**ANDREW MADAR**
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November 6, 2017

Brent J. Fields
Secretary
U.S. Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-1090

Re: Amendment No. 1 (SR-NASDAQ-2017-046)

Dear Mr. Fields:

The Nasdaq Stock Market LLC filed the above-referenced filing on November 6, 2017.

Sincerely,

Andrew Madar

Andrew Madar
Senior Associate General Counsel

| OMB APPROVAL |
| --- |
| OMB Number: 3235-0045<br>Estimated average burden hours per response.....38 |

*Required fields are shown with yellow backgrounds and asterisks.*

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SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
Form 19b-4

File No.* SR - 2017 - * 046
Amendment No. (req. for Amendments *) 1

Filing by The Nasdaq Stock Market LLC

Pursuant to Rule 19b-4 under the Securities Exchange Act of 1934

| Initial * | Amendment * | Withdrawal | Section 19(b)(2) * | Section 19(b)(3)(A) * | Section 19(b)(3)(B) * |
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| ☐ | ☑ | ☐ | ☐ | ☑ | ☐ |

Pilot ☐

Extension of Time Period for Commission Action * ☐

Date Expires *

Rule

☐ 19b-4(f)(1) ☐ 19b-4(f)(4)
☑ 19b-4(f)(2) ☐ 19b-4(f)(5)
☐ 19b-4(f)(3) ☐ 19b-4(f)(6)

Notice of proposed change pursuant to the Payment, Clearing, and Settlement Act of 2010

Section 806(e)(1) * ☐

Section 806(e)(2) * ☐

Security-Based Swap Submission pursuant to the Securities Exchange Act of 1934

Section 3C(b)(2) * ☐

Exhibit 2 Sent As Paper Document

Exhibit 3 Sent As Paper Document

**Description**

Provide a brief description of the action (limit 250 characters, required when Initial is checked *).

Proposal to amend the Exchange transaction fees at Rule 7004 and Chapter XV, Section 14 to adopt a fee schedule to establish the fees for Industry Members related to the National Market System Plan Governing the Consolidated Audit Trail.

**Contact Information**

Provide the name, telephone number, and e-mail address of the person on the staff of the self-regulatory organization prepared to respond to questions and comments on the action.

First Name * Andrew Last Name * Madar

Title * Senior Associate General Counsel

E-mail * [redacted]

Telephone * [redacted] Fax

**Signature**

Pursuant to the requirements of the Securities Exchange Act of 1934,

has duly caused this filing to be signed on its behalf by the undersigned thereunto duly authorized.

Date 11/06/2017

By Edward S. Knight

(Name *)

(Title *)

Executive Vice President and General Counsel

NOTE: Clicking the button at right will digitally sign and lock this form. A digital signature is as legally binding as a physical signature, and once signed, this form cannot be changed.

[redacted]

*Required fields are shown with yellow backgrounds and asterisks.*

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

For complete Form 19b-4 instructions please refer to the EFFS website.

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|---|---|
| **Form 19b-4 Information ***<br>Add Remove View | The self-regulatory organization must provide all required information, presented in a clear and comprehensible manner, to enable the public to provide meaningful comment on the proposal and for the Commission to determine whether the proposal is consistent with the Act and applicable rules and regulations under the Act. |
| **Exhibit 1 - Notice of Proposed Rule Change ***<br>Add Remove View | The Notice section of this Form 19b-4 must comply with the guidelines for publication in the Federal Register as well as any requirements for electronic filing as published by the Commission (if applicable). The Office of the Federal Register (OFR) offers guidance on Federal Register publication requirements in the Federal Register Document Drafting Handbook, October 1998 Revision. For example, all references to the federal securities laws must include the corresponding cite to the United States Code in a footnote. All references to SEC rules must include the corresponding cite to the Code of Federal Regulations in a footnote. All references to Securities Exchange Act Releases must include the release number, release date, Federal Register cite, Federal Register date, and corresponding file number (e.g., SR-[SRO] -xx-xx). A material failure to comply with these guidelines will result in the proposed rule change being deemed not properly filed. See also Rule 0-3 under the Act (17 CFR 240.0-3) |
| **Exhibit 1A- Notice of Proposed Rule Change, Security-Based Swap Submission, or Advance Notice by Clearing Agencies ***<br>Add Remove View | The Notice section of this Form 19b-4 must comply with the guidelines for publication in the Federal Register as well as any requirements for electronic filing as published by the Commission (if applicable). The Office of the Federal Register (OFR) offers guidance on Federal Register publication requirements in the Federal Register Document Drafting Handbook, October 1998 Revision. For example, all references to the federal securities laws must include the corresponding cite to the United States Code in a footnote. All references to SEC rules must include the corresponding cite to the Code of Federal Regulations in a footnote. All references to Securities Exchange Act Releases must include the release number, release date, Federal Register cite, Federal Register date, and corresponding file number (e.g., SR-[SRO] -xx-xx). A material failure to comply with these guidelines will result in the proposed rule change, security-based swap submission, or advance notice being deemed not properly filed. See also Rule 0-3 under the Act (17 CFR 240.0-3) |
| **Exhibit 2 - Notices, Written Comments, Transcripts, Other Communications**<br>Add Remove View<br>Exhibit Sent As Paper Document<br>☐ | Copies of notices, written comments, transcripts, other communications. If such documents cannot be filed electronically in accordance with Instruction F, they shall be filed in accordance with Instruction G. |
| **Exhibit 3 - Form, Report, or Questionnaire**<br>Add Remove View<br>Exhibit Sent As Paper Document<br>☐ | Copies of any form, report, or questionnaire that the self-regulatory organization proposes to use to help implement or operate the proposed rule change, or that is referred to by the proposed rule change. |
| **Exhibit 4 - Marked Copies**<br>Add Remove View | The full text shall be marked, in any convenient manner, to indicate additions to and deletions from the immediately preceding filing. The purpose of Exhibit 4 is to permit the staff to identify immediately the changes made from the text of the rule with which it has been working. |
| **Exhibit 5 - Proposed Rule Text**<br>Add Remove View | The self-regulatory organization may choose to attach as Exhibit 5 proposed changes to rule text in place of providing it in Item I and which may otherwise be more easily readable if provided separately from Form 19b-4. Exhibit 5 shall be considered part of the proposed rule change. |
| **Partial Amendment**<br>Add Remove View | If the self-regulatory organization is amending only part of the text of a lengthy proposed rule change, it may, with the Commission's permission, file only those portions of the text of the proposed rule change in which changes are being made if the filing (i.e. partial amendment) is clearly understandable on its face. Such partial amendment shall be clearly identified and marked to show deletions and additions. |

1. Text of the Proposed Rule Change

(a) On May 2, 2017, The Nasdaq Stock Market LLC ("Nasdaq" or "Exchange"), filed with the Securities and Exchange Commission ("Commission" or "SEC") proposed rule change SR-NASDAQ-2017-046 (the "Original Proposal"), pursuant to which the Exchange proposed to adopt a fee schedule to establish the fees for Industry Members related to the National Market System Plan Governing the Consolidated Audit Trail (the "CAT NMS Plan" or "Plan").[1] The Exchange is filing this proposed rule change (the "Amendment") to amend the Original Proposal. This Amendment replaces the Original Proposal in its entirety, and also describes the changes from the Original Proposal.

With this Amendment, the Exchange is including Exhibit 4, which reflects the changes to the text of the proposed rule change as set forth in the Original Proposal, and Exhibit 5, which reflects all proposed changes to the Exchange's current rule text.

(b) Not applicable.

(c) Not applicable.

2. Procedures of the Self-Regulatory Organization

The proposed rule change was approved by senior management of the Exchange pursuant to authority delegated by the Board of Directors (the "Board") on September 19, 2017. Exchange staff will advise the Board of any action taken pursuant to delegated authority. No other action is necessary for the filing of the rule change.

Questions and comments on the proposed rule change may be directed to:

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[1] Unless otherwise specified, capitalized terms used in this fee filing are defined as set forth herein, the CAT Compliance Rule Series, in the CAT NMS Plan, or the Original Proposal.

Andrew Madar
Senior Associate General Counsel
Nasdaq, Inc.
[redacted]

3. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

a. Purpose

BOX Options Exchange LLC, Cboe BYX Exchange, Inc., Cboe BZX Exchange, Inc., Cboe EDGA Exchange, Inc., Cboe EDGX Exchange, Inc., Cboe C2 Exchange, Inc., Cboe Exchange, Inc.,[2] Chicago Stock Exchange, Inc., Financial Industry Regulatory Authority, Inc. ("FINRA"), Investors' Exchange LLC, Miami International Securities Exchange, LLC, MIAX PEARL, LLC, Nasdaq BX, Inc., Nasdaq GEMX, LLC, Nasdaq ISE, LLC, Nasdaq MRX, LLC,[3] Nasdaq PHLX LLC, The Nasdaq Stock Market LLC, New York Stock Exchange LLC, NYSE American LLC,[4] NYSE Arca, Inc. and NYSE National, Inc.[5] (collectively, the "Participants") filed with the Commission, pursuant to

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2 Note that Bats BYX Exchange, Inc., Bats BZX Exchange, Inc., Bats EDGA Exchange, Inc., Bats EDGX Exchange, Inc., LLC, C2 Options Exchange, Incorporated, and Chicago Board Options Exchange, Incorporated, have been renamed Cboe BYX Exchange, Inc., Cboe BZX Exchange, Inc., Cboe EDGA Exchange, Inc., Cboe EDGX Exchange, Inc., Cboe C2 Exchange, Inc., Cboe Exchange, Inc., respectively.

3 ISE Gemini, LLC, ISE Mercury, LLC and International Securities Exchange, LLC have been renamed Nasdaq GEMX, LLC, Nasdaq MRX, LLC, and Nasdaq ISE, LLC, respectively. See Securities Exchange Act Release No. 80248 (March 15, 2017), 82 FR 14547 (March 21, 2017); Securities Exchange Act Release No. 80326 (March 29, 2017), 82 FR 16460 (April 4, 2017); and Securities Exchange Act Release No. 80325 (March 29, 2017), 82 FR 16445 (April 4, 2017).

4 NYSE MKT LLC has been renamed NYSE American LLC. See Securities Exchange Act Release No. 80283 (March 21, 2017), 82 FR 15244 (March 27, 2017).

5 National Stock Exchange, Inc. has been renamed NYSE National, Inc. See Securities Exchange Act Release No. 79902 (January 30, 2017), 82 FR 9258 (February 3, 2017).

Section 11A of the Exchange Act[6] and Rule 608 of Regulation NMS thereunder,[7] the CAT NMS Plan.[8] The Participants filed the Plan to comply with Rule 613 of Regulation NMS under the Exchange Act. The Plan was published for comment in the Federal Register on May 17, 2016,[9] and approved by the Commission, as modified, on November 15, 2016.[10] The Plan is designed to create, implement and maintain a consolidated audit trail ("CAT") that would capture customer and order event information for orders in NMS Securities and OTC Equity Securities, across all markets, from the time of order inception through routing, cancellation, modification, or execution in a single consolidated data source. The Plan accomplishes this by creating CAT NMS, LLC (the "Company"), of which each Participant is a member, to operate the CAT.[11] Under the CAT NMS Plan, the Operating Committee of the Company ("Operating Committee") has discretion to establish funding for the Company to operate the CAT, including establishing fees that the Participants will pay, and establishing fees for Industry Members that will be implemented by the Participants ("CAT Fees").[12] The Participants are required to file with the SEC under Section 19(b) of the Exchange Act any such CAT

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6 15 U.S.C. 78k-1.

7 17 CFR 242.608.

8 See Letter from the Participants to Brent J. Fields, Secretary, Commission, dated September 30, 2014; and Letter from Participants to Brent J. Fields, Secretary, Commission, dated February 27, 2015. On December 24, 2015, the Participants submitted an amendment to the CAT NMS Plan. See Letter from Participants to Brent J. Fields, Secretary, Commission, dated December 23, 2015.

9 Securities Exchange Act Release No. 77724 (April 27, 2016), 81 FR 30614 (May 17, 2016).

10 Securities Exchange Act Release No. 79318 (November 15, 2016), 81 FR 84696 (November 23, 2016) ("Approval Order").

11 The Plan also serves as the limited liability company agreement for the Company.

12 Section 11.1(b) of the CAT NMS Plan.

Fees applicable to Industry Members that the Operating Committee approves.[13] Accordingly, the Exchange submitted the Original Proposal to propose the Consolidated Audit Trail Funding Fees, which would require Industry Members that are SRO members to pay the CAT Fees determined by the Operating Committee.

The Commission published the Original Proposal for public comment in the Federal Register on May 24, 2017,[14] and received comments in response to the Original Proposal or similar fee filings by other Participants.[15] On June 30, 2017, the Commission suspended, and instituted proceedings to determine whether to approve or disapprove, the Original Proposal.[16] The Commission received seven comment letters in response to those proceedings.[17]

In response to the comments on the Original Proposal, the Operating Committee determined to make the following changes to the funding model: (1) adds two additional

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13 Id.

14 See Securities Exchange Act Release No. 80696 (May 16, 2017), 82 FR 23439 (May 22, 2017) (SR-NASDAQ-2017-046).

15 For a summary of comments, see generally Securities Exchange Act Release No. 81067 (June 30, 2017), 82 FR 31656 (July 7, 2017) ("Suspension Order").

16 Suspension Order.

17 See Letter from Stuart J. Kaswell, Executive Vice President, Managing Director and General Counsel, Managed Funds Association, to Brent J. Fields, Secretary, SEC (July 28, 2017) ("MFA Letter"); Letter from Theodore R. Lazo, Managing Director and Associate General Counsel, SIFMA, to Brent J. Fields, Secretary, SEC (July 28, 2017) ("SIFMA Letter"); Joanna Mallers, Secretary, FIA Principal Traders Group, to Brent J. Fields, Secretary, SEC (July 28, 2017) ("FIA Principal Traders Group Letter"); Letter from Kevin Coleman, General Counsel & Chief Compliance Officer, Belvedere Trading LLC, to Brent J. Fields, Secretary, SEC (July 28, 2017) ("Belvedere Letter"); Letter from W. Hardy Callcott, Sidley Austin LLP, to Brent J. Fields, Secretary, SEC (July 27, 2017) ("Sidley Letter"); Letter from John Kinahan, Chief Executive Officer, Group One Trading, L.P., to Brent J. Fields, Secretary, SEC (Aug. 10, 2017) ("Group One Letter"); and Letter from Joseph Molluso, Executive Vice President, Virtu Financial, to Brent J. Fields, Secretary, SEC (Aug. 18, 2017) ("Virtu Financial Letter").

CAT Fee tiers for Equity Execution Venues; (2) discounts the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA over-the-counter reporting facility ("ORF") by the average shares per trade ratio between NMS Stocks and OTC Equity Securities (calculated as 0.17% based on available data from the second quarter of 2017) when calculating the market share of Execution Venue ATS exclusively trading OTC Equity Securities and FINRA; (3) discounts the Options Market Maker quotes by the trade to quote ratio for options (calculated as 0.01% based on available data for June 2016 through June 2017) when calculating message traffic for Options Market Makers; (4) discounts equity market maker quotes by the trade to quote ratio for equities (calculated as 5.43% based on available data for June 2016 through June 2017) when calculating message traffic for equity market makers; (5) decreases the number of tiers for Industry Members (other than the Execution Venue ATSs) from nine to seven; (6) changes the allocation of CAT costs between Equity Execution Venues and Options Execution Venues from 75%/25% to 67%/33%; (7) adjusts tier percentages and recovery allocations for Equity Execution Venues, Options Execution Venues and Industry Members (other than Execution Venue ATSs); (8) focuses the comparability of CAT Fees on the individual entity level, rather than primarily on the comparability of affiliated entities; (9) commences invoicing of CAT Reporters as promptly as possible following the latest of the operative date of the Consolidated Audit Trail Funding Fees for each of the Participants and the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants; and (10) requires the proposed fees to automatically expire two years from the operative date of the CAT

NMS Plan amendment adopting CAT Fees for Participants. As discussed in detail below, the Exchange proposes to amend the Original Proposal to reflect these changes.[18]

**(1) Executive Summary**

The following provides an executive summary of the CAT funding model approved by the Operating Committee, as well as Industry Members' rights and obligations related to the payment of CAT Fees calculated pursuant to the CAT funding model, as amended by this Amendment. A detailed description of the CAT funding model and the CAT Fees, as amended by this Amendment, as well as the changes made to the Original Proposal follows this executive summary.

**(A) CAT Funding Model**

- CAT Costs. The CAT funding model is designed to establish CAT-specific fees to collectively recover the costs of building and operating the CAT from all CAT Reporters, including Industry Members and Participants. The overall CAT costs used in calculating the CAT Fees in this fee filing are comprised of Plan Processor CAT costs and non-Plan Processor CAT costs incurred, and estimated to be incurred, from November 21, 2016 through November 21, 2017. Although the CAT costs from November 21, 2016 through November 21, 2017 were used in calculating the CAT Fees, the CAT Fees set forth in this fee filing would be in effect until the automatic sunset date, as discussed below. (See Section 3(a)(2)(E) below)
- Bifurcated Funding Model. The CAT NMS Plan requires a bifurcated funding model, where costs associated with building and operating the CAT would be

[18] As part of this proposal, the Exchange is also changing the numbering of the proposed fees from Item IV to Item V in the Schedule of Fees.

borne by (1) Participants and Industry Members that are Execution Venues for Eligible Securities through fixed tier fees based on market share, and (2) Industry Members (other than alternative trading systems ("ATSs") that execute transactions in Eligible Securities ("Execution Venue ATSs")) through fixed tier fees based on message traffic for Eligible Securities. (See Section 3(a)(2) below)

- Industry Member Fees. Each Industry Member (other than Execution Venue ATSs) will be placed into one of seven tiers of fixed fees, based on "message traffic" in Eligible Securities for a defined period (as discussed below). Prior to the start of CAT reporting, "message traffic" will be comprised of historical equity and equity options orders, cancels, quotes and executions provided by each exchange and FINRA over the previous three months. After an Industry Member begins reporting to the CAT, "message traffic" will be calculated based on the Industry Member's Reportable Events reported to the CAT. Industry Members with lower levels of message traffic will pay a lower fee and Industry Members with higher levels of message traffic will pay a higher fee. To avoid disincentives to quoting behavior, Options Market Maker and equity market maker quotes will be discounted when calculating message traffic. (See Section 3(a)(2)(B) below)
- Execution Venue Fees. Each Equity Execution Venue will be placed in one of four tiers of fixed fees based on market share, and each Options Execution Venue will be placed in one of two tiers of fixed fees based on market share. Equity Execution Venue market share will be determined by calculating each Equity Execution Venue's proportion of the total volume of NMS Stock and OTC Equity shares reported by all Equity Execution Venues during the relevant time period.

