated Tape B ADV.

---

5 Market Maker fees for the NYSE Arca marketplace will not apply to MPL Orders (except MPL Orders will be eligible for transaction credit with respect to Tape A and Tape C Securities).
5. “Leveraged ETP” means an ETP that tracks an underlying index by a ratio other than on a one-to-one basis.

6. “Maximum LMM Spread” means time-weighted average LMM spread (LMM Offer minus LMM Bid) divided by the average of the LMM Bid and LMM Offer, in basis points.

7. “Minimum LMM Shares within 1% of NBBO” means the average number of LMM shares quoted throughout the trading day that are within 1% of the National Best Bid and Best Offer divided by two.

8. “Minimum LMM Shares at the Core Open Auction within 1.5% of the Auction Reference Price” means the average of LMM buy shares and LMM sell shares for Limit Orders quoted within 1.5% of the Auction Reference Price divided by two.

9. “Minimum LMM Shares at the Closing Auction within 1% of the NBBO” means the average number of LMM buy shares and LMM sell shares for Limit Orders quoted within 1% of the National Best Bid and Best Offer before the end of Core Trading Hours divided by two.

II. LMM Base Fees and Credits per Share: Base rates for LMMs in ETPs in which the LMM is registered as a LMM for the billing month, based on the ETP’s CADV in the prior month.

<table>
<thead>
<tr>
<th>ETP CADV</th>
<th>Credit for Adding Displayed Liquidity</th>
<th>Fee for Removing Liquidity</th>
<th>Credit for Adding Non-Displayed Limit Orders</th>
<th>Credit for Adding Undisplayed Liquidity in Non-Routable Limit Orders</th>
<th>Fee for Orders in the Closing Auction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1,000,000</td>
<td>($0.0045)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,000,000 to 3,000,000</td>
<td>($0.0040)</td>
<td>$0.0029</td>
<td>($0.0015)</td>
<td>($0.0030)</td>
<td>No Fee</td>
</tr>
<tr>
<td>&gt; 3,000,000</td>
<td>($0.0033)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

III. LMM Performance Metrics-based Incremental Base Credit Adjustments:
LMMs that meet the Performance Metrics in the table below are entitled to enhanced credits based on the quality of the market in an assigned ETP. The Performance Metrics that the Exchange will measure are:

(1) Maximum LMM Spread;

(2) Minimum LMM Shares within 1% of NBBO;

(3) Minimum LMM Shares in Core Open Auction within 1.5% of Auction Reference Price; and

(4) Minimum LMM Shares at the Closing Auction within 1% of the NBBO.

Each assigned ETP is grouped based on its prior month CADV and its price. An LMM is considered to have met a Performance Metric for an assigned ETP for a billing month if it meets the following:

<table>
<thead>
<tr>
<th>ETP CADV</th>
<th>ETP Price</th>
<th>Maximum LMM Spread (bps)</th>
<th>Minimum LMM Shares within 1% of NBBO</th>
<th>Minimum LMM Shares in Core Open Auction within 1.5% of Auction Reference Price</th>
<th>Minimum LMM Shares at the Closing Auction within 1% of the National BBO</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 1,000,000</td>
<td>&gt; $50</td>
<td>55</td>
<td>6,000</td>
<td>4,000</td>
<td>12,250</td>
</tr>
<tr>
<td></td>
<td>$25 - $50</td>
<td>45</td>
<td>20,000</td>
<td>8,500</td>
<td>14,250</td>
</tr>
<tr>
<td></td>
<td>Under $25</td>
<td>40</td>
<td>42,000</td>
<td>22,000</td>
<td>30,000</td>
</tr>
<tr>
<td>100,001 - 1,000,000</td>
<td>&gt; $50</td>
<td>35</td>
<td>2,500</td>
<td>2,500</td>
<td>3,250</td>
</tr>
<tr>
<td></td>
<td>$25 - $50</td>
<td>35</td>
<td>3,500</td>
<td>4,000</td>
<td>4,750</td>
</tr>
<tr>
<td></td>
<td>Under $25</td>
<td>65</td>
<td>10,000</td>
<td>5,750</td>
<td>7,250</td>
</tr>
<tr>
<td>10,000 - 100,000</td>
<td>&gt; $50</td>
<td>40</td>
<td>2,200</td>
<td>2,000</td>
<td>2,250</td>
</tr>
<tr>
<td></td>
<td>$25 - $50</td>
<td>55</td>
<td>2,400</td>
<td>2,050</td>
<td>2,500</td>
</tr>
</tbody>
</table>
The base credit earned by an LMM for Adding Displayed Liquidity (as provided in Section II above) in an assigned ETP will be adjusted based on the number of Performance Metrics met by the LMM in the billing month for each assigned ETP, as follows:

<table>
<thead>
<tr>
<th># of Performance Metrics Met</th>
<th>Incremental Base Credit Adjustment per ETP</th>
<th>Incremental Base Credit Adjustment per Leveraged ETP</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>($0.0001)</td>
<td>($0.0001)</td>
</tr>
<tr>
<td>3</td>
<td>($0.00005)</td>
<td>($0.00005)</td>
</tr>
<tr>
<td>2</td>
<td>$0.0000</td>
<td>$0.0000</td>
</tr>
<tr>
<td>1</td>
<td>$0.0001</td>
<td>$0.0000</td>
</tr>
<tr>
<td>0</td>
<td>$0.0002</td>
<td>$0.0000</td>
</tr>
</tbody>
</table>

IV. Additional Tape B Credits for LMMs and Market Makers

LMMs may earn an additional credit on all Tape B Securities if the LMM meets at least two Performance Metrics in each of the Less Active ETPs in which the LMM is registered as the LMM. As set forth in the table below, the additional credit available for Tape B Securities is based on the number of Less Active ETPs assigned to an LMM.

The number of Less Active ETPs for a billing month will be calculated as the average number of Less Active ETPs in which an LMM is registered on the first and last business day of the previous month.

To determine which Less Active ETP Tier will be applicable to an LMM, the Exchange will count the number of Less Active ETPs assigned to that LMM as follows:

- Each Less Active ETP in which an LMM is registered and meets at least two Performance Metrics will count as one Less Active ETP. Each Less Active ETP that is a Leveraged ETP in which an LMM is registered will count as one Less Active ETP regardless of the number of Performance Metrics met.
An ETP Holder registered as a Market Maker is also eligible to earn this additional credit on all Tape B securities if:

- The Market Maker notifies the Exchange on or before the first trading day that the additional credit is available in a calendar month of which new Less Active ETPs for which the Market Maker is registered that it is seeking to count towards or remove from qualifying for this additional credit in that month.
- The Market Maker cannot also be the registered LMM in a Less Active ETP that it is seeking to count to qualify for the additional credit as a Market Maker.
- Every two Less Active ETPs that a Market Maker identifies and meets at least two Performance Metrics will count as one Less Active ETP for purposes of determining the applicable additional credit.
- If an ETP Holder is both an LMM and a Market Maker in Less Active ETPs and has notified the Exchange of Less Active ETPs that it seeking to count for the additional credit as a Market Maker, the number of Less Active ETPs calculated for the Market Maker above will be combined with the number of Less Active ETPs in which the LMM is registered.

<table>
<thead>
<tr>
<th>Less Active ETP Tiers</th>
<th># of Less Active ETPs per LMM/Market Maker</th>
<th>Additional Credit on all Tape B Securities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 5</td>
<td>50 - 74 ETPs</td>
<td>($0.00005)</td>
</tr>
<tr>
<td>Tier 4</td>
<td>75 – 99 ETPs</td>
<td>($0.0001)</td>
</tr>
<tr>
<td>Tier 3</td>
<td>100 – 199 ETPs</td>
<td>($0.0002)</td>
</tr>
<tr>
<td>Tier 2</td>
<td>200 - 399 ETPs, or 200 - 299 ETPs if the LMM or Market Maker and its affiliates add liquidity of at least 1.00% of US CADV</td>
<td>($0.0003)</td>
</tr>
<tr>
<td>Tier 1</td>
<td>At Least 400 ETPs, or at least 300 ETPs if the LMM or Market Maker and its affiliates add liquidity of at least 1.00% of US CADV</td>
<td>($0.0004)</td>
</tr>
<tr>
<td>Retail Liquidity Provider (“RLP”) or Non-RLP Retail Price Improvement Order (“RPI”) that executes against a Retail Member Organization (“RMO”) Retail Order:</td>
<td>Tape B and Tape C Securities: $0.0003 credit.</td>
<td></td>
</tr>
<tr>
<td>Other non-displayed liquidity and displayable odd lot interest priced better than the best protected bid (“PBB”) or the best protected offer (“PBO”) (together, the “PBBO”) (“other price-improving interest”) that executes against an RMO Retail Order:</td>
<td>Tape B and Tape C Securities: Tiered or Basic Rates apply based on a firm’s qualifying levels.</td>
<td></td>
</tr>
<tr>
<td>RMO Retail Order that executes against an RLP or Non-RLP RPI or against other price-improving interest:</td>
<td>Tape B and Tape C Securities: No fee or credit applies.</td>
<td></td>
</tr>
</tbody>
</table>