For purposes of calculating market share, the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF will be discounted. Similarly, market share for Options Execution Venues will be determined by calculating each Options Execution Venue's proportion of the total volume of Listed Options contracts reported by all Options Execution Venues during the relevant time period. Equity Execution Venues with a larger market share will pay a larger CAT Fee than Equity Execution Venues with a smaller market share. Similarly, Options Execution Venues with a larger market share will pay a larger CAT Fee than Options Execution Venues with a smaller market share. (See Section 3(a)(2)(C) below)

- Cost Allocation. For the reasons discussed below, in designing the model, the Operating Committee determined that 75 percent of total costs recovered would be allocated to Industry Members (other than Execution Venue ATSs) and 25 percent would be allocated to Execution Venues. In addition, the Operating Committee determined to allocate 67 percent of Execution Venue costs recovered to Equity Execution Venues and 33 percent to Options Execution Venues. (See Section 3(a)(2)(D) below)
- Comparability of Fees. The CAT funding model charges CAT Reporters with the most CAT-related activity (measured by market share and/or message traffic, as applicable) comparable CAT Fees. (See Section 3(a)(2)(F) below)

**(B) CAT Fees for Industry Members**

- Fee Schedule. The quarterly CAT Fees for each tier for Industry Members are set forth in the two fee schedules in the Consolidated Audit Trail Funding Fees, one

for Equity ATSs and one for Industry Members other than Equity ATSs. (See Section 3(a)(3)(B) below)

- Quarterly Invoices. Industry Members will be billed quarterly for CAT Fees, with the invoices payable within 30 days. The quarterly invoices will identify within which tier the Industry Member falls. (See Section 3(a)(3)(C) below)
- Centralized Payment. Each Industry Member will receive from the Company one invoice for its applicable CAT Fees, not separate invoices from each Participant of which it is a member. Each Industry Member will pay its CAT Fees to the Company via the centralized system for the collection of CAT Fees established by the Operating Committee. (See Section 3(a)(3)(C) below)
- Billing Commencement. Industry Members will begin to receive invoices for CAT Fees as promptly as possible following the latest of the operative date of the Consolidated Audit Trail Funding Fees for each of the Participants and the operative date of the Plan amendment adopting CAT Fees for Participants. (See Section 3(a)(2)(G) below)
- Sunset Provision. The Consolidated Audit Trail Funding Fees will sunset automatically two years from the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants. (See Section 3(a)(2)(J) below)

**(2) Description of the CAT Funding Model**

Article XI of the CAT NMS Plan requires the Operating Committee to approve the operating budget, including projected costs of developing and operating the CAT for the upcoming year. In addition to a budget, Article XI of the CAT NMS Plan provides that the Operating Committee has discretion to establish funding for the Company,

consistent with a bifurcated funding model, where costs associated with building and operating the Central Repository would be borne by (1) Participants and Industry Members that are Execution Venues through fixed tier fees based on market share, and (2) Industry Members (other than Execution Venue ATSs) through fixed tier fees based on message traffic. In its order approving the CAT NMS Plan, the Commission determined that the proposed funding model was "reasonable"[19] and "reflects a reasonable exercise of the Participants' funding authority to recover the Participants' costs related to the CAT."[20]

More specifically, the Commission stated in approving the CAT NMS Plan that "[t]he Commission believes that the proposed funding model is reasonably designed to allocate the costs of the CAT between the Participants and Industry Members."[21] The Commission further noted the following:

> The Commission believes that the proposed funding model reflects a reasonable exercise of the Participants' funding authority to recover the Participants' costs related to the CAT. The CAT is a regulatory facility jointly owned by the Participants and . . . the Exchange Act specifically permits the Participants to charge their members fees to fund their self-regulatory obligations. The Commission further believes that the proposed funding model is designed to impose fees reasonably related to the Participants' self-regulatory obligations

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19 Approval Order at 84796.

20 Id. at 84794.

21 Id. at 84795.

> because the fees would be directly associated with the costs of establishing and maintaining the CAT, and not unrelated SRO services.[22]

Accordingly, the funding model approved by the Operating Committee imposes fees on both Participants and Industry Members.

As discussed in Appendix C of the CAT NMS Plan, in developing and approving the approved funding model, the Operating Committee considered the advantages and disadvantages of a variety of alternative funding and cost allocation models before selecting the proposed model.[23] After analyzing the various alternatives, the Operating Committee determined that the proposed tiered, fixed fee funding model provides a variety of advantages in comparison to the alternatives.

In particular, the fixed fee model, as opposed to a variable fee model, provides transparency, ease of calculation, ease of billing and other administrative functions, and predictability of a fixed fee. Such factors are crucial to estimating a reliable revenue stream for the Company and for permitting CAT Reporters to reasonably predict their payment obligations for budgeting purposes. Additionally, a strictly variable or metered funding model based on message volume would be far more likely to affect market behavior and place an inappropriate burden on competition.

In addition, reviews from varying time periods of current broker-dealer order and trading data submitted under existing reporting requirements showed a wide range in activity among broker-dealers, with a number of broker-dealers submitting fewer than 1,000 orders per month and other broker-dealers submitting millions and even billions of orders in the same period. Accordingly, the CAT NMS Plan includes a tiered approach

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22 Id. at 84794.

23 Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85006.

to fees. The tiered approach helps ensure that fees are equitably allocated among similarly situated CAT Reporters and furthers the goal of lessening the impact on smaller firms.[24] In addition, in choosing a tiered fee structure, the Operating Committee concluded that the variety of benefits offered by a tiered fee structure, discussed above, outweighed the fact that CAT Reporters in any particular tier would pay different rates per message traffic order event or per market share (*e.g.*, an Industry Member with the largest amount of message traffic in one tier would pay a smaller amount per order event than an Industry Member in the same tier with the least amount of message traffic). Such variation is the natural result of a tiered fee structure.[25] The Operating Committee considered several approaches to developing a tiered model, including defining fee tiers based on such factors as size of firm, message traffic or trading dollar volume. After analyzing the alternatives, it was concluded that the tiering should be based on message traffic which will reflect the relative impact of CAT Reporters on the CAT System.

Accordingly, the CAT NMS Plan contemplates that costs will be allocated across the CAT Reporters on a tiered basis in order to allocate higher costs to those CAT Reporters that contribute more to the costs of creating, implementing and maintaining the CAT and lower costs to those that contribute less.[26] The fees to be assessed at each tier are calculated so as to recoup a proportion of costs appropriate to the message traffic or market share (as applicable) from CAT Reporters in each tier. Therefore, Industry Members generating the most message traffic will be in the higher tiers, and will be

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24 Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85006.

25 Moreover, as the SEC noted in approving the CAT NMS Plan, "[t]he Participants also have offered a reasonable basis for establishing a funding model based on broad tiers, in that it may be easier to implement." Approval Order at 84796.

26 Approval Order at 85005.

charged a higher fee. Industry Members with lower levels of message traffic will be in lower tiers and will be assessed a smaller fee for the CAT.[27] Correspondingly, Execution Venues with the highest market shares will be in the top tier, and will be charged higher fees. Execution Venues with the lowest market shares will be in the lowest tier and will be assessed smaller fees for the CAT.[28]

The CAT NMS Plan states that Industry Members (other than Execution Venue ATSs) will be charged based on message traffic, and that Execution Venues will be charged based on market share.[29] While there are multiple factors that contribute to the cost of building, maintaining and using the CAT, processing and storage of incoming message traffic is one of the most significant cost drivers for the CAT.[30] Thus, the CAT NMS Plan provides that the fees payable by Industry Members (other than Execution Venue ATSs) will be based on the message traffic generated by such Industry Member.[31]

In contrast to Industry Members, which determine the degree to which they produce message traffic that constitute CAT Reportable Events, the CAT Reportable Events of the Execution Venues are largely derivative of quotations and orders received from Industry Members that they are required to display. The business model for Execution Venues (other than FINRA), however, is focused on executions in their markets. As a result, the Operating Committee believes that it is more equitable to charge Execution Venues based on their market share rather than their message traffic.

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27 Id.

28 Id.

29 Section 11.3(a) and (b) of the CAT NMS Plan.

30 Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85005.

31 Section 11.3(b) of the CAT NMS Plan.

Focusing on message traffic would make it more difficult to draw distinctions between large and small Execution Venues and, in particular, between large and small options exchanges. For instance, the Operating Committee analyzed the message traffic of Execution Venues and Industry Members for the period of April 2017 to June 2017 and placed all CAT Reporters into a nine-tier framework (*i.e.*, a single tier may include both Execution Venues and Industry Members). The Operating Committee's analysis found that the majority of exchanges (15 total) were grouped in Tiers 1 and 2. Moreover, virtually all of the options exchanges were in Tiers 1 and 2.[32] Given the resulting concentration of options exchanges in Tiers 1 and 2 under this approach, the analysis shows that a funding model for Execution Venues based on message traffic would make it more difficult to distinguish between large and small options exchanges, as compared to the proposed fee approach that bases fees for Execution Venues on market share.

The CAT NMS Plan's funding model also is structured to avoid a "reduction in market quality."[33] The tiered, fixed fee funding model is designed to limit the disincentives to providing liquidity to the market. For example, the Operating Committee expects that a firm that has a large volume of quotes would likely be categorized in one of the upper tiers, and would not be assessed a fee for this traffic directly as they would under a more directly metered model. In contrast, strictly variable or metered funding models based on message volume are far more likely to affect market behavior. In approving the CAT NMS Plan, the SEC stated that "[t]he Participants also offered a

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32 The Operating Committee notes that this analysis did not place MIAX PEARL in Tier 1 or Tier 2 since the exchange commenced trading on February 6, 2017.

33 Section 11.2(e) of the CAT NMS Plan.

reasonable basis for establishing a funding model based on broad tiers, in that it may be . . . less likely to have an incremental deterrent effect on liquidity provision." [34]

The funding model also is structured to avoid a reduction market quality because it discounts Options Market Maker and equity market maker quotes when calculating message traffic for Options Market Makers and equity market makers, respectively. As discussed in more detail below, the Operating Committee determined to discount the Options Market Maker quotes by the trade to quote ratio for options when calculating message traffic for Options Market Makers. Similarly, to avoid disincentives to quoting behavior on the equities side as well, the Operating Committee determined to discount equity market maker quotes by the trade to quote ratio for equities when calculating message traffic for equity market makers. The proposed discounts recognize the value of the market makers' quoting activity to the market as a whole.

The CAT NMS Plan is further structured to avoid potential conflicts raised by the Operating Committee determining fees applicable to its own members – the Participants. First, the Company will operate on a "break-even" basis, with fees imposed to cover costs and an appropriate reserve. Any surpluses will be treated as an operational reserve to offset future fees and will not be distributed to the Participants as profits.[35] To ensure that the Participants' operation of the CAT will not contribute to the funding of their other operations, Section 11.1(c) of the CAT NMS Plan specifically states that "[a]ny surplus of the Company's revenues over its expenses shall be treated as an operational reserve to offset future fees." In addition, as set forth in Article VIII of the CAT NMS Plan, the Company "intends to operate in a manner such that it qualifies as a 'business

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[34] Approval Order at 84796.

[35] Id. at 84792.

league' within the meaning of Section 501(c)(6) of the [Internal Revenue] Code." To qualify as a business league, an organization must "not [be] organized for profit and no part of the net earnings of [the organization can] inure[] to the benefit of any private shareholder or individual."[36] As the SEC stated when approving the CAT NMS Plan, "the Commission believes that the Company's application for Section 501(c)(6) business league status addresses issues raised by commenters about the Plan's proposed allocation of profit and loss by mitigating concerns that the Company's earnings could be used to benefit individual Participants."[37] The Internal Revenue Service recently has determined that the Company is exempt from federal income tax under Section 501(c)(6) of the Internal Revenue Code.

The funding model also is structured to take into account distinctions in the securities trading operations of Participants and Industry Members. For example, the Operating Committee designed the model to address the different trading characteristics in the OTC Equity Securities market. Specifically, the Operating Committee proposes to discount the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF by the average shares per trade ratio between NMS Stocks and OTC Equity Securities to adjust for the greater number of shares being traded in the OTC Equity Securities market, which is generally a function of a lower per share price for OTC Equity Securities when compared to NMS Stocks. In addition, the Operating Committee also proposes to discount Options Market Maker and equity market maker message traffic in recognition of their role in the securities markets.

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36 26 U.S.C. 501(c)(6).

37 Approval Order at 84793.

Furthermore, the funding model creates separate tiers for Equity and Options Execution Venues due to the different trading characteristics of those markets.

Finally, by adopting a CAT-specific fee, the Operating Committee will be fully transparent regarding the costs of the CAT. Charging a general regulatory fee, which would be used to cover CAT costs as well as other regulatory costs, would be less transparent than the selected approach of charging a fee designated to cover CAT costs only.

A full description of the funding model is set forth below. This description includes the framework for the funding model as set forth in the CAT NMS Plan, as well as the details as to how the funding model will be applied in practice, including the number of fee tiers and the applicable fees for each tier. The complete funding model is described below, including those fees that are to be paid by the Participants. The proposed Consolidated Audit Trail Funding Fees, however, do not apply to the Participants; the proposed Consolidated Audit Trail Funding Fees only apply to Industry Members. The CAT Fees for Participants will be imposed separately by the Operating Committee pursuant to the CAT NMS Plan.

**(A) Funding Principles**

Section 11.2 of the CAT NMS Plan sets forth the principles that the Operating Committee applied in establishing the funding for the Company. The Operating Committee has considered these funding principles as well as the other funding requirements set forth in the CAT NMS Plan and in Rule 613 in developing the proposed funding model. The following are the funding principles in Section 11.2 of the CAT NMS Plan:

- To create transparent, predictable revenue streams for the Company that are aligned with the anticipated costs to build, operate and administer the CAT and other costs of the Company;
- To establish an allocation of the Company's related costs among Participants and Industry Members that is consistent with the Exchange Act, taking into account the timeline for implementation of the CAT and distinctions in the securities trading operations of Participants and Industry Members and their relative impact upon the Company's resources and operations;
- To establish a tiered fee structure in which the fees charged to: (i) CAT Reporters that are Execution Venues, including ATSs, are based upon the level of market share; (ii) Industry Members' non-ATS activities are based upon message traffic; (iii) the CAT Reporters with the most CAT-related activity (measured by market share and/or message traffic, as applicable) are generally comparable (where, for these comparability purposes, the tiered fee structure takes into consideration affiliations between or among CAT Reporters, whether Execution Venue and/or Industry Members);
- To provide for ease of billing and other administrative functions;
- To avoid any disincentives such as placing an inappropriate burden on competition and a reduction in market quality; and
- To build financial stability to support the Company as a going concern.

**(B) Industry Member Tiering**

Under Section 11.3(b) of the CAT NMS Plan, the Operating Committee is required to establish fixed fees to be payable by Industry Members, based on message traffic generated by such Industry Member, with the Operating Committee establishing at least five and no more than nine tiers.

The CAT NMS Plan clarifies that the fixed fees payable by Industry Members pursuant to Section 11.3(b) shall, in addition to any other applicable message traffic, include message traffic generated by: (i) an ATS that does not execute orders that is sponsored by such Industry Member; and (ii) routing orders to and from any ATS sponsored by such Industry Member. In addition, the Industry Member fees will apply to Industry Members that act as routing broker-dealers for exchanges. The Industry Member fees will not be applicable, however, to an ATS that qualifies as an Execution Venue, as discussed in more detail in the section on Execution Venue tiering.

In accordance with Section 11.3(b), the Operating Committee approved a tiered fee structure for Industry Members (other than Execution Venue ATSs) as described in this section. In determining the tiers, the Operating Committee considered the funding principles set forth in Section 11.2 of the CAT NMS Plan, seeking to create funding tiers that take into account the relative impact on CAT System resources of different Industry Members, and that establish comparable fees among the CAT Reporters with the most Reportable Events. The Operating Committee has determined that establishing seven tiers results in an allocation of fees that distinguishes between Industry Members with differing levels of message traffic. Thus, each such Industry Member will be placed into

one of seven tiers of fixed fees, based on "message traffic" for a defined period (as discussed below).

A seven tier structure was selected to provide a wide range of levels for tiering Industry Members such that Industry Members submitting significantly less message traffic to the CAT would be adequately differentiated from Industry Members submitting substantially more message traffic. The Operating Committee considered historical message traffic from multiple time periods, generated by Industry Members across all exchanges and as submitted to FINRA's Order Audit Trail System ("OATS"), and considered the distribution of firms with similar levels of message traffic, grouping together firms with similar levels of message traffic. Based on this, the Operating Committee determined that seven tiers would group firms with similar levels of message traffic, charging those firms with higher impact on the CAT more, while lowering the burden on Industry Members that have less CAT-related activity. Furthermore, the selection of seven tiers establishes comparable fees among the largest CAT Reporters.