### NYSE ARCA MARKETPLACE: OTHER FEES AND CHARGES

#### Connectivity Fees

<table>
<thead>
<tr>
<th>Line Connection</th>
<th>(Variable pass-through charge for each line installation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Fee (not applicable to ports used for Risk Management Gateway (“RMG”SM), which are not charged)</td>
<td>$550 per port per month, except that no fee shall apply to ports in the backup datacenter that are not utilized during the relevant month, and no fee shall apply to ports in the backup datacenter that are utilized when the primary datacenter is unavailable. If a port in the backup datacenter is utilized when the primary datacenter is available, then the fee shall apply. Effective October 1, 2017, the monthly fee for a port activated after August 18, 2017, will be prorated to the number of trading days in such billing month, including any scheduled early closing days, that the port is connected to the Exchange.</td>
</tr>
</tbody>
</table>
Ports for drop copies:

$550 per port per month (only one fee per drop copy port shall apply, even if receiving drop copies from multiple order/quote entry ports and/or from NYSE Arca Options), except that no fee shall apply to ports in the backup datacenter if configured such that it is duplicative of another drop copy port of the same user. Effective October 1, 2017, the monthly fee for a port activated after August 18, 2017, will be prorated to the number of trading days in such billing month, including any scheduled early closing days, that the port is connected to the Exchange.

<table>
<thead>
<tr>
<th>Risk Management Gateway:</th>
<th>Amount of Charge:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Connections (Monthly):</td>
<td>$3,000.00</td>
</tr>
<tr>
<td>First Connection (up to 1000 messages per second)</td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Every additional Connection (up to 1000 messages per second)</td>
<td></td>
</tr>
</tbody>
</table>

**RATIO THRESHOLD FEES**

*Ratio Threshold for Priority 2 - Display Orders ("RT - Display Fee")*

For orders ranked Priority 2 - Display Orders, ETP Holders are charged an RT - Display Fee on a monthly basis. For purposes of determining the RT - Display Fee:

- The “Weighted Order Total” is the total number of orders ranked Priority 2 - Display Orders entered by that ETP Holder in a month, as adjusted by a “Weighting Factor.” The Weighted Order Total calculation excludes (i) all orders in securities in which an ETP Holder is registered as a Market Maker or Lead Market Maker and (ii) all orders for an ETP Holder that is registered as a Market Maker or Lead Market Maker in 100 or more securities.

- The “Weighting Factor” applied to each order based on its price in comparison to the national best bid or best offer ("NBBO") at the time of order entry is:

<table>
<thead>
<tr>
<th>Order’s Price versus NBBO at Entry</th>
<th>Weighting Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 0.20% away</td>
<td>0x</td>
</tr>
<tr>
<td>0.20% to 0.99% away</td>
<td>1x</td>
</tr>
<tr>
<td>1.00% to 1.99% away</td>
<td>2x</td>
</tr>
<tr>
<td>2.00% or more away</td>
<td>3x</td>
</tr>
</tbody>
</table>
For example, an order more than 2.0% away from the NBBO would be equivalent to three orders. Due to the applicable Weighting Factor of 0x, orders entered less than 0.20% away from the NBBO would not be included in the Weighted Order Total, but would be included in the “executed” orders component of the Order Entry Ratio if they execute in full or part.

- The “Order Entry Ratio” is calculated by dividing the ETP Holder’s Weighted Order Total by the greater of (i) the number of orders ranked Priority 2 - Display Orders that execute in full or in part, or (ii) the number one (1).

- “Excess Weighted Orders” are calculated by subtracting (i) the Weighted Order Total that would result in the ETP Holder having an Order Entry Ratio of 100 from (ii) the ETP Holder’s actual Weighted Order Total.

An ETP Holder with a daily average Weighted Order Total of 100,000 or more during a month will be charged the RT - Display Fee, which is calculated by multiplying the Applicable Rate in the chart below by the number of Excess Weighted Orders.

ETP Holders that exceed the Order Entry Ratio threshold of 1,000:1 will pay a fee of $0.01 on each order that caused the ETP Holder to surpass the threshold.