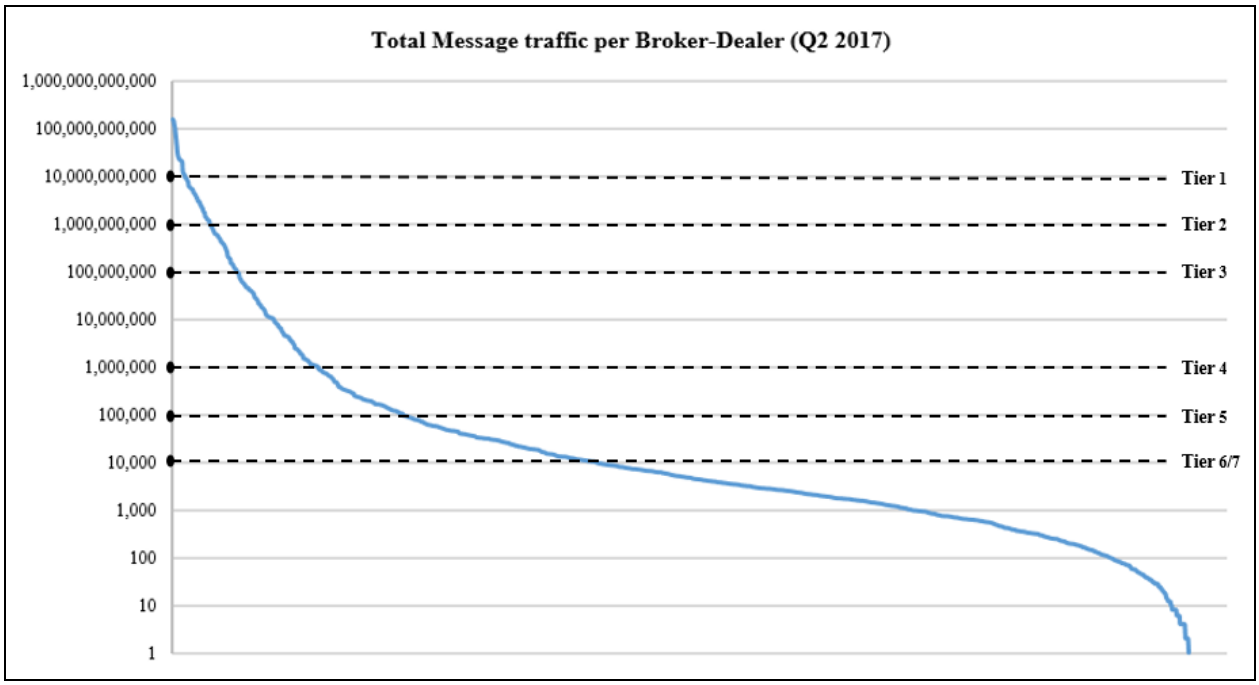
Each Industry Member (other than Execution Venue ATSs) will be ranked by message traffic and tiered by predefined Industry Member percentages (the "Industry Member Percentages"). The Operating Committee determined to use predefined percentages rather than fixed volume thresholds to ensure that the total CAT Fees collected recover the expected CAT costs regardless of changes in the total level of message traffic. To determine the fixed percentage of Industry Members in each tier, the Operating Committee analyzed historical message traffic generated by Industry Members across all exchanges and as submitted to OATS, and considered the distribution of firms with similar levels of message traffic, grouping together firms with similar levels of

message traffic. Based on this, the Operating Committee identified seven tiers that would group firms with similar levels of message traffic.

The percentage of costs recovered by each Industry Member tier will be determined by predefined percentage allocations (the "Industry Member Recovery Allocation"). In determining the fixed percentage allocation of costs recovered for each tier, the Operating Committee considered the impact of CAT Reporter message traffic on the CAT System as well as the distribution of total message volume across Industry Members while seeking to maintain comparable fees among the largest CAT Reporters. Accordingly, following the determination of the percentage of Industry Members in each tier, the Operating Committee identified the percentage of total market volume for each tier based on the historical message traffic upon which Industry Members had been initially ranked. Taking this into account along with the resulting percentage of total recovery, the percentage allocation of costs recovered for each tier were assigned, allocating higher percentages of recovery to tiers with higher levels of message traffic while avoiding any inappropriate burden on competition. Furthermore, by using percentages of Industry Members and costs recovered per tier, the Operating Committee sought to include elasticity within the funding model, allowing the funding model to respond to changes in either the total number of Industry Members or the total level of message traffic.

The following chart illustrates the breakdown of seven Industry Member tiers across the monthly average of total equity and equity options orders, cancels, quotes and executions in the second quarter of 2017 as well as message traffic thresholds between the largest of Industry Member message traffic gaps. The Operating Committee

referenced similar distribution illustrations to determine the appropriate division of Industry Member percentages in each tier by considering the grouping of firms with similar levels of message traffic and seeking to identify relative breakpoints in the message traffic between such groupings. In reviewing the chart and its corresponding table, note that while these distribution illustrations were referenced to help differentiate between Industry Member tiers, the proposed funding model is driven by fixed percentages of Industry Members across tiers to account for fluctuating levels of message traffic over time. This approach also provides financial stability for the CAT by ensuring that the funding model will recover the required amounts regardless of changes in the number of Industry Members or the amount of message traffic. Actual messages in any tier will vary based on the actual traffic in a given measurement period, as well as the number of firms included in the measurement period. The Industry Member Percentages and Industry Member Recovery Allocation for each tier will remain fixed with each Industry Member's tier to be reassigned periodically, as described below in Section 3(a)(2)(I).




| Industry Member Tier | Approximate Message Traffic per Industry Member (Q2 2017) (Orders, Quotes, Cancels and Executions) |
|---|---|
| Tier 1 | > 10,000,000,000 |
| Tier 2 | 1,000,000,000 – 10,000,000,000 |
| Tier 3 | 100,000,000 – 1,000,000,000 |
| Tier 4 | 1,000,000 – 100,000,000 |
| Tier 5 | 100,000 – 1,000,000 |
| Tier 6 | 10,000 – 100,000 |
| Tier 7 | < 10,000 |

Based on the above analysis, the Operating Committee approved the following Industry Member Percentages and Industry Member Recovery Allocations:

| **Industry Member Tier** | **Percentage of Industry Members** | **Percentage of Industry Member Recovery** | **Percentage of Total Recovery** |
|---|---|---|---|
| Tier 1 | 0.900% | 12.00% | 9.00% |
| Tier 2 | 2.150% | 20.50% | 15.38% |
| Tier 3 | 2.800% | 18.50% | 13.88% |
| Tier 4 | 7.750% | 32.00% | 24.00% |
| Tier 5 | 8.300% | 10.00% | 7.50% |
| Tier 6 | 18.800% | 6.00% | 4.50% |
| Tier 7 | 59.300% | 1.00% | 0.75% |
| **Total** | **100%** | **100%** | **75%** |

For the purposes of creating these tiers based on message traffic, the Operating Committee determined to define the term “message traffic” separately for the period before the commencement of CAT reporting and for the period after the start of CAT reporting. The different definition for message traffic is necessary as there will be no Reportable Events as defined in the Plan, prior to the commencement of CAT reporting. Accordingly, prior to the start of CAT reporting, “message traffic” will be comprised of historical equity and equity options orders, cancels, quotes and executions provided by each exchange and FINRA over the previous three months. Prior to the start of CAT reporting, orders would be comprised of the total number of equity and equity options

orders received and originated by a member of an exchange or FINRA over the previous three-month period, including principal orders, cancel/replace orders, market maker orders originated by a member of an exchange, and reserve (iceberg) orders as well as executions originated by a member of FINRA, and excluding order rejects, system-modified orders, order routes and implied orders.[38] In addition, prior to the start of CAT reporting, cancels would be comprised of the total number of equity and equity option cancels received and originated by a member of an exchange or FINRA over a three-month period, excluding order modifications (*e.g.*, order updates, order splits, partial cancels) and multiple cancels of a complex order. Furthermore, prior to the start of CAT reporting, quotes would be comprised of information readily available to the exchanges and FINRA, such as the total number of historical equity and equity options quotes received and originated by a member of an exchange or FINRA over the prior three-month period. Additionally, prior to the start of CAT reporting, executions would be comprised of the total number of equity and equity option executions received or originated by a member of an exchange or FINRA over a three-month period.

After an Industry Member begins reporting to the CAT, "message traffic" will be calculated based on the Industry Member's Reportable Events reported to the CAT as will be defined in the Technical Specifications.[39]

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38 Consequently, firms that do not have "message traffic" reported to an exchange or OATS before they are reporting to the CAT would not be subject to a fee until they begin to report information to CAT.

39 If an Industry Member (other than an Execution Venue ATS) has no orders, cancels, quotes and executions prior to the commencement of CAT Reporting, or no Reportable Events after CAT reporting commences, then the Industry Member would not have a CAT Fee obligation.

Quotes of Options Market Makers and equity market makers will be included in the calculation of total message traffic for those market makers for purposes of tiering under the CAT funding model both prior to CAT reporting and once CAT reporting commences.[40] To address potential concerns regarding burdens on competition or market quality of including quotes in the calculation of message traffic, however, the Operating Committee determined to discount the Options Market Maker quotes by the trade to quote ratio for options when calculating message traffic for Options Market Makers. Based on available data for June 2016 through June 2017, the trade to quote ratio for options is 0.01%. Similarly, to avoid disincentives to quoting behavior on the equities side, the Operating Committee determined to discount equity market maker quotes by the trade to quote ratio for equities. Based on available data for June 2016 through June 2017, the trade to quote ratio for equities is 5.43%.[41] The trade to quote ratio for options and the trade to quote ratio for equities will be calculated every three months when tiers are recalculated (as discussed below).

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40 The SEC approved exemptive relief permitting Options Market Maker quotes to be reported to the Central Repository by the relevant Options Exchange in lieu of requiring that such reporting be done by both the Options Exchange and the Options Market Maker, as required by Rule 613 of Regulation NMS. See Securities Exchange Act Release No. 77265 (March 1, 2017), 81 FR 11856 (March 7, 2016). This exemption applies to Options Market Maker quotes for CAT reporting purposes only. Therefore, notwithstanding the reporting exemption provided for Options Market Maker quotes, Options Market Maker quotes will be included in the calculation of total message traffic for Options Market Makers for purposes of tiering under the CAT funding model both prior to CAT reporting and once CAT reporting commences.

41 The trade to quote ratios were calculated based on the inverse of the average of the monthly equity SIP and OPRA quote to trade ratios from June 2016 – June 2017 that were compiled by the Financial Information Forum using data from Nasdaq and SIAC.

The Operating Committee has determined to calculate fee tiers every three months, on a calendar quarter basis, based on message traffic from the prior three months. Based on its analysis of historical data, the Operating Committee believes that calculating tiers based on three months of data will provide the best balance between reflecting changes in activity by Industry Members while still providing predictability in the tiering for Industry Members. Because fee tiers will be calculated based on message traffic from the prior three months, the Operating Committee will begin calculating message traffic based on an Industry Member's Reportable Events reported to the CAT once the Industry Member has been reporting to the CAT for three months. Prior to that, fee tiers will be calculated as discussed above with regard to the period prior to CAT reporting.

**(C) Execution Venue Tiering**

Under Section 11.3(a) of the CAT NMS Plan, the Operating Committee is required to establish fixed fees payable by Execution Venues. Section 1.1 of the CAT NMS Plan defines an Execution Venue as "a Participant or an alternative trading system ("ATS") (as defined in Rule 300 of Regulation ATS) that operates pursuant to Rule 301 of Regulation ATS (excluding any such ATS that does not execute orders)."[42]

The Operating Committee determined that ATSs should be included within the definition of Execution Venue. The Operating Committee believes that it is appropriate to treat ATSs as Execution Venues under the proposed funding model since ATSs have

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42 Although FINRA does not operate an execution venue, because it is a Participant, it is considered an "Execution Venue" under the Plan for purposes of determining fees.

business models that are similar to those of exchanges, and ATSs also compete with exchanges.

Given the differences between Execution Venues that trade NMS Stocks and/or OTC Equity Securities and Execution Venues that trade Listed Options, Section 11.3(a) addresses Execution Venues that trade NMS Stocks and/or OTC Equity Securities separately from Execution Venues that trade Listed Options. Equity and Options Execution Venues are treated separately for two reasons. First, the differing quoting behavior of Equity and Options Execution Venues makes comparison of activity between such Execution Venues difficult. Second, Execution Venue tiers are calculated based on market share of share volume, and it is therefore difficult to compare market share between asset classes (*i.e*., equity shares versus options contracts). Discussed below is how the funding model treats the two types of Execution Venues.

**(I) NMS Stocks and OTC Equity Securities**

Section 11.3(a)(i) of the CAT NMS Plan states that each Execution Venue that (i) executes transactions or, (ii) in the case of a national securities association, has trades reported by its members to its trade reporting facility or facilities for reporting transactions effected otherwise than on an exchange, in NMS Stocks or OTC Equity Securities will pay a fixed fee depending on the market share of that Execution Venue in NMS Stocks and OTC Equity Securities, with the Operating Committee establishing at least two and not more than five tiers of fixed fees, based on an Execution Venue's NMS Stocks and OTC Equity Securities market share. For these purposes, market share for Execution Venues that execute transactions will be calculated by share volume, and market share for a national securities association that has trades reported by its members

to its trade reporting facility or facilities for reporting transactions effected otherwise than on an exchange in NMS Stocks or OTC Equity Securities will be calculated based on share volume of trades reported, provided, however, that the share volume reported to such national securities association by an Execution Venue shall not be included in the calculation of such national security association's market share.

In accordance with Section 11.3(a)(i) of the CAT NMS Plan, the Operating Committee approved a tiered fee structure for Equity Execution Venues and Option Execution Venues. In determining the Equity Execution Venue Tiers, the Operating Committee considered the funding principles set forth in Section 11.2 of the CAT NMS Plan, seeking to create funding tiers that take into account the relative impact on system resources of different Equity Execution Venues, and that establish comparable fees among the CAT Reporters with the most Reportable Events. Each Equity Execution Venue will be placed into one of four tiers of fixed fees, based on the Execution Venue's NMS Stocks and OTC Equity Securities market share. In choosing four tiers, the Operating Committee performed an analysis similar to that discussed above with regard to the non-Execution Venue Industry Members to determine the number of tiers for Equity Execution Venues. The Operating Committee determined to establish four tiers for Equity Execution Venues, rather than a larger number of tiers as established for non-Execution Venue Industry Members, because the four tiers were sufficient to distinguish between the smaller number of Equity Execution Venues based on market share. Furthermore, the selection of four tiers serves to help establish comparability among the largest CAT Reporters.

Each Equity Execution Venue will be ranked by market share and tiered by predefined Execution Venue percentages, (the "Equity Execution Venue Percentages"). In determining the fixed percentage of Equity Execution Venues in each tier, the Operating Committee reviewed historical market share of share volume for Execution Venues. Equity Execution Venue market shares of share volume were sourced from market statistics made publicly-available by Bats Global Markets, Inc. ("Bats"). ATS market shares of share volume was sourced from market statistics made publicly-available by FINRA. FINRA trade reporting facility ("TRF") and ORF market share of share volume was sourced from market statistics made publicly available by FINRA. Based on data from FINRA and otcmarkets.com, ATSs accounted for 39.12% of the share volume across the TRFs and ORFs during the recent tiering period. A 39.12/60.88 split was applied to the ATS and non-ATS breakdown of FINRA market share, with FINRA tiered based only on the non-ATS portion of its market share of share volume.

The Operating Committee determined to discount the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF in recognition of the different trading characteristics of the OTC Equity Securities market as compared to the market in NMS Stocks. Many OTC Equity Securities are priced at less than one dollar—and a significant number at less than one penny—per share and low-priced shares tend to trade in larger quantities. Accordingly, a disproportionately large number of shares are involved in transactions involving OTC Equity Securities versus NMS Stocks. Because the proposed fee tiers are based on market share calculated by share volume, Execution Venue ATSs exclusively trading OTC Equity Securities and FINRA would likely be subject to higher tiers than their

operations may warrant. To address this potential concern, the Operating Committee determined to discount the market share of Execution Venue ATSs exclusively trading OTC Equity Securities and the market share of the FINRA ORF by multiplying such market share by the average shares per trade ratio between NMS Stocks and OTC Equity Securities in order to adjust for the greater number of shares being traded in the OTC Equity Securities market. Based on available data for the second quarter of 2017, the average shares per trade ratio between NMS Stocks and OTC Equity Securities is 0.17%.[43] The average shares per trade ratio between NMS Stocks and OTC Equity Securities will be recalculated every three months when tiers are recalculated.

Based on this, the Operating Committee considered the distribution of Execution Venues, and grouped together Execution Venues with similar levels of market share. The percentage of costs recovered by each Equity Execution Venue tier will be determined by predefined percentage allocations (the "Equity Execution Venue Recovery Allocation"). In determining the fixed percentage allocation of costs to be recovered from each tier, the Operating Committee considered the impact of CAT Reporter market share activity on the CAT System as well as the distribution of total market volume across Equity Execution Venues while seeking to maintain comparable fees among the largest CAT Reporters. Accordingly, following the determination of the percentage of Execution Venues in each tier, the Operating Committee identified the percentage of total market volume for each tier based on the historical market share upon which Execution Venues

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43 The average shares per trade ratio for both NMS Stocks and OTC Equity Securities from the second quarter of 2017 was calculated using publicly available market volume data from Bats and OTC Markets Group, and the totals were divided to determine the average number of shares per trade between NMS Stocks and OTC Equity Securities.

had been initially ranked. Taking this into account along with the resulting percentage of total recovery, the percentage allocation of cost recovery for each tier were assigned, allocating higher percentages of recovery to the tier with a higher level of market share while avoiding any inappropriate burden on competition. Furthermore, by using percentages of Equity Execution Venues and cost recovery per tier, the Operating Committee sought to include elasticity within the funding model, allowing the funding model to respond to changes in either the total number of Equity Execution Venues or changes in market share.