ETP Holders that exceed the Order Entry Ratio threshold of 100:1 but less than 1,000:1 will pay a fee of $0.005 on all orders that caused ETP Holder's ratio to exceed 100:1.

<table>
<thead>
<tr>
<th>Order Entry Ratio</th>
<th>Applicable Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-100</td>
<td>$0.00</td>
</tr>
<tr>
<td>101 - 1,000</td>
<td>$0.005</td>
</tr>
<tr>
<td>More than 1,000</td>
<td>$0.01</td>
</tr>
</tbody>
</table>

**Ratio Threshold for Auction-Only Orders During the Period When Auction Imbalance Information is Being Disseminated for a Core Open Auction or Closing Auction (“RT - Auction Fee”)**

For Auction-Only Orders, ETP Holders with an average daily number of orders of 10,000 or more are charged an RT - Auction Fee on a monthly basis, as described below:

- The number of “Ratio Shares” is the average daily number of shares of Auction-Only Orders that are cancelled by the ETP Holder at a disproportionate ratio to the average daily number of shares executed by that ETP Holder. Orders ranked Priority 2 - Display Orders designated for the Core Trading Session only that are entered during the period when Auction Imbalance Information for the Core Open Auction is being disseminated are included in the Ratio Shares calculation. All orders entered by an ETP Holder for
securities in which it is registered as a Lead Market Maker are not included the calculation of Ratio Shares.

- The “Ratio Shares Threshold” is an ETP Holder’s Ratio Shares divided by the average daily executed shares by the ETP Holder.

<table>
<thead>
<tr>
<th>A Ratio Shares Threshold less than 50</th>
<th>No Charge</th>
</tr>
</thead>
</table>
| A Ratio Shares Threshold greater than or equal to 50 | ETP Holders with an average of fewer than 20 million Ratio Shares per day:  
  - No Charge  
  ETP Holders with an average of 20 million to 200 million Ratio Shares per day:  
  - $1.00 per million Ratio Shares  
  ETP Holders with an average of more than 200 million Ratio Shares per day:  
  - $10.00 per million Ratio Share |

ETP Holders will be charged for the entirety of their Ratio Shares at a rate of $1.00 per million Ratio Shares if the ETP Holder has an average of 20 million to 200 million Ratio Shares; and $10.00 per million Ratio Shares if the ETP Holder has an average of more than 200 million Ratio Shares.

The combined RT - Display Fee and RT - Auction Fee for an ETP Holder is capped at $2,000,000 per month.
I. BILLING DISPUTES

All fee disputes concerning fees billed by the Exchange must be submitted to the Exchange in writing and must be accompanied by supporting documentation. All fee disputes must be submitted no later than sixty (60) days after receipt of a billing invoice.

II. Aggregate Billing of Affiliated ETP Holders

(a) For purposes of applying any provision of the Schedule of Fees and Charges for Exchange Services ("Schedule of Fees") where the charge assessed, or credit provided, by the Exchange depends upon the volume of a ETP Holder's activity, a ETP Holder may request that the Exchange aggregate its eligible activity with the eligible activity of its affiliate(s).

(1) A ETP Holder requesting aggregation of eligible affiliate activity shall be required to certify to the Exchange which affiliate it seeks to aggregate prior to receiving approval for aggregation, and shall be required to inform the Exchange immediately of any event that causes an entity to cease to be an affiliate. The Exchange shall review available information regarding the entities and reserves the right to request additional information to verify the affiliate status of an entity. The Exchange shall approve a request, unless it determines that the certificate is not accurate.

(2) If two or more ETP Holders become affiliated on or prior to the sixteenth day of a month, and submit the required request for aggregation on or prior to the twenty-second day of the month, an approval of the request by the Exchange shall be deemed to be effective as of the first day of that month. If two or more members become affiliated after the sixteenth day of a month, or submit a request for aggregation after the twenty-second day of the month, an approval of the request by the Exchange shall be deemed to be effective as of the first day of the next calendar month.

(b) For purposes of applying any provision of the Schedule of Fees where the charge assessed, or credit provided, by the Exchange depends upon the volume of a ETP Holder's activity, references to an entity (excluding references to DMMs and where otherwise not permitted on the Price List) shall be deemed to include the entity and its affiliate(s) that have been approved for aggregation.

(c) For purposes of this Schedule of Fees, the term “affiliate” shall mean any ETP Holder under 75% common ownership or control of that ETP Holder.