Based on this analysis, the Operating Committee approved the following Equity Execution Venue Percentages and Recovery Allocations:

| **Equity Execution Venue Tier** | **Percentage of Equity Execution Venues** | **Percentage of Execution Venue Recovery** | **Percentage of Total Recovery** |
|---|---|---|---|
| Tier 1 | 25.00% | 33.25% | 8.31% |
| Tier 2 | 42.00% | 25.73% | 6.43% |
| Tier 3 | 23.00% | 8.00% | 2.00% |
| Tier 4 | 10.00% | 0.02% | 0.01% |
| **Total** | **100%** | **67%** | **16.75%** |

**(II) Listed Options**

Section 11.3(a)(ii) of the CAT NMS Plan states that each Execution Venue that executes transactions in Listed Options will pay a fixed fee depending on the Listed Options market share of that Execution Venue, with the Operating Committee

establishing at least two and no more than five tiers of fixed fees, based on an Execution Venue's Listed Options market share. For these purposes, market share will be calculated by contract volume.

In accordance with Section 11.3(a)(ii) of the CAT NMS Plan, the Operating Committee approved a tiered fee structure for Options Execution Venues. In determining the tiers, the Operating Committee considered the funding principles set forth in Section 11.2 of the CAT NMS Plan, seeking to create funding tiers that take into account the relative impact on system resources of different Options Execution Venues, and that establish comparable fees among the CAT Reporters with the most Reportable Events. Each Options Execution Venue will be placed into one of two tiers of fixed fees, based on the Execution Venue's Listed Options market share. In choosing two tiers, the Operating Committee performed an analysis similar to that discussed above with regard to Industry Members (other than Execution Venue ATSs) to determine the number of tiers for Options Execution Venues. The Operating Committee determined to establish two tiers for Options Execution Venues, rather than a larger number, because the two tiers were sufficient to distinguish between the smaller number of Options Execution Venues based on market share. Furthermore, due to the smaller number of Options Execution Venues, the incorporation of additional Options Execution Venue tiers would result in significantly higher fees for Tier 1 Options Execution Venues and reduce comparability between Execution Venues and Industry Members. Furthermore, the selection of two tiers served to establish comparable fees among the largest CAT Reporters.

Each Options Execution Venue will be ranked by market share and tiered by predefined Execution Venue percentages, (the "Options Execution Venue Percentages"). To determine the fixed percentage of Options Execution Venues in each tier, the Operating Committee analyzed the historical and publicly available market share of Options Execution Venues to group Options Execution Venues with similar market shares across the tiers. Options Execution Venue market share of share volume were sourced from market statistics made publicly-available by Bats. The process for developing the Options Execution Venue Percentages was the same as discussed above with regard to Equity Execution Venues.

The percentage of costs to be recovered from each Options Execution Venue tier will be determined by predefined percentage allocations (the "Options Execution Venue Recovery Allocation"). In determining the fixed percentage allocation of cost recovery for each tier, the Operating Committee considered the impact of CAT Reporter market share activity on the CAT System as well as the distribution of total market volume across Options Execution Venues while seeking to maintain comparable fees among the largest CAT Reporters. Furthermore, by using percentages of Options Execution Venues and cost recovery per tier, the Operating Committee sought to include elasticity within the funding model, allowing the funding model to respond to changes in either the total number of Options Execution Venues or changes in market share. The process for developing the Options Execution Venue Recovery Allocation was the same as discussed above with regard to Equity Execution Venues.

Based on this analysis, the Operating Committee approved the following Options Execution Venue Percentages and Recovery Allocations:

| Options Execution Venue Tier | Percentage of Options Execution Venues | Percentage of Execution Venue Recovery | Percentage of Total Recovery |
|---|---|---|---|
| Tier 1 | 75.00% | 28.25% | 7.06% |
| Tier 2 | 25.00% | 4.75% | 1.19% |
| **Total** | **100%** | **33%** | **8.25%** |

**(III) Market Share/Tier Assignments**

The Operating Committee determined that, prior to the start of CAT reporting, market share for Execution Venues would be sourced from publicly-available market data. Options and equity volumes for Participants will be sourced from market data made publicly available by Bats while Execution Venue ATS volumes will be sourced from market data made publicly available by FINRA and OTC Markets. Set forth in the Appendix are two charts, one listing the current Equity Execution Venues, each with its rank and tier, and one listing the current Options Execution Venues, each with its rank and tier.

After the commencement of CAT reporting, market share for Execution Venues will be sourced from data reported to the CAT. Equity Execution Venue market share will be determined by calculating each Equity Execution Venue's proportion of the total volume of NMS Stock and OTC Equity shares reported by all Equity Execution Venues during the relevant time period (with the discounting of market share of Execution Venue ATSs exclusively trading OTC Equity Securities, as described above). Similarly, market share for Options Execution Venues will be determined by calculating each Options

Execution Venue's proportion of the total volume of Listed Options contracts reported by all Options Execution Venues during the relevant time period.

The Operating Committee has determined to calculate fee tiers for Execution Venues every three months based on market share from the prior three months. Based on its analysis of historical data, the Operating Committee believes calculating tiers based on three months of data will provide the best balance between reflecting changes in activity by Execution Venues while still providing predictability in the tiering for Execution Venues.

**(D) Allocation of Costs**

In addition to the funding principles discussed above, including comparability of fees, Section 11.1(c) of the CAT NMS Plan also requires expenses to be fairly and reasonably shared among the Participants and Industry Members. Accordingly, in developing the proposed fee schedules pursuant to the funding model, the Operating Committee calculated how the CAT costs would be allocated between Industry Members and Execution Venues, and how the portion of CAT costs allocated to Execution Venues would be allocated between Equity Execution Venues and Options Execution Venues. These determinations are described below.

**(I) Allocation Between Industry Members and Execution Venues**

In determining the cost allocation between Industry Members (other than Execution Venue ATSs) and Execution Venues, the Operating Committee analyzed a range of possible splits for revenue recovery from such Industry Members and Execution Venues, including 80%/20%, 75%/25%, 70%/30% and 65%/35% allocations. Based on

this analysis, the Operating Committee determined that 75 percent of total costs recovered would be allocated to Industry Members (other than Execution Venue ATSs) and 25 percent would be allocated to Execution Venues. The Operating Committee determined that this 75%/25% division maintained the greatest level of comparability across the funding model. For example, the cost allocation establishes fees for the largest Industry Members (i.e., those Industry Members in Tiers 1) that are comparable to the largest Equity Execution Venues and Options Execution Venues (*i.e.*, those Execution Venues in Tier 1).

Furthermore, the allocation of total CAT cost recovery recognizes the difference in the number of CAT Reporters that are Industry Members versus CAT Reporters that are Execution Venues. Specifically, the cost allocation takes into consideration that there are approximately 23 times more Industry Members expected to report to the CAT than Execution Venues (*e.g.*, an estimated 1541 Industry Members versus 67 Execution Venues as of June 2017).

**(II) Allocation Between Equity Execution Venues and Options Execution Venues**

The Operating Committee also analyzed how the portion of CAT costs allocated to Execution Venues would be allocated between Equity Execution Venues and Options Execution Venues. In considering this allocation of costs, the Operating Committee analyzed a range of alternative splits for revenue recovered between Equity and Options Execution Venues, including a 70%/30%, 67%/33%, 65%/35%, 50%/50% and 25%/75% split. Based on this analysis, the Operating Committee determined to allocate 67 percent of Execution Venue costs recovered to Equity Execution Venues and 33 percent to

Options Execution Venues. The Operating Committee determined that a 67%/33% allocation between Equity and Options Execution Venues maintained the greatest level of fee equitability and comparability based on the current number of Equity and Options Execution Venues. For example, the allocation establishes fees for the larger Equity Execution Venues that are comparable to the larger Options Execution Venues. Specifically, Tier 1 Equity Execution Venues would pay a quarterly fee of $81,047 and Tier 1 Options Execution Venues would pay a quarterly fee of $81,379. In addition to fee comparability between Equity Execution Venues and Options Execution Venues, the allocation also establishes equitability between larger (Tier 1) and smaller (Tier 2) Execution Venues based upon the level of market share. Furthermore, the allocation is intended to reflect the relative levels of current equity and options order events.

**(E) Fee Levels**

The Operating Committee determined to establish a CAT-specific fee to collectively recover the costs of building and operating the CAT. Accordingly, under the funding model, the sum of the CAT Fees is designed to recover the total cost of the CAT. The Operating Committee has determined overall CAT costs to be comprised of Plan Processor costs and non-Plan Processor costs, which are estimated to be $50,700,000 in total for the year beginning November 21, 2016.[44]

The Plan Processor costs relate to costs incurred and to be incurred through November 21, 2017 by the Plan Processor and consist of the Plan Processor's current estimates of average yearly ongoing costs, including development costs, which total

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[44] It is anticipated that CAT-related costs incurred prior to November 21, 2016 will be addressed via a separate filing.

$37,500,000. This amount is based upon the fees due to the Plan Processor pursuant to the Company's agreement with the Plan Processor.

The non-Plan Processor estimated costs incurred and to be incurred by the Company through November 21, 2017 consist of three categories of costs. The first category of such costs are third party support costs, which include legal fees, consulting fees and audit fees from November 21, 2016 until the date of filing as well as estimated third party support costs for the rest of the year. These amount to an estimated $5,200,000. The second category of non-Plan Processor costs are estimated cyber-insurance costs for the year. Based on discussions with potential cyber-insurance providers, assuming $2-5 million cyber-insurance premium on $100 million coverage, the Company has estimated $3,000,000 for the annual cost. The final cost figures will be determined following receipt of final underwriter quotes. The third category of non-Plan Processor costs is the CAT operational reserve, which is comprised of three months of ongoing Plan Processor costs ($9,375,000), third party support costs ($1,300,000) and cyber-insurance costs ($750,000). The Operating Committee aims to accumulate the necessary funds to establish the three-month operating reserve for the Company through the CAT Fees charged to CAT Reporters for the year. On an ongoing basis, the Operating Committee will account for any potential need to replenish the operating reserve or other changes to total cost during its annual budgeting process. The following table summarizes the Plan Processor and non-Plan Processor cost components which comprise the total estimated CAT costs of $50,700,000 for the covered period.

| Cost Category | Cost Component | Amount |
|---|---|---|
| Plan Processor | Operational Costs | $37,500,000 |
| Non-Plan Processor | Third Party Support Costs | $5,200,000 |
| | Operational Reserve | $5,000,000[45] |
| | Cyber-insurance Costs | $3,000,000 |
| | **Estimated Total** | **$50,700,000** |

Based on these estimated costs and the calculations for the funding model described above, the Operating Committee determined to impose the following fees:[46]

For Industry Members (other than Execution Venue ATSs):

| Tier | Percentage of Industry Members | Quarterly CAT Fee |
|---|---|---|
| 1 | 0.900% | $81,483 |
| 2 | 2.150% | $59,055 |
| 3 | 2.800% | $40,899 |
| 4 | 7.750% | $25,566 |
| 5 | 8.300% | $7,428 |
| 6 | 18.800% | $1,968 |
| 7 | 59.300% | $105 |

45 This $5,000,000 represents the gradual accumulation of the funds for a target operating reserve of $11,425,000.

46 Note that all monthly, quarterly and annual CAT Fees have been rounded to the nearest dollar.

For Execution Venues for NMS Stocks and OTC Equity Securities:

| Tier | Percentage of Equity Execution Venues | Quarterly CAT Fee |
|---|---|---|
| 1 | 25.00% | $81,048 |
| 2 | 42.00% | $37,062 |
| 3 | 23.00% | $21,126 |
| 4 | 10.00% | $129 |

For Execution Venues for Listed Options:

| Tier | Percentage of Options Execution Venues | Quarterly CAT Fee |
|---|---|---|
| 1 | 75.00% | $81,381 |
| 2 | 25.00% | $37,629 |

The Operating Committee has calculated the schedule of effective fees for Industry Members (other than Execution Venue ATSs) and Execution Venues in the following manner. Note that the calculation of CAT Fees assumes 52 Equity Execution Venues, 15 Options Execution Venues and 1,541 Industry Members (other than Execution Venue ATSs) as of June 2017.

**Calculation of Annual Tier Fees for Industry Members ("IM")**

| Industry Member Tier | Percentage of Industry Members | Percentage of Industry Member Recovery | Percentage of Total Recovery |
|---|---|---|---|
| Tier 1 | 0.900% | 12.00% | 9.00% |
| Tier 2 | 2.150% | 20.50% | 15.38% |
| Tier 3 | 2.800% | 18.50% | 13.88% |
| Tier 4 | 7.750% | 32.00% | 24.00% |
| Tier 5 | 8.300% | 10.00% | 7.50% |
| Tier 6 | 18.800% | 6.00% | 4.50% |
| Tier 7 | 59.300% | 1.00% | 0.75% |
| **Total** | **100%** | **100%** | **75%** |

| Industry Member Tier | Estimated Number of Industry Members |
|---|---|
| Tier 1 | 14 |
| Tier 2 | 33 |
| Tier 3 | 43 |
| Tier 4 | 119 |
| Tier 5 | 128 |
| Tier 6 | 290 |
| Tier 7 | 914 |
| **Total** | **1,541** |

**Calculation 1.1 (Calculation of a Tier 1 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 0.9\%\ [\%\ of\ Tier\ 1\ IMs] = 14\ [Estimated\ Tier\ 1\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 12\%\ [\%\ of\ Tier\ 1\ IM\ Recovery]}{14\ [Estimated\ Tier\ 1\ IMs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$27{,}161}$$

**Calculation 1.2 (Calculation of a Tier 2 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 2.15\%\ [\%\ of\ Tier\ 2\ IMs] = 33\ [Estimated\ Tier\ 2\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 20.5\%\ [\%\ of\ Tier\ 2\ IM\ Recovery]}{33\ [Estimated\ Tier\ 2\ IMs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$19{,}685}$$

**Calculation 1.3 (Calculation of a Tier 3 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 2.125\%\ [\%\ of\ Tier\ 3\ IMs] = 43\ [Estimated\ Tier\ 3\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 18.5\%\ [\%\ of\ Tier\ 3\ IM\ Recovery]}{43\ [Estimated\ Tier\ 3\ IMs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$13{,}633}$$

**Calculation 1.4 (Calculation of a Tier 4 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 7.75\%\ [\%\ of\ Tier\ 4\ IMs] = 119\ [Estimated\ Tier\ 4\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 32\%\ [\%\ of\ Tier\ 4\ IM\ Recovery]}{119\ [Estimated\ Tier\ 4\ IMs]}\right) \div 12\ [\text{Months per year}] =$$

**$8522**

**Calculation 1.5 (Calculation of a Tier 5 Industry Member Annual Fee)**

$$1{,}541\ [Estimated\ Tot.IMs] \times 8.3\%\ [\%\ of\ Tier\ 5\ IMs] = 128\ [Estimated\ Tier\ 5\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 7.75\%\ [\%\ of\ Tier\ 5\ IM\ Recovery]}{128\ [Estimated\ Tier\ 5\ IMs]}\right) \div 12\ [\text{Months per year}] =$$

**$2476**

**Calculation 1.6 (Calculation of a Tier 6 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs] \times 18.8\%\ [\%\ of\ Tier\ 6\ IMs] = 290\ [Estimated\ Tier\ 6\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 6\%\ [\%\ of\ Tier\ 6\ IM\ Recovery]}{290\ [Estimated\ Tier\ 6\ IMs]}\right) \div 12\ [\text{Months per year}] =$$

**$656**

**Calculation 1.7 (Calculation of a Tier 7 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs] \times 59.3\%\ [\%\ of\ Tier\ 7\ IMs] = 914\ [Estimated\ Tier\ 7\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 1\%\ [\%\ of\ Tier\ 7\ IM\ Recovery]}{914\ [Estimated\ Tier\ 7\ IMs]}\right) \div 12\ [\text{Months per year}] =$$

**$35**

## Calculation of Annual Tier Fees for Equity Execution Venues ("EV")

| Equity Execution Venue Tier | Percentage of Equity Execution Venues | Percentage of Execution Venue Recovery | Percentage of Total Recovery |
|---|---|---|---|
| Tier 1 | 25.00% | 33.25% | 8.31% |
| Tier 2 | 42.00% | 25.73% | 6.43% |
| Tier 3 | 23.00% | 8.00% | 2.00% |
| Tier 4 | 10.00% | 49.00% | 0.01% |
| **Total** | **100%** | **67%** | **16.75%** |

| Equity Execution Venue Tier | Estimated Number of Equity Execution Venues |
|---|---|
| Tier 1 | 13 |
| Tier 2 | 22 |
| Tier 3 | 12 |
| Tier 4 | 5 |
| **Total** | **52** |

**Calculation 2.1 (Calculation of a Tier 1 Equity Execution Venue Monthly Fee)**

$$52\ [Estimated\ Tot.Equity\ EVs]\ \times 25\%\ [\%\ of\ Tier\ 1\ Equity\ EVs] = 13\ [Estimated\ Tier\ 1\ Equity\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.\ Ann.CAT\ Costs] \times 33.25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 26\%\ [\%\ of\ Tier\ 1\ Equity\ EV\ Recovery]}{13\ [Estimated\ Tier\ 1\ Equity\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$27{,}016}$$

**Calculation 2.2 (Calculation of a Tier 2 Equity Execution Venue Monthly Fee)**

$$52\ [Estimated\ Tot.Equity\ EVs]\ \times 42\%\ [\%\ of\ Tier\ 2\ Equity\ EVs] = 22\ [Estimated\ Tier\ 2\ Equity\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.\ Ann.CAT\ Costs] \times 25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 25.73\%\ [\%\ of\ Tier\ 2\ Equity\ EV\ Recovery]}{22\ [Estimated\ Tier\ 2\ Equity\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$12{,}353}$$

**Calculation 2.3 (Calculation of a Tier 3 Equity Execution Venue Monthly Fee)**

$$52\ [Estimated\ Tot.Equity\ EVs]\ \times 23\%\ [\%\ of\ Tier\ 2\ Equity\ EVs] = 12\ [Estimated\ Tier\ 2\ Equity\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.\ Ann.CAT\ Costs] \times 25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 8\%\ [\%\ of\ Tier\ 2\ Equity\ EV\ Recovery]}{12\ [Estimated\ Tier\ 2\ Equity\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$7{,}042}$$

**Calculation 2.4 (Calculation of a Tier 4 Equity Execution Venue Monthly Fee)**

$$52\ [Estimated\ Tot.Equity\ EVs]\ \times 10\%\ [\%\ of\ Tier\ 2\ Equity\ EVs] = 5\ [Estimated\ Tier\ 2\ Equity\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.\ Ann.CAT\ Costs] \times 25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 0.02\%\ [\%\ of\ Tier\ 2\ Equity\ EV\ Recovery]}{5\ [Estimated\ Tier\ 2\ Equity\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$42}$$

**Calculation of Annual Tier Fees for Options Execution Venues ("EV")**

| Options Execution Venue Tier | Percentage of Options Execution Venues | Percentage of Execution Venue Recovery | Percentage of Total Recovery |
|---|---|---|---|
| Tier 1 | 75.00% | 28.25% | 7.06% |
| Tier 2 | 25.00% | 4.75% | 1.19% |
| **Total** | **100%** | **33%** | **8.25%** |

| Options Execution Venue Tier | Estimated Number of Options Execution Venues |
|---|---|
| Tier 1 | 11 |
| Tier 2 | 4 |
| **Total** | **15** |

**Calculation 3.1 (Calculation of a Tier 1 Options Execution Venue Monthly Fee)**

$$15\ [Estimated\ Tot.Options\ EVs]\ \times 75\%\ [\%\ of\ Tier\ 1\ Options\ EVs] = 11\ [Estimated\ Tier\ 1\ Options\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 28.25\%\ [\%\ of\ Tier\ 1\ Options\ EV\ Recovery]}{11\ [Estimated\ Tier\ 1\ Options\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$27{,}127}$$

**Calculation 3.2 (Calculation of a Tier 2 Options Execution Venue Annual Fee)**

$$15\ [Estimated\ Tot.Options\ EVs]\ \times 25\%\ [\%\ of\ Tier\ 2\ Options\ EVs] = 4\ [Estimated\ Tier\ 2\ Options\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 4.75\%\ [\%\ of\ Tier\ 2\ Options\ EV\ Recovery]}{4\ [Estimated\ Tier\ 2\ Options\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$12{,}543}$$

**Traceability of Total CAT Fees**

| Type | Industry Member Tier | Estimated Number of Members | CAT Fees Paid Annually | Total Recovery |
|---|---|---|---|---|
| Industry Members | Tier 1 | 14 | $325,932 | $4,563,048 |
| | Tier 2 | 33 | $236,220 | $7,795,260 |
| | Tier 3 | 43 | $163,596 | $7,034,628 |
| | Tier 4 | 119 | $102,264 | $12,169,416 |
| | Tier 5 | 128 | $29,712 | $3,803,136 |
| | Tier 6 | 290 | $7,872 | $2,282,880 |
| | Tier 7 | 914 | $420 | $383,880 |
| | **Total** | **1,541** | **-** | **$38,032,248** |
| Equity Execution Venues | Tier 1 | 13 | $324,192 | $4,214,496 |
| | Tier 2 | 22 | $148,248 | $3,261,456 |
| | Tier 3 | 12 | $84,504 | $1,014,048 |
| | Tier 4 | 5 | $516 | $2,580 |
| | **Total** | **52** | **-** | **$8,492,580** |
| Options Execution Venues | Tier 1 | 11 | $325,524 | $3,580,764 |
| | Tier 2 | 4 | $150,516 | $602,064 |
| | **Total** | **15** | **-** | **$4,182,828** |
| | | | **Total** | **$50,700,000** |

| Type | Industry Member Tier | Estimated Number of Members | CAT Fees Paid Annually | Total Recovery |
|---|---|---|---|---|
| | | | **Excess**[47] | **$7,656** |

**(F) Comparability of Fees**

The funding principles require a funding model in which the fees charged to the CAT Reporters with the most CAT-related activity (measured by market share and/or message traffic, as applicable) are generally comparable (where, for these comparability purposes, the tiered fee structure takes into consideration affiliations between or among CAT Reporters, whether Execution Venue and/or Industry Members). Accordingly, in creating the model, the Operating Committee sought to establish comparable fees for the top tier of Industry Members (other than Execution Venue ATSs), Equity Execution Venues and Options Execution Venues. Specifically, each Tier 1 CAT Reporter would be required to pay a quarterly fee of approximately $81,000.

**(G) Billing Onset**

Under Section 11.1(c) of the CAT NMS Plan, to fund the development and implementation of the CAT, the Company shall time the imposition and collection of all fees on Participants and Industry Members in a manner reasonably related to the timing when the Company expects to incur such development and implementation costs. The Company is currently incurring such development and implementation costs and will continue to do so prior to the commencement of CAT reporting and thereafter. In

[47] The amount in excess of the total CAT costs will contribute to the gradual accumulation of the target operating reserve of $11.425 million.

accordance with the CAT NMS Plan, all CAT Reporters, including both Industry Members and Execution Venues (including Participants), will be invoiced as promptly as possible following the latest of the operative date of the Consolidated Audit Trail Funding Fees for each of the Participants and the operative date of the Plan amendment adopting CAT Fees for Participants.

**(H) Changes to Fee Levels and Tiers**

Section 11.3(d) of the CAT NMS Plan states that "[t]he Operating Committee shall review such fee schedule on at least an annual basis and shall make any changes to such fee schedule that it deems appropriate. The Operating Committee is authorized to review such fee schedule on a more regular basis, but shall not make any changes on more than a semi-annual basis unless, pursuant to a Supermajority Vote, the Operating Committee concludes that such change is necessary for the adequate funding of the Company." With such reviews, the Operating Committee will review the distribution of Industry Members and Execution Venues across tiers, and make any updates to the percentage of CAT Reporters allocated to each tier as may be necessary. In addition, the reviews will evaluate the estimated ongoing CAT costs and the level of the operating reserve. To the extent that the total CAT costs decrease, the fees would be adjusted downward, and to the extent that the total CAT costs increase, the fees would be adjusted upward.[48] Furthermore, any surplus of the Company's revenues over its expenses is to be included within the operational reserve to offset future fees. The limitations on more frequent changes to the fee, however, are intended to provide budgeting certainty for the

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48 The CAT Fees are designed to recover the costs associated with the CAT. Accordingly, CAT Fees would not be affected by increases or decreases in other non-CAT expenses incurred by the Participants, such as any changes in costs related to the retirement of existing regulatory systems, such as OATS.

CAT Reporters and the Company.[49] To the extent that the Operating Committee approves changes to the number of tiers in the funding model or the fees assigned to each tier, then the Operating Committee will file such changes with the SEC pursuant to Rule 608 of the Exchange Act, and the Participants will file such changes with the SEC pursuant to Section 19(b) of the Exchange Act and Rule 19b-4 thereunder, and any such changes will become effective in accordance with the requirements of those provisions.

**(I) Initial and Periodic Tier Reassignments**

The Operating Committee has determined to calculate fee tiers every three months based on market share or message traffic, as applicable, from the prior three months. For the initial tier assignments, the Company will calculate the relevant tier for each CAT Reporter using the three months of data prior to the commencement date. As with the initial tier assignment, for the tri-monthly reassignments, the Company will calculate the relevant tier using the three months of data prior to the relevant tri-monthly date. Any movement of CAT Reporters between tiers will not change the criteria for each tier or the fee amount corresponding to each tier.

In performing the tri-monthly reassignments, the assignment of CAT Reporters in each assigned tier is relative. Therefore, a CAT Reporter's assigned tier will depend, not only on its own message traffic or market share, but also on the message traffic/market share across all CAT Reporters. For example, the percentage of Industry Members (other than Execution Venue ATSs) in each tier is relative such that such Industry Member's assigned tier will depend on message traffic generated across all CAT Reporters as well as the total number of CAT Reporters. The Operating Committee will inform CAT

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[49] Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85006.

Reporters of their assigned tier every three months following the periodic tiering process, as the funding model will compare an individual CAT Reporter's activity to that of other CAT Reporters in the marketplace.

The following demonstrates a tier reassignment. In accordance with the funding model, the top 75% of Options Execution Venues in market share are categorized as Tier 1 while the bottom 25% of Options Execution Venues in market share are categorized as Tier 2. In the sample scenario below, Options Execution Venue L is initially categorized as a Tier 2 Options Execution Venue in Period A due to its market share. When market share is recalculated for Period B, the market share of Execution Venue L increases, and it is therefore subsequently reranked and reassigned to Tier 1 in Period B. Correspondingly, Options Execution Venue K, initially a Tier 1 Options Execution Venue in Period A, is reassigned to Tier 2 in Period B due to decreases in its market share.

| **Period A** | | | **Period B** | | |
|---|---|---|---|---|---|
| **Options Execution Venue** | **Market Share Rank** | **Tier** | **Options Execution Venue** | **Market Share Rank** | **Tier** |
| **Options Execution Venue A** | 1 | 1 | **Options Execution Venue A** | 1 | 1 |
| **Options Execution Venue B** | 2 | 1 | **Options Execution Venue B** | 2 | 1 |
| **Options Execution Venue C** | 3 | 1 | **Options Execution Venue C** | 3 | 1 |
| **Options Execution Venue D** | 4 | 1 | **Options Execution Venue D** | 4 | 1 |
| **Options Execution Venue E** | 5 | 1 | **Options Execution Venue E** | 5 | 1 |
| **Options Execution Venue F** | 6 | 1 | **Options Execution Venue F** | 6 | 1 |
| **Options Execution Venue G** | 7 | 1 | **Options Execution Venue I** | 7 | 1 |
| **Options Execution Venue H** | 8 | 1 | **Options Execution Venue H** | 8 | 1 |
| **Options Execution Venue I** | 9 | 1 | **Options Execution Venue G** | 9 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| **Options Execution Venue J** | 10 | 1 | **Options Execution Venue J** | 10 | 1 |
| **Options Execution Venue K** | 11 | 1 | **Options Execution Venue L** | 11 | 1 |
| **Options Execution Venue L** | 12 | 2 | **Options Execution Venue K** | 12 | 2 |
| **Options Execution Venue M** | 13 | 2 | **Options Execution Venue N** | 13 | 2 |
| **Options Execution Venue N** | 14 | 2 | **Options Execution Venue M** | 14 | 2 |
| **Options Execution Venue O** | 15 | 2 | **Options Execution Venue O** | 15 | 2 |

For each periodic tier reassignment, the Operating Committee will review the new tier assignments, particularly those assignments for CAT Reporters that shift from the lowest tier to a higher tier. This review is intended to evaluate whether potential changes to the market or CAT Reporters (e.g., dissolution of a large CAT Reporter) adversely affect the tier reassignments.

**(J) Sunset Provision**

The Operating Committee developed the proposed funding model by analyzing currently available historical data. Such historical data, however, is not as comprehensive as data that will be submitted to the CAT. Accordingly, the Operating Committee believes that it will be appropriate to revisit the funding model once CAT Reporters have actual experience with the funding model. Accordingly, the Operating Committee determined to include an automatic sunsetting provision for the proposed fees. Specifically, the Operating Committee determined that the CAT Fees should automatically expire two years after the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants. The Operating Committee intends to monitor the operation of the funding model during this two year period and to evaluate its

effectiveness during that period. Such a process will inform the Operating Committee's approach to funding the CAT after the two year period.

**(3) Proposed CAT Fee Schedule**

The Exchange proposes the Consolidated Audit Trail Funding Fees to impose the CAT Fees determined by the Operating Committee on the Exchange's members. The proposed fee schedule has four sections, covering definitions, the fee schedule for CAT Fees, the timing and manner of payments, and the automatic sunsetting of the CAT Fees. Each of these sections is discussed in detail below.

**(A) Definitions**

Paragraph (a) of the proposed fee schedule sets forth the definitions for the proposed fee schedule. Paragraph (a)(1) states that, for purposes of the Consolidated Audit Trail Funding Fees, the terms "CAT", "CAT NMS Plan," "Industry Member," "NMS Stock," "OTC Equity Security", "Options Market Maker", and "Participant" are defined as set forth in Rule 6810 and Chapter IX, Section 8(a) (Consolidated Audit Trail – Definitions).

The proposed fee schedule imposes different fees on Equity ATSs and Industry Members that are not Equity ATSs. Accordingly, the proposed fee schedule defines the term "Equity ATS." First, paragraph (a)(2) defines an "ATS" to mean an alternative trading system as defined in Rule 300(a) of Regulation ATS under the Securities Exchange Act of 1934, as amended, that operates pursuant to Rule 301 of Regulation ATS. This is the same definition of an ATS as set forth in Section 1.1 of the CAT NMS Plan in the definition of an "Execution Venue." Then, paragraph (a)(4) defines an

"Equity ATS" as an ATS that executes transactions in NMS Stocks and/or OTC Equity Securities.

Paragraph (a)(3) of the proposed fee schedule defines the term "CAT Fee" to mean the Consolidated Audit Trail Funding Fee(s) to be paid by Industry Members as set forth in paragraph (b) in the proposed fee schedule.

Finally, Paragraph (a)(6) defines an "Execution Venue" as a Participant or an ATS (excluding any such ATS that does not execute orders). This definition is the same substantive definition as set forth in Section 1.1 of the CAT NMS Plan. Paragraph (a)(5) defines an "Equity Execution Venue" as an Execution Venue that trades NMS Stocks and/or OTC Equity Securities.

**(B) Fee Schedule**

The Exchange proposes to impose the CAT Fees applicable to its Industry Members through paragraph (b) of the proposed fee schedule. Paragraph (b)(1) of the proposed fee schedule sets forth the CAT Fees applicable to Industry Members other than Equity ATSs. Specifically, paragraph (b)(1) states that the Company will assign each Industry Member (other than an Equity ATS) to a fee tier once every quarter, where such tier assignment is calculated by ranking each Industry Member based on its total message traffic (with discounts for equity market maker quotes and Options Market Maker quotes based on the trade to quote ratio for equities and options, respectively) for the three months prior to the quarterly tier calculation day and assigning each Industry Member to a tier based on that ranking and predefined Industry Member percentages. The Industry Members with the highest total quarterly message traffic will be ranked in Tier 1, and the Industry Members with lowest quarterly message traffic will be ranked in Tier 7. Each

quarter, each Industry Member (other than an Equity ATS) shall pay the following CAT Fee corresponding to the tier assigned by the Company for such Industry Member for that quarter:

| Tier | Percentage of Industry Members | Quarterly CAT Fee |
|---|---|---|
| 1 | 0.900% | $81,483 |
| 2 | 2.150% | $59,055 |
| 3 | 2.800% | $40,899 |
| 4 | 7.750% | $25,566 |
| 5 | 8.300% | $7,428 |
| 6 | 18.800% | $1,968 |
| 7 | 59.300% | $105 |

Paragraph (b)(2) of the proposed fee schedule sets forth the CAT Fees applicable to Equity ATSs.[50] These are the same fees that Participants that trade NMS Stocks and/or OTC Equity Securities will pay. Specifically, paragraph (b)(2) states that the Company will assign each Equity ATS to a fee tier once every quarter, where such tier assignment is calculated by ranking each Equity Execution Venue based on its total market share of NMS Stocks and OTC Equity Securities (with a discount for Equity ATSs exclusively trading OTC Equity Securities based on the average shares per trade ratio between NMS Stocks and OTC Equity Securities) for the three months prior to the quarterly tier calculation day and assigning each Equity ATS to a tier based on that

[50] Note that no fee schedule is provided for Execution Venue ATSs that execute transactions in Listed Options, as no such Execution Venue ATSs currently exist due to trading restrictions related to Listed Options.

ranking and predefined Equity Execution Venue percentages. The Equity ATSs with the higher total quarterly market share will be ranked in Tier 1, and the Equity ATSs with the lowest quarterly market share will be ranked in Tier 4. Specifically, paragraph (b)(2) states that, each quarter, each Equity ATS shall pay the following CAT Fee corresponding to the tier assigned by the Company for such Equity ATS for that quarter:

| Tier | Percentage of Equity Execution Venues | Quarterly CAT Fee |
|---|---|---|
| 1 | 25.00% | $81,048 |
| 2 | 42.00% | $37,062 |
| 3 | 23.00% | $21,126 |
| 4 | 10.00% | $129 |

**(C) Timing and Manner of Payment**

Section 11.4 of the CAT NMS Plan states that the Operating Committee shall establish a system for the collection of fees authorized under the CAT NMS Plan. The Operating Committee may include such collection responsibility as a function of the Plan Processor or another administrator. To implement the payment process to be adopted by the Operating Committee, paragraph (c)(1) of the proposed fee schedule states that the Company will provide each Industry Member with one invoice each quarter for its CAT Fees as determined pursuant to paragraph (b) of the proposed fee schedule, regardless of whether the Industry Member is a member of multiple self-regulatory organizations. Paragraph (c)(1) further states that each Industry Member will pay its CAT Fees to the Company via the centralized system for the collection of CAT Fees established by the Company in the manner prescribed by the Company. The Exchange will provide

Industry Members with details regarding the manner of payment of CAT Fees by Regulatory Notice.

All CAT fees will be billed and collected centrally through the Company via the Plan Processor. Although each Participant will adopt its own fee schedule regarding CAT Fees, no CAT Fees or portion thereof will be collected by the individual Participants. Each Industry Member will receive from the Company one invoice for its applicable CAT fees, not separate invoices from each Participant of which it is a member. The Industry Members will pay the CAT Fees to the Company via the centralized system for the collection of CAT fees established by the Company.[51]

Section 11.4 of the CAT NMS Plan also states that Participants shall require each Industry Member to pay all applicable authorized CAT Fees within thirty days after receipt of an invoice or other notice indicating payment is due (unless a longer payment period is otherwise indicated). Section 11.4 further states that, if an Industry Member fails to pay any such fee when due, such Industry Member shall pay interest on the outstanding balance from such due date until such fee is paid at a per annum rate equal to the lesser of: (i) the Prime Rate plus 300 basis points; or (ii) the maximum rate permitted by applicable law. Therefore, in accordance with Section 11.4 of the CAT NMS Plan, the Exchange proposed to adopt paragraph (c)(2) of the proposed fee schedule. Paragraph (c)(2) of the proposed fee schedule states that each Industry Member shall pay CAT Fees within thirty days after receipt of an invoice or other notice indicating payment is due (unless a longer payment period is otherwise indicated). If an Industry Member fails to pay any such fee when due, such Industry Member shall pay interest on the

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[51] Section 11.4 of the CAT NMS Plan.

outstanding balance from such due date until such fee is paid at a per annum rate equal to the lesser of: (i) the Prime Rate plus 300 basis points; or (ii) the maximum rate permitted by applicable law.

**(D) Sunset Provision**

The Operating Committee has determined to require that the CAT Fees automatically sunset two years from the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants. Accordingly, the Exchange proposes paragraph (d) of the fee schedule, which states that "[t]hese Consolidated Audit Trailing Funding Fees will automatically expire two years after the operative date of the amendment of the CAT NMS Plan that adopts CAT fees for the Participants."

**(4) Changes to Prior CAT Fee Plan Amendment**

The proposed funding model set forth in this Amendment is a revised version of the Original Proposal. The Commission received a number of comment letters in response to the Original Proposal.[52] The SEC suspended the Original Proposal and instituted proceedings to determine whether to approve or disapprove it.[53] Pursuant to those proceedings, additional comment letters were submitted regarding the proposed funding model.[54] In developing this Amendment, the Operating Committee carefully considered these comments and made a number of changes to the Original Proposal to address these comments where appropriate.

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52 For a description of the comments submitted in response to the Original Proposal, see Suspension Order.

53 Suspension Order.

54 See MFA Letter; SIFMA Letter; FIA Principal Traders Group Letter; Belvedere Letter; Sidley Letter; Group One Letter; and Virtu Financial Letter.

This Amendment makes the following changes to the Original Proposal: (1) adds two additional CAT Fee tiers for Equity Execution Venues; (2) discounts the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF by the average shares per trade ratio between NMS Stocks and OTC Equity Securities (calculated as 0.17% based on available data from the second quarter of 2017) when calculating the market share of Execution Venue ATSs exclusively trading OTC Equity Securities and FINRA; (3) discounts the Options Market Maker quotes by the trade to quote ratio for options (calculated as 0.01% based on available data for June 2016 through June 2017) when calculating message traffic for Options Market Makers; (4) discounts equity market maker quotes by the trade to quote ratio for equities (calculated as 5.43% based on available data for June 2016 through June 2017) when calculating message traffic for equity market makers; (5) decreases the number of tiers for Industry Members (other than the Execution Venue ATSs) from nine to seven; (6) changes the allocation of CAT costs between Equity Execution Venues and Options Execution Venues from 75%/25% to 67%/33%; (7) adjusts tier percentages and recovery allocations for Equity Execution Venues, Options Execution Venues and Industry Members (other than Execution Venue ATSs); (8) focuses the comparability of CAT Fees on the individual entity level, rather than primarily on the comparability of affiliated entities; (9) commences invoicing of CAT Reporters as promptly as possible following the latest of the operative date of the Consolidated Audit Trail Funding Fees for each of the Participants and the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants; and (10) requires the proposed fees to automatically

expire two years from the operative date of the CAT NMS Plan amendment adopting CAT Fees for the Participants.

**(A) Equity Execution Venues**

**(i) Small Equity Execution Venues**

In the Original Proposal, the Operating Committee proposed to establish two fee tiers for Equity Execution Venues. The Commission and commenters raised the concern that, by establishing only two tiers, smaller Equity Execution Venues (e.g., those Equity ATSs representing less than 1% of NMS market share) would be placed in the same fee tier as larger Equity Execution Venues, thereby imposing an undue or inappropriate burden on competition.[55] To address this concern, the Operating Committee proposes to add two additional tiers for Equity Execution Venues, a third tier for smaller Equity Execution Venues and a fourth tier for the smallest Equity Execution Venues.

Specifically, the Original Proposal had two tiers of Equity Execution Venues. Tier 1 required the largest Equity Execution Venues to pay a quarterly fee of $63,375. Based on available data, these largest Equity Execution Venues were those that had equity market share of share volume greater than or equal to 1%.[56] Tier 2 required the remaining smaller Equity Execution Venues to pay a quarterly fee of $38,820.

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55 See Suspension Order at 31664; SIFMA Letter at 3.

56 Note that while these equity market share thresholds were referenced as data points to help differentiate between Equity Execution Venue tiers, the proposed funding model is directly driven not by market share thresholds, but rather by fixed percentages of Equity Execution Venues across tiers to account for fluctuating levels of market share across time. Actual market share in any tier will vary based on the actual market activity in a given measurement period, as well as the number of Equity Execution Venues included in the measurement period.

To address concerns about the potential for the $38,820 quarterly fee to impose an undue burden on smaller Equity Execution Venues, the Operating Committee determined to move to a four tier structure for Equity Execution Venues. Tier 1 would continue to include the largest Equity Execution Venues by share volume (that is, based on currently available data, those with market share of equity share volume greater than or equal to one percent), and these Equity Execution Venues would be required to pay a quarterly fee of $81,048. The Operating Committee determined to divide the original Tier 2 into three tiers. The new Tier 2 Equity Execution Venues, which would include the next largest Equity Execution Venues by equity share volume, would be required to pay a quarterly fee of $37,062. The new Tier 3 Equity Execution Venues would be required to pay a quarterly fee of $21,126. The new Tier 4 Equity Execution Venues, which would include the smallest Equity Execution Venues by share volume, would be required to pay a quarterly fee of $129.

In developing the proposed four tier structure, the Operating Committee considered keeping the existing two tiers, as well as shifting to three, four or five Equity Execution Venue tiers (the maximum number of tiers permitted under the Plan), to address the concerns regarding small Equity Execution Venues. For each of the two, three, four and five tier alternatives, the Operating Committee considered the assignment of various percentages of Equity Execution Venues to each tier as well as various percentage of Equity Execution Venue recovery allocations for each alternative. As discussed below in more detail, each of these options was considered in the context of the full model, as changes in each variable in the model affect other variables in the model when allocating the total CAT costs among CAT Reporters. The Operating Committee

determined that the four tier alternative addressed the spectrum of different Equity Execution Venues. The Operating Committee determined that neither a two tier structure nor a three tier structure sufficiently accounted for the range of market shares of smaller Equity Execution Venues. The Operating Committee also determined that, given the limited number of Equity Execution Venues, that a fifth tier was unnecessary to address the range of market shares of the Equity Execution Venues.

By increasing the number of tiers for Equity Execution Venues and reducing the proposed CAT Fees for the smaller Equity Execution Venues, the Operating Committee believes that the proposed fees for Equity Execution Venues would not impose an undue or inappropriate burden on competition under Section 6 or Section 15A of the Exchange Act. Moreover, the Operating Committee believes that the proposed fees appropriately take into account the distinctions in the securities trading operations of different Equity Execution Venues, as required under the funding principles of the CAT NMS Plan.[57] The larger number of tiers more closely tracks the variety of sizes of equity share volume of Equity Execution Venues. In addition, the reduction in the fees for the smaller Equity Execution Venues recognizes the potential burden of larger fees on smaller entities. In particular, the very small quarterly fee of $129 for Tier 4 Equity Execution Venues reflects the fact that certain Equity Execution Venues have a very small share volume due to their typically more focused business models.

Accordingly, with this Amendment, the Exchange proposes to amend paragraph (b)(2) of the proposed fee schedule to add the two additional tiers for Equity Execution

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[57] Section 11.2(b) of the CAT NMS Plan.

Venues, to establish the percentages and fees for Tiers 3 and 4 as described, and to revise the percentages and fees for Tiers 1 and 2 as described.

**(ii) Execution Venues for OTC Equity Securities**

In the Original Proposal, the Operating Committee proposed to group Execution Venues for OTC Equity Securities and Execution Venues for NMS Stocks in the same tier structure. The Commission and commenters raised concerns as to whether this determination to place Execution Venues for OTC Equity Securities in the same tier structure as Execution Venues for NMS Stocks would result in an undue or inappropriate burden on competition, recognizing that the application of share volume may lead to different outcomes as applied to OTC Equity Securities and NMS Stocks.[58] To address this concern, the Operating Committee proposes to discount the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF by the average shares per trade ratio between NMS Stocks and OTC Equity Securities (0.17% for the second quarter of 2017) in order to adjust for the greater number of shares being traded in the OTC Equity Securities market, which is generally a function of a lower per share price for OTC Equity Securities when compared to NMS Stocks.

As commenters noted, many OTC Equity Securities are priced at less than one dollar—and a significant number at less than one penny—and low-priced shares tend to trade in larger quantities. Accordingly, a disproportionately large number of shares are involved in transactions involving OTC Equity Securities versus NMS Stocks, which has the effect of overstating an Execution Venue's true market share when the Execution

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[58] See Suspension Order at 31664-5.

Venue is involved in the trading of OTC Equity Securities. Because the proposed fee tiers are based on market share calculated by share volume, Execution Venue ATSs trading OTC Equity Securities and FINRA may be subject to higher tiers than their operations may warrant.[59] The Operating Committee proposes to address this concern in two ways. First, the Operating Committee proposes to increase the number of Equity Execution Venue tiers, as discussed above. Second, the Operating Committee determined to discount the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF when calculating their tier placement. Because the disparity in share volume between Execution Venues trading in OTC Equity Securities and NMS Stocks is based on the different number of shares per trade for OTC Equity Securities and NMS Stocks, the Operating Committee believes that discounting the share volume of such Execution Venue ATSs as well as the market share of the FINRA ORF would address the difference in shares per trade for OTC Equity Securities and NMS Stocks. Specifically, the Operating Committee proposes to impose a discount based on the objective measure of the average shares per trade ratio between NMS Stocks and OTC Equity Securities. Based on available data from the second quarter of 2017, the average shares per trade ratio between NMS Stocks and OTC Equity Securities is 0.17%.

The practical effect of applying such a discount for trading in OTC Equity Securities is to shift Execution Venue ATSs exclusively trading OTC Equity Securities to tiers for smaller Execution Venues and with lower fees. For example, under the Original Proposal, one Execution Venue ATS exclusively trading OTC Equity Securities was

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[59] Suspension Order at 31664-5.

placed in the first CAT Fee tier, which had a quarterly fee of $63,375. With the imposition of the proposed tier changes and the discount, this ATS would be ranked in Tier 3 and would owe a quarterly fee of $21,126.

In developing the proposed discount for Equity Execution Venue ATSs exclusively trading OTC Equity Securities and FINRA, the Operating Committee evaluated different alternatives to address the concerns related to OTC Equity Securities, including creating a separate tier structure for Execution Venues trading OTC Equity Securities (like the separate tier for Options Execution Venues) as well as the proposed discounting method for Execution Venue ATSs exclusively trading OTC Equity Securities and FINRA. For these alternatives, the Operating Committee considered how each alternative would affect the recovery allocations. In addition, each of these options was considered in the context of the full model, as changes in each variable in the model affect other variables in the model when allocating the total CAT costs among CAT Reporters. The Operating Committee did not adopt a separate tier structure for Equity Execution Venues trading OTC Equity Securities as they determined that the proposed discount approach appropriately addresses the concern. The Operating Committee determined to adopt the proposed discount because it directly relates to the concern regarding the trading patterns and operations in the OTC Equity Securities markets, and is an objective discounting method.

By increasing the number of tiers for Equity Execution Venues and imposing a discount on the market share of share volume calculation for trading in OTC Equity Securities, the Operating Committee believes that the proposed fees for Equity Execution Venues would not impose an undue or inappropriate burden on competition under

Section 6 or Section 15A of the Exchange Act. Moreover, the Operating Committee believes that the proposed fees appropriately take into account the distinctions in the securities trading operations of different Equity Execution Venues, as required under the funding principles of the CAT NMS Plan.[60] As discussed above, the larger number of tiers more closely tracks the variety of sizes of equity share volume of Equity Execution Venues. In addition, the proposed discount recognizes the different types of trading operations at Equity Execution Venues trading OTC Equity Securities versus those trading NMS Stocks, thereby more closing matching the relative revenue generation by Equity Execution Venues trading OTC Equity Securities to their CAT Fees.

Accordingly, with this Amendment, the Exchange proposes to amend paragraph (b)(2) of the proposed fee schedule to indicate that the market share for Equity ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF would be discounted. In addition, as discussed above, to address concerns related to smaller ATSs, including those that exclusively trade OTC Equity Securities, the Exchange proposes to amend paragraph (b)(2) of the proposed fee schedule to add two additional tiers for Equity Execution Venues, to establish the percentages and fees for Tiers 3 and 4 as described, and to revise the percentages and fees for Tiers 1 and 2 as described.

**(B) Market Makers**

In the Original Proposal, the Operating Committee proposed to include both Options Market Maker quotes and equities market maker quotes in the calculation of total message traffic for such market makers for purposes of tiering for Industry Members

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[60] Section 11.2(b) of the CAT NMS Plan.

(other than Execution Venue ATSs). The Commission and commenters raised questions as to whether the proposed treatment of Options Market Maker quotes may result in an undue or inappropriate burden on competition or may lead to a reduction in market quality.[61] To address this concern, the Operating Committee determined to discount the Options Market Maker quotes by the trade to quote ratio for options when calculating message traffic for Options Market Makers. Similarly, to avoid disincentives to quoting behavior on the equities side as well, the Operating Committee determined to discount equity market maker quotes by the trade to quote ratio for equities when calculating message traffic for equities market makers.

In the Original Proposal, market maker quotes were treated the same as other message traffic for purposes of tiering for Industry Members (other than Execution Venue ATSs). Commenters noted, however, that charging Industry Members on the basis of message traffic will impact market makers disproportionately because of their continuous quoting obligations. Moreover, in the context of options market makers, message traffic would include bids and offers for every listed options strikes and series, which are not an issue for equities.[62] The Operating Committee proposes to address this concern in two ways. First, the Operating Committee proposes to discount Options Market Maker quotes when calculating the Options Market Makers' tier placement. Specifically, the Operating Committee proposes to impose a discount based on the objective measure of the trade to quote ratio for options. Based on available data from June 2016 through June 2017, the trade to quote ratio for options is 0.01%. Second, the

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61 See Suspension Order at 31663-4; SIFMA Letter at 4-6; FIA Principal Traders Group Letter at 3; Sidley Letter at 2-6; Group One Letter at 2-6; and Belvedere Letter at 2.

62 Suspension Order at 31664.

Operating Committee proposes to discount equities market maker quotes when calculating the equities market makers' tier placement. Specifically, the Operating Committee proposes to impose a discount based on the objective measure of the trade to quote ratio for equities. Based on available data for June 2016 through June 2017, this trade to quote ratio for equities is 5.43%.

The practical effect of applying such discounts for quoting activity is to shift market makers' calculated message traffic lower, leading to the potential shift to tiers for lower message traffic and reduced fees. Such an approach would move sixteen Industry Member CAT Reporters that are market makers to a lower tier than in the Original Proposal. For example, under the Original Proposal, Broker-Dealer Firm ABC was placed in the first CAT Fee tier, which had a quarterly fee of $101,004. With the imposition of the proposed tier changes and the discount, Broker-Dealer Firm ABC, an options market maker, would be ranked in Tier 3 and would owe a quarterly fee of $40,899.

In developing the proposed market maker discounts, the Operating Committee considered various discounts for Options Market Makers and equity market makers, including discounts of 50%, 25%, 0.00002%, as well as the 5.43% for option market makers and 0.01% for equity market makers. Each of these options were considered in the context of the full model, as changes in each variable in the model affect other variables in the model when allocating the total CAT costs among CAT Reporters. The Operating Committee determined to adopt the proposed discount because it directly relates to the concern regarding the quoting requirement, is an objective discounting method, and has the desired potential to shift market makers to lower fee tiers.

By imposing a discount on Options Market Makers and equities market makers' quoting traffic for the calculation of message traffic, the Operating Committee believes that the proposed fees for market makers would not impose an undue or inappropriate burden on competition under Section 6 or Section 15A of the Exchange Act. Moreover, the Operating Committee believes that the proposed fees appropriately take into account the distinctions in the securities trading operations of different Industry Members, and avoid disincentives, such as a reduction in market quality, as required under the funding principles of the CAT NMS Plan.[63] The proposed discounts recognize the different types of trading operations presented by Options Market Makers and equities market makers, as well as the value of the market makers' quoting activity to the market as a whole. Accordingly, the Operating Committee believes that the proposed discounts will not impact the ability of small Options Market Makers or equities market makers to provide liquidity.

Accordingly, with this Amendment, the Exchange proposes to amend paragraph (b)(1) of the proposed fee schedule to indicate that the message traffic related to equity market maker quotes and Options Market Maker quotes would be discounted. In addition, the Exchange proposes to define the term "Options Market Maker" in paragraph (a)(1) of the proposed fee schedule.

**(C) Comparability/Allocation of Costs**

Under the Original Proposal, 75% of CAT costs were allocated to Industry Members (other than Execution Venue ATSs) and 25% of CAT costs were allocated to Execution Venues. This cost allocation sought to maintain the greatest level of

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63 Section 11.2(b) of the CAT NMS Plan.

comparability across the funding model, where comparability considered affiliations among or between CAT Reporters. The Commission and commenters expressed concerns regarding whether the proposed 75%/25% allocation of CAT costs is consistent with the Plan's funding principles and the Exchange Act, including whether the allocation places a burden on competition or reduces market quality. The Commission and commenters also questioned whether the approach of accounting for affiliations among CAT Reporters in setting CAT Fees disadvantages non-affiliated CAT Reporters or otherwise burdens competition in the market for trading services.[64]

In response to these concerns, the Operating Committee determined to revise the proposed funding model to focus the comparability of CAT Fees on the individual entity level, rather than primarily on the comparability of affiliated entities. In light of the interconnected nature of the various aspects of the funding model, the Operating Committee determined to revise various aspects of the model to enhance comparability at the individual entity level. Specifically, to achieve such comparability, the Operating Committee determined to (1) decrease the number of tiers for Industry Members (other than Execution Venue ATSs) from nine to seven; (2) change the allocation of CAT costs between Equity Execution Venues and Options Execution Venues from 75%/25% to 67%/33%; and (3) adjust tier percentages and recovery allocations for Equity Execution Venues, Options Execution Venues and Industry Members (other than Execution Venue ATSs). With these changes, the proposed funding model provides fee comparability for the largest individual entities, with the largest Industry Members (other than Execution

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64 See Suspension Order at 31662-3; SIFMA Letter at 3; Sidley Letter at 6-7; Group One Letter at 2; and Belvedere Letter at 2.

Venue ATSs), Equity Execution Venues and Options Execution Venues each paying a CAT Fee of approximately $81,000 each quarter.

**(i) Number of Industry Member Tiers**

In the Original Proposal, the proposed funding model had nine tiers for Industry Members (other than Execution Venue ATSs). The Operating Committee determined that reducing the number of tiers from nine tiers to seven tiers (and adjusting the predefined Industry Member Percentages as well) continues to provide a fair allocation of fees among Industry Members and appropriately distinguishes between Industry Members with differing levels of message traffic. In reaching this conclusion, the Operating Committee considered historical message traffic generated by Industry Members across all exchanges and as submitted to FINRA's OATS, and considered the distribution of firms with similar levels of message traffic, grouping together firms with similar levels of message traffic. Based on this, the Operating Committee determined that seven tiers would group firms with similar levels of message traffic, while also achieving greater comparability in the model for the individual CAT Reporters with the greatest market share or message traffic.

In developing the proposed seven tier structure, the Operating Committee considered remaining at nine tiers, as well as reducing the number of tiers down to seven when considering how to address the concerns raised regarding comparability. For each of the alternatives, the Operating Committee considered the assignment of various percentages of Industry Members to each tier as well as various percentages of Industry Member recovery allocations for each alternative. Each of these options was considered in the context of its effects on the full funding model, as changes in each variable in the

model affect other variables in the model when allocating the total CAT costs among CAT Reporters. The Operating Committee determined that the seven tier alternative provided the most fee comparability at the individual entity level for the largest CAT Reporters, while both providing logical breaks in tiering for Industry Members with different levels of message traffic and a sufficient number of tiers to provide for the full spectrum of different levels of message traffic for all Industry Members.

**(ii) Allocation of CAT Costs between Equity and Options Execution Venues**

The Operating Committee also determined to adjust the allocation of CAT costs between Equity Execution Venues and Options Execution Venues to enhance comparability at the individual entity level. In the Original Proposal, 75% of Execution Venue CAT costs were allocated to Equity Execution Venues, and 25% of Execution Venue CAT costs were allocated to Options Execution Venues. To achieve the goal of increased comparability at the individual entity level, the Operating Committee analyzed a range of alternative splits for revenue recovery between Equity and Options Execution Venues, along with other changes in the proposed funding model. Based on this analysis, the Operating Committee determined to allocate 67 percent of Execution Venue costs recovered to Equity Execution Venues and 33 percent to Options Execution Venues. The Operating Committee determined that a 67/33 allocation between Equity and Options Execution Venues enhances the level of fee comparability for the largest CAT Reporters. Specifically, the largest Equity and Options Execution Venues would pay a quarterly CAT Fee of approximately $81,000.

In developing the proposed allocation of CAT costs between Equity and Options Execution Venues, the Operating Committee considered various different options for

such allocation, including keeping the original 75%25% allocation, as well as shifting to a 70%/30%, 67%/33%, or 57.75%/42.25% allocation. For each of the alternatives, the Operating Committee considered the effect each allocation would have on the assignment of various percentages of Equity Execution Venues to each tier as well as various percentages of Equity Execution Venue recovery allocations for each alternative. Moreover, each of these options was considered in the context of the full model, as changes in each variable in the model affect other variables in the model when allocating the total CAT costs among CAT Reporters. The Operating Committee determined that the 67%/33% allocation between Equity and Options Execution Venues provided the greatest level of fee comparability at the individual entity level for the largest CAT Reporters, while still providing for appropriate fee levels across all tiers for all CAT Reporters.

**(iii) Allocation of Costs between Execution Venues and Industry Members**

The Operating Committee determined to allocate 25% of CAT costs to Execution Venues and 75% to Industry Members (other than Execution Venue ATSs), as it had in the Original Proposal. The Operating Committee determined that this 75%/25% allocation, along with the other changes proposed above, led to the most comparable fees for the largest Equity Execution Venues, Options Execution Venues and Industry Members (other than Execution Venue ATSs). The largest Equity Execution Venues, Options Execution Venues and Industry Members (other than Execution Venue ATSs) would each pay a quarterly CAT Fee of approximately $81,000.

As a preliminary matter, the Operating Committee determined that it is appropriate to allocate most of the costs to create, implement and maintain the CAT to

Industry Members for several reasons. First, there are many more broker-dealers expected to report to the CAT than Participants (i.e., 1,541 broker-dealer CAT Reporters versus 22 Participants). Second, since most of the costs to process CAT reportable data is generated by Industry Members, Industry Members could be expected to contribute toward such costs. Finally, as noted by the SEC, the CAT "substantially enhance[s] the ability of the SROs and the Commission to oversee today's securities markets,"[65] thereby benefitting all market participants. After making this determination, the Operating Committee analyzed several different cost allocations, as discussed further below, and determined that an allocation where 75% of the CAT costs should be borne by the Industry Members (other than Execution Venue ATSs) and 25% should be paid by Execution Venues was most appropriate and led to the greatest comparability of CAT Fees for the largest CAT Reporters.

In developing the proposed allocation of CAT costs between Execution Venues and Industry Members (other than Execution Venue ATSs), the Operating Committee considered various different options for such allocation, including keeping the original 75%/25% allocation, as well as shifting to an 80%/20%, 70%/30%, or 65%/35% allocation. Each of these options was considered in the context of the full model, including the effect on each of the changes discussed above, as changes in each variable in the model affect other variables in the model when allocating the total CAT costs among CAT Reporters. In particular, for each of the alternatives, the Operating Committee considered the effect each allocation had on the assignment of various percentages of Equity Execution Venues, Options Execution Venues and Industry

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65 Securities Exchange Act Release No. 67457 (July 18, 2012), 77 FR 45722, 45726 (August 1, 2012) ("Rule 613 Adopting Release").

Members (other than Execution Venue ATSs) to each relevant tier as well as various percentages of recovery allocations for each tier. The Operating Committee determined that the 75%/25% allocation between Execution Venues and Industry Members (other than Execution Venue ATSs) provided the greatest level of fee comparability at the individual entity level for the largest CAT Reporters, while still providing for appropriate fee levels across all tiers for all CAT Reporters.

**(iv) Affiliations**

The funding principles set forth in Section 11.2 of the Plan require that the fees charged to CAT Reporters with the most CAT-related activity (measured by market share and/or message traffic, as applicable) are generally comparable (where, for these comparability purposes, the tiered fee structure takes into consideration affiliations between or among CAT Reporters, whether Execution Venue and/or Industry Members). The proposed funding model satisfies this requirement. As discussed above, under the proposed funding model, the largest Equity Execution Venues, Options Execution Venues, and Industry Members (other than Execution Venue ATSs) pay approximately the same fee. Moreover, the Operating Committee believes that the proposed funding model takes into consideration affiliations between or among CAT Reporters as complexes with multiple CAT Reporters will pay the appropriate fee based on the proposed fee schedule for each of the CAT Reporters in the complex. For example, a complex with a Tier 1 Equity Execution Venue and Tier 2 Industry Member will a pay the same as another complex with a Tier 1 Equity Execution Venue and Tier 2 Industry Member.

**(v) Fee Schedule Changes**

Accordingly, with this Amendment, the Exchange proposes to amend paragraphs (b)(1) and (2) of the proposed fee schedule to reflect the changes discussed in this section. Specifically, the Exchange proposes to amend paragraph (b)(1) and (2) of the proposed fee schedule to update the number of tiers, and the fees and percentages assigned to each tier to reflect the described changes.

**(D) Market Share/Message Traffic**

In the Original Proposal, the Operating Committee proposed to charge Execution Venues based on market share and Industry Members (other than Execution Venue ATSs) based on message traffic. Commenters questioned the use of the two different metrics for calculating CAT Fees.[66] The Operating Committee continues to believe that the proposed use of market share and message traffic satisfies the requirements of the Exchange Act and the funding principles set forth in the CAT NMS Plan. Accordingly, the proposed funding model continues to charge Execution Venues based on market share and Industry Members (other than Execution Venue ATSs) based on message traffic.

In drafting the Plan and the Original Proposal, the Operating Committee expressed the view that the correlation between message traffic and size does not apply to Execution Venues, which they described as producing similar amounts of message traffic regardless of size. The Operating Committee believed that charging Execution Venues based on message traffic would result in both large and small Execution Venues paying comparable fees, which would be inequitable, so the Operating Committee determined that it would be more appropriate to treat Execution Venues differently from Industry Members in the funding model. Upon a more detailed analysis of available data,

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[66] Suspension Order at 31663; FIA Principal Traders Group Letter at 2.

however, the Operating Committee noted that Execution Venues have varying levels of message traffic. Nevertheless, the Operating Committee continues to believe that a bifurcated funding model – where Industry Members (other than Execution Venue ATSs) are charged fees based on message traffic and Execution Venues are charged based on market share – complies with the Plan and meets the standards of the Exchange Act for the reasons set forth below.

Charging Industry Members based on message traffic is the most equitable means for establishing fees for Industry Members (other than Execution Venue ATSs). This approach will assess fees to Industry Members that create larger volumes of message traffic that are relatively higher than those fees charged to Industry Members that create smaller volumes of message traffic. Since message traffic, along with fixed costs of the Plan Processor, is a key component of the costs of operating the CAT, message traffic is an appropriate criterion for placing Industry Members in a particular fee tier.

The Operating Committee also believes that it is appropriate to charge Execution Venues CAT Fees based on their market share. In contrast to Industry Members (other than Execution Venue ATSs), which determine the degree to which they produce the message traffic that constitutes CAT Reportable Events, the CAT Reportable Events of Execution Venues are largely derivative of quotations and orders received from Industry Members that the Execution Venues are required to display. The business model for Execution Venues, however, is focused on executions in their markets. As a result, the Operating Committee believes that it is more equitable to charge Execution Venues based on their market share rather than their message traffic.

Similarly, focusing on message traffic would make it more difficult to draw distinctions between large and small exchanges, including options exchanges in particular. For instance, the Operating Committee analyzed the message traffic of Execution Venues and Industry Members for the period of April 2017 to June 2017 and placed all CAT Reporters into a nine-tier framework (i.e., a single tier may include both Execution Venues and Industry Members). The Operating Committee's analysis found that the majority of exchanges (15 total) were grouped in Tiers 1 and 2. Moreover, virtually all of the options exchanges were in Tiers 1 and 2.[67] Given the concentration of options exchanges in Tiers 1 and 2, the Operating Committee believes that using a funding model based purely on message traffic would make it more difficult to distinguish between large and small options exchanges, as compared to the proposed bifurcated fee approach.

In addition, the Operating Committee also believes that it is appropriate to treat ATSs as Execution Venues under the proposed funding model since ATSs have business models that are similar to those of exchanges, and ATSs also compete with exchanges. For these reasons, the Operating Committee believes that charging Execution Venues based on market share is more appropriate and equitable than charging Execution Venues based on message traffic.

**(E) Time Limit**

In the Original Proposal, the Operating Committee did not impose any time limit on the application of the proposed CAT Fees. As discussed above, the Operating Committee developed the proposed funding model by analyzing currently available

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67 The Participants note that this analysis did not place MIAX PEARL in Tier 1 or Tier 2 since the exchange commenced trading on February 6, 2017.

historical data. Such historical data, however, is not as comprehensive as data that will be submitted to the CAT. Accordingly, the Operating Committee believes that it will be appropriate to revisit the funding model once CAT Reporters have actual experience with the funding model. Accordingly, the Operating Committee proposes to include a sunsetting provision in the proposed fee model. The proposed CAT Fees will sunset two years after the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants. Specifically, the Exchange proposes to add paragraph (d) of the proposed fee schedule to include this sunsetting provision. Such a provision will provide the Operating Committee and other market participants with the opportunity to reevaluate the performance of the proposed funding model.

**(F) Tier Structure/Decreasing Cost per Unit**

In the Original Proposal, the Operating Committee determined to use a tiered fee structure. The Commission and commenters questioned whether the decreasing cost per additional unit (of message traffic in the case of Industry Members, or of share volume in the case of Execution Venues) in the proposed fee schedules burdens competition by disadvantaging small Industry Members and Execution Venues and/or by creating barriers to entry in the market for trading services and/or the market for broker-dealer services.[68]

The Operating Committee does not believe that decreasing cost per additional unit in the proposed fee schedules places an unfair competitive burden on Small Industry Members and Execution Venues. While the cost per unit of message traffic or share volume necessarily will decrease as volume increases in any tiered fee model using fixed

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[68] Suspension Order at 31667.

fee percentages and, as a result, Small Industry Members and small Execution Venues may pay a larger fee per message or share, this comment fails to take account of the substantial differences in the absolute fees paid by Small Industry Members and small Execution Venues as opposed to large Industry Members and large Execution Venues. For example, under the fee proposals, Tier 7 Industry Members would pay a quarterly fee of $105, while Tier 1 Industry Members would pay a quarterly fee of $81,483. Similarly, a Tier 4 Equity Execution Venue would pay a quarterly fee of $129, while a Tier 1 Equity Execution Venue would pay a quarterly fee of $81,048. Thus, Small Industry Members and small Execution Venues are not disadvantaged in terms of the total fees that they actually pay. In contrast to a tiered model using fixed fee percentages, the Operating Committee believes that strictly variable or metered funding models based on message traffic or share volume would be more likely to affect market behavior and may present administrative challenges (*e.g.*, the costs to calculate and monitor fees may exceed the fees charged to the smallest CAT Reporters).

**(G) Other Alternatives Considered**

In addition to the various funding model alternatives discussed above regarding discounts, number of tiers and allocation percentages, the Operating Committee also discussed other possible funding models. For example, the Operating Committee considered allocating the total CAT costs equally among each of the Participants, and then permitting each Participant to charge its own members as it deems appropriate.[69] The Operating Committee determined that such an approach raised a variety of issues, including the likely inconsistency of the ensuing charges, potential for lack of

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69 See FIA Principal Traders Group Letter at 2; Belvedere Letter at 4.

transparency, and the impracticality of multiple SROs submitting invoices for CAT charges. The Operating Committee therefore determined that the proposed funding model was preferable to this alternative.

**(H) Industry Member Input**

Commenters expressed concern regarding the level of Industry Member input into the development of the proposed funding model, and certain commenters have recommended a greater role in the governance of the CAT.[70] The Participants previously addressed this concern in its letters responding to comments on the Plan and the CAT Fees.[71] As discussed in those letters, the Participants discussed the funding model with the Development Advisory Group ("DAG"), the advisory group formed to assist in the development of the Plan, during its original development.[72] Moreover, Industry Members currently have a voice in the affairs of the Operating Committee and operation of the CAT generally through the Advisory Committee established pursuant to Rule 613(b)(7) and Section 4.13 of the Plan. The Advisory Committee attends all meetings of the Operating Committee, as well as meetings of various subcommittees and working groups, and provides valuable and critical input for the Participants' and Operating Committee's consideration. The Operating Committee continues to believe that that Industry Members have an appropriate voice regarding the funding of the Company.

**(I) Conflicts of Interest**

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70 See Suspension Order at 31662; MFA Letter at 1-2.

71 Letter from Participants to Brent J. Fields, Secretary, SEC (Sept. 23, 2016) ("Plan Response Letter"); Letter from CAT NMS Plan Participants to Brent J. Fields, Secretary, SEC (June 29, 2017) ("Fee Rule Response Letter").

72 Fee Rule Response Letter at 2; Plan Response Letter at 18.

Commenters also raised concerns regarding Participant conflicts of interest in setting the CAT Fees.[73] The Participants previously responded to this concern in both the Plan Response Letter and the Fee Rule Response Letter.[74] As discussed in those letters, the Plan, as approved by the SEC, adopts various measures to protect against the potential conflicts issues raised by the Participants' fee-setting authority. Such measures include the operation of the Company as a not for profit business league and on a break-even basis, and the requirement that the Participants file all CAT Fees under Section 19(b) of the Exchange Act. The Operating Committee continues to believe that these measures adequately protect against concerns regarding conflicts of interest in setting fees, and that additional measures, such as an independent third party to evaluate an appropriate CAT Fee, are unnecessary.

**(J) Fee Transparency**

Commenters also argued that they could not adequately assess whether the CAT Fees were fair and equitable because the Operating Committee has not provided details as to what the Participants are receiving in return for the CAT Fees.[75] The Operating Committee provided a detailed discussion of the proposed funding model in the Plan, including the expenses to be covered by the CAT Fees. In addition, the agreement between the Company and the Plan Processor sets forth a comprehensive set of services to be provided to the Company with regard to the CAT. Such services include, without limitation: user support services (e.g., a help desk); tools to allow each CAT Reporter to monitor and correct their submissions; a comprehensive compliance program to monitor

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73 See Suspension Order at 31662; FIA Principal Traders Group at 3.

74 See Plan Response Letter at 16, 17; Fee Rule Response Letter at 10-12.

75 See FIA Principal Traders Group at 3; SIFMA Letter at 3.

CAT Reporters' adherence to Rule 613; publication of detailed Technical Specifications for Industry Members and Participants; performing data linkage functions; creating comprehensive data security and confidentiality safeguards; creating query functionality for regulatory users (i.e., the Participants, and the SEC and SEC staff); and performing billing and collection functions. The Operating Committee further notes that the services provided by the Plan Processor and the costs related thereto were subject to a bidding process.

**(K) Funding Authority**

Commenters also questioned the authority of the Operating Committee to impose CAT Fees on Industry Members.[76] The Participants previously responded to this same comment in the Plan Response Letter and the Fee Rule Response Letter.[77] As the Participants previously noted, SEC Rule 613 specifically contemplates broker-dealers contributing to the funding of the CAT. In addition, as noted by the SEC, the CAT "substantially enhance[s] the ability of the SROs and the Commission to oversee today's securities markets,"[78] thereby benefitting all market participants. Therefore, the Operating Committing continues to believe that it is equitable for both Participants and Industry Members to contribute to funding the cost of the CAT.

b. Statutory Basis

The Exchange believes that its proposal is consistent with Section 6(b) of the Act,[79] in general, and furthers the objectives of Sections 6(b)(4) and 6(b)(5) of the Act,[80]

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76 See Suspension Order at 31661-2; SIFMA Letter at 2.

77 See Plan Response Letter at 9-10; Fee Rule Response Letter at 3-4.

78 Rule 613 Adopting Release at 45726.

79 15 U.S.C. 78f(b).

in particular, in that it provides for the equitable allocation of reasonable dues, fees, and other charges among members and issuers and other persons using any facility, is not designed to permit unfair discrimination between customers, issuers, brokers, or dealers, and is designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, and, in general, to protect investors and the public interest. As discussed above, the SEC approved the bifurcated, tiered, fixed fee funding model in the CAT NMS Plan, finding it was reasonable and that it equitably allocated fees among Participants and Industry Members. The Exchange believes that the proposed tiered fees adopted pursuant to the funding model approved by the SEC in the CAT NMS Plan are reasonable, equitably allocated and not unfairly discriminatory.

The Exchange believes that this proposal is consistent with the Act because it implements, interprets or clarifies the provisions of the Plan, and is designed to assist the Exchange and its Industry Members in meeting regulatory obligations pursuant to the Plan. In approving the Plan, the SEC noted that the Plan "is necessary and appropriate in the public interest, for the protection of investors and the maintenance of fair and orderly markets, to remove impediments to, and perfect the mechanism of a national market system, or is otherwise in furtherance of the purposes of the Act."[81] To the extent that this proposal implements, interprets or clarifies the Plan and applies specific requirements to Industry Members, the Exchange believes that this proposal furthers the objectives of the Plan, as identified by the SEC, and is therefore consistent with the Act.

The Exchange believes that the proposed tiered fees are reasonable. First, the total CAT Fees to be collected would be directly associated with the costs of establishing

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[80] 15 U.S.C. 78f(b)(4) and (5).

[81] Approval Order at 84697.

and maintaining the CAT, where such costs include Plan Processor costs and costs related to insurance, third party services and the operational reserve. The CAT Fees would not cover Participant services unrelated to the CAT. In addition, any surplus CAT Fees cannot be distributed to the individual Participants; such surpluses must be used as a reserve to offset future fees. Given the direct relationship between the fees and the CAT costs, the Exchange believes that the total level of the CAT Fees is reasonable.

In addition, the Exchange believes that the proposed CAT Fees are reasonably designed to allocate the total costs of the CAT equitably between and among the Participants and Industry Members, and are therefore not unfairly discriminatory. As discussed in detail above, the proposed tiered fees impose comparable fees on similarly situated CAT Reporters. For example, those with a larger impact on the CAT (measured via message traffic or market share) pay higher fees, whereas CAT Reporters with a smaller impact pay lower fees. Correspondingly, the tiered structure lessens the impact on smaller CAT Reporters by imposing smaller fees on those CAT Reporters with less market share or message traffic. In addition, the fee structure takes into consideration distinctions in securities trading operations of CAT Reporters, including ATSs trading OTC Equity Securities, and equity and options market makers.

Moreover, the Exchange believes that the division of the total CAT costs between Industry Members and Execution Venues, and the division of the Execution Venue portion of total costs between Equity and Options Execution Venues, is reasonably designed to allocate CAT costs among CAT Reporters. The 75%/25% division between Industry Members (other than Execution Venue ATSs) and Execution Venues maintains the greatest level of comparability across the funding model. For example, the cost

allocation establishes fees for the largest Industry Members (i.e., those Industry Members in Tiers 1) that are comparable to the largest Equity Execution Venues and Options Execution Venues (i.e., those Execution Venues in Tier 1). Furthermore, the allocation of total CAT cost recovery recognizes the difference in the number of CAT Reporters that are Industry Members (other than Execution Venue ATSs) versus CAT Reporters that are Execution Venues. Similarly, the 67%/33% allocation between Equity and Options Execution Venues also helps to provide fee comparability for the largest CAT Reporters.

Finally, the Exchange believes that the proposed fees are reasonable because they would provide ease of calculation, ease of billing and other administrative functions, and predictability of a fixed fee. Such factors are crucial to estimating a reliable revenue stream for the Company and for permitting CAT Reporters to reasonably predict their payment obligations for budgeting purposes.

4. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change will impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Act. The Exchange notes that the proposed rule change implements provisions of the CAT NMS Plan approved by the Commission, and is designed to assist the Exchange in meeting its regulatory obligations pursuant to the Plan. Similarly, all national securities exchanges and FINRA are proposing this proposed fee schedule to implement the requirements of the CAT NMS Plan. Therefore, this is not a competitive fee filing and, therefore, it does not raise competition issues between and among the exchanges and FINRA.

Moreover, as previously described, the Exchange believes that the proposed rule change fairly and equitably allocates costs among CAT Reporters. In particular, the proposed fee schedule is structured to impose comparable fees on similarly situated CAT Reporters, and lessen the impact on smaller CAT Reporters. CAT Reporters with similar levels of CAT activity will pay similar fees. For example, Industry Members (other than Execution Venue ATSs) with higher levels of message traffic will pay higher fees, and those with lower levels of message traffic will pay lower fees. Similarly, Execution Venue ATSs and other Execution Venues with larger market share will pay higher fees, and those with lower levels of market share will pay lower fees. Therefore, given that there is generally a relationship between message traffic and/or market share to the CAT Reporter's size, smaller CAT Reporters generally pay less than larger CAT Reporters. Accordingly, the Exchange does not believe that the CAT Fees would have a disproportionate effect on smaller or larger CAT Reporters. In addition, ATSs and exchanges will pay the same fees based on market share. Therefore, the Exchange does not believe that the fees will impose any burden on the competition between ATSs and exchanges. Accordingly, the Exchange believes that the proposed fees will minimize the potential for adverse effects on competition between CAT Reporters in the market.

Furthermore, the tiered, fixed fee funding model limits the disincentives to providing liquidity to the market. Therefore, the proposed fees are structured to limit burdens on competitive quoting and other liquidity provision in the market.

In addition, the Operating Committee believes that the proposed changes to the Original Proposal, as discussed above in detail, address certain competitive concerns raised by commenters, including concerns related to, among other things, smaller ATSs,

ATSs trading OTC Equity Securities, market making quoting and fee comparability. As discussed above, the Operating Committee believes that the proposals address the competitive concerns raised by commenters.

5. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

The Exchange has set forth responses to comments received regarding the Original Proposal in Section 3(a)(4) above.

6. Extension of Time Period for Commission Action

Not applicable.

7. Basis for Summary Effectiveness Pursuant to Section 19(b)(3) or for Accelerated Effectiveness Pursuant to Section 19(b)(2)

Pursuant to Section 19(b)(3)(A)(ii) of the Act,[82] the Exchange has designated this proposal as establishing or changing a due, fee, or other charge imposed by the self-regulatory organization on any person, whether or not the person is a member of the self-regulatory organization, which renders the proposed rule change effective upon filing.

At any time within 60 days of the filing of the proposed rule change, the Commission summarily may temporarily suspend such rule change if it appears to the Commission that such action is: (i) necessary or appropriate in the public interest; (ii) for the protection of investors; or (iii) otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission shall institute proceedings to determine whether the proposed rule should be approved or disapproved.

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[82] 15 U.S.C. 78s(b)(3)(A)(ii).

8. Proposed Rule Change Based on Rules of Another Self-Regulatory Organization or of the Commission

As discussed in detail above, certain provisions of the proposed fee schedule are based on the requirements of Rule 613 and the CAT NMS Plan. In addition, other provisions implement the determinations made by the Operating Committee pursuant to the CAT NMS Plan.

9. Security-Based Swap Submissions Filed Pursuant to Section 3C of the Act

Not applicable.

10. Advance Notices Filed Pursuant to Section 806(e) of the Payment, Clearing and Settlement Supervision Act

Not applicable.

11. Exhibits

1. Notice of Proposed Rule Change for publication in the Federal Register

3. Appendix

4. Text of proposed rule change as amended

5. Text of the proposed rule change

**EXHIBIT 1**

SECURITIES AND EXCHANGE COMMISSION
(Release No. ; File No. SR-NASDAQ-2017-046)

November __, 2017

Self-Regulatory Organizations; The Nasdaq Stock Market LLC; Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Adopt Rule 7004 and Chapter XV, Section 14

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act")[1], and Rule 19b-4 thereunder,[2] notice is hereby given that on November 6, 2017, The Nasdaq Stock Market LLC ("Nasdaq" or "Exchange") filed with the Securities and Exchange Commission ("SEC" or "Commission") the proposed rule change as described in Items I, II, and III, below, which Items have been prepared by the Exchange. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

On May 12, 2017, The Nasdaq Stock Market LLC filed with the Securities and Exchange Commission ("Commission" or "SEC") proposed rule change SR-NASDAQ-2017-046 (the "Original Proposal"), pursuant to which the Exchange proposed to adopt a fee schedule to establish the fees for Industry Members related to the National Market System Plan Governing the Consolidated Audit Trail (the "CAT NMS Plan" or "Plan").[3] The Exchange is filing this proposed rule change (the "Amendment") to amend the

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1 15 U.S.C. 78s(b)(1).

2 17 CFR 240.19b-4.

3 Unless otherwise specified, capitalized terms used in this fee filing are defined as set forth herein, the CAT Compliance Rule Series, in the CAT NMS Plan, or the Original Proposal.

Original Proposal. This Amendment replaces the Original Proposal in its entirety, and also describes the changes from the Original Proposal.

With this Amendment, the Exchange is including Exhibit 4, which reflects the changes to the text of the proposed rule change as set forth in the Original Proposal, and Exhibit 5, which reflects all proposed changes to the Exchange's current rule text.

The text of the proposed rule change is available on the Exchange's Website at www.ise.com, at the principal office of the Exchange, and at the Commission's Public Reference Room.

## II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the Exchange included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant aspects of such statements.

### A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

#### 1. Purpose

BOX Options Exchange LLC, Cboe BYX Exchange, Inc., Cboe BZX Exchange, Inc., Cboe EDGA Exchange, Inc., Cboe EDGX Exchange, Inc., Cboe C2 Exchange, Inc., Cboe Exchange, Inc.,[4] Chicago Stock Exchange, Inc., Financial Industry Regulatory

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[4] Note that Bats BYX Exchange, Inc., Bats BZX Exchange, Inc., Bats EDGA Exchange, Inc., Bats EDGX Exchange, Inc., LLC, C2 Options Exchange, Incorporated, and Chicago Board Options Exchange, Incorporated, have been renamed Cboe BYX Exchange, Inc., Cboe BZX Exchange, Inc., Cboe EDGA Exchange, Inc., Cboe EDGX Exchange, Inc., Cboe C2 Exchange, Inc., Cboe Exchange, Inc., respectively.

Authority, Inc. ("FINRA"), Investors' Exchange LLC, Miami International Securities Exchange, LLC, MIAX PEARL, LLC, Nasdaq BX, Inc., Nasdaq GEMX, LLC, Nasdaq ISE, LLC, Nasdaq MRX, LLC,[5] Nasdaq PHLX LLC, The Nasdaq Stock Market LLC, New York Stock Exchange LLC, NYSE American LLC,[6] NYSE Arca, Inc. and NYSE National, Inc.[7] (collectively, the "Participants") filed with the Commission, pursuant to Section 11A of the Exchange Act[8] and Rule 608 of Regulation NMS thereunder,[9] the CAT NMS Plan.[10] The Participants filed the Plan to comply with Rule 613 of Regulation NMS under the Exchange Act. The Plan was published for comment in the Federal Register on May 17, 2016,[11] and approved by the Commission, as modified, on

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5 ISE Gemini, LLC, ISE Mercury, LLC and International Securities Exchange, LLC have been renamed Nasdaq GEMX, LLC, Nasdaq MRX, LLC, and Nasdaq ISE, LLC, respectively. See Securities Exchange Act Release No. 80248 (March 15, 2017), 82 FR 14547 (March 21, 2017); Securities Exchange Act Release No. 80326 (March 29, 2017), 82 FR 16460 (April 4, 2017); and Securities Exchange Act Release No. 80325 (March 29, 2017), 82 FR 16445 (April 4, 2017).

6 NYSE MKT LLC has been renamed NYSE American LLC. See Securities Exchange Act Release No. 80283 (March 21, 2017), 82 FR 15244 (March 27, 2017).

7 National Stock Exchange, Inc. has been renamed NYSE National, Inc. See Securities Exchange Act Release No. 79902 (January 30, 2017), 82 FR 9258 (February 3, 2017).

8 15 U.S.C. 78k-1.

9 17 CFR 242.608.

10 See Letter from the Participants to Brent J. Fields, Secretary, Commission, dated September 30, 2014; and Letter from Participants to Brent J. Fields, Secretary, Commission, dated February 27, 2015. On December 24, 2015, the Participants submitted an amendment to the CAT NMS Plan. See Letter from Participants to Brent J. Fields, Secretary, Commission, dated December 23, 2015.

11 Securities Exchange Act Release No. 77724 (April 27, 2016), 81 FR 30614 (May 17, 2016).

November 15, 2016.[12] The Plan is designed to create, implement and maintain a consolidated audit trail ("CAT") that would capture customer and order event information for orders in NMS Securities and OTC Equity Securities, across all markets, from the time of order inception through routing, cancellation, modification, or execution in a single consolidated data source. The Plan accomplishes this by creating CAT NMS, LLC (the "Company"), of which each Participant is a member, to operate the CAT.[13] Under the CAT NMS Plan, the Operating Committee of the Company ("Operating Committee") has discretion to establish funding for the Company to operate the CAT, including establishing fees that the Participants will pay, and establishing fees for Industry Members that will be implemented by the Participants ("CAT Fees").[14] The Participants are required to file with the SEC under Section 19(b) of the Exchange Act any such CAT Fees applicable to Industry Members that the Operating Committee approves.[15] Accordingly, the Exchange submitted the Original Proposal to propose the Consolidated Audit Trail Funding Fees, which would require Industry Members that are SRO members to pay the CAT Fees determined by the Operating Committee.

The Commission published the Original Proposal for public comment in the Federal Register on May 22, 2017,[16] and received comments in response to the Original

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12 Securities Exchange Act Release No. 79318 (November 15, 2016), 81 FR 84696 (November 23, 2016) ("Approval Order").

13 The Plan also serves as the limited liability company agreement for the Company.

14 Section 11.1(b) of the CAT NMS Plan.

15 Id.

16 See Securities Exchange Act Release No. 80696 (May 16, 2017), 82 FR 23439 (May 22, 2017) (SR-NASDAQ-2017-046).

Proposal or similar fee filings by other Participants.[17] On June 30, 2017, the Commission suspended, and instituted proceedings to determine whether to approve or disapprove, the Original Proposal.[18] The Commission received seven comment letters in response to those proceedings.[19]

In response to the comments on the Original Proposal, the Operating Committee determined to make the following changes to the funding model: (1) adds two additional CAT Fee tiers for Equity Execution Venues; (2) discounts the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA over-the-counter reporting facility ("ORF") by the average shares per trade ratio between NMS Stocks and OTC Equity Securities (calculated as 0.17% based on available data from the second quarter of 2017) when calculating the market share of Execution Venue ATS exclusively trading OTC Equity Securities and FINRA; (3) discounts the Options Market Maker quotes by the trade to quote ratio for options (calculated as 0.01% based on available data for June 2016 through June 2017) when calculating message

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17 For a summary of comments, see generally Securities Exchange Act Release No. 81067 (June 30, 2017), 82 FR 31656 (July 7, 2017) ("Suspension Order").

18 Suspension Order.

19 See Letter from Stuart J. Kaswell, Executive Vice President, Managing Director and General Counsel, Managed Funds Association, to Brent J. Fields, Secretary, SEC (July 28, 2017) ("MFA Letter"); Letter from Theodore R. Lazo, Managing Director and Associate General Counsel, SIFMA, to Brent J. Fields, Secretary, SEC (July 28, 2017) ("SIFMA Letter"); Joanna Mallers, Secretary, FIA Principal Traders Group, to Brent J. Fields, Secretary, SEC (July 28, 2017) ("FIA Principal Traders Group Letter"); Letter from Kevin Coleman, General Counsel & Chief Compliance Officer, Belvedere Trading LLC, to Brent J. Fields, Secretary, SEC (July 28, 2017) ("Belvedere Letter"); Letter from W. Hardy Callcott, Sidley Austin LLP, to Brent J. Fields, Secretary, SEC (July 27, 2017) ("Sidley Letter"); Letter from John Kinahan, Chief Executive Officer, Group One Trading, L.P., to Brent J. Fields, Secretary, SEC (Aug. 10, 2017) ("Group One Letter"); and Letter from Joseph Molluso, Executive Vice President, Virtu Financial, to Brent J. Fields, Secretary, SEC (Aug. 18, 2017) ("Virtu Financial Letter").

traffic for Options Market Makers; (4) discounts equity market maker quotes by the trade to quote ratio for equities (calculated as 5.43% based on available data for June 2016 through June 2017) when calculating message traffic for equity market makers; (5) decreases the number of tiers for Industry Members (other than the Execution Venue ATSs) from nine to seven; (6) changes the allocation of CAT costs between Equity Execution Venues and Options Execution Venues from 75%/25% to 67%/33%; (7) adjusts tier percentages and recovery allocations for Equity Execution Venues, Options Execution Venues and Industry Members (other than Execution Venue ATSs); (8) focuses the comparability of CAT Fees on the individual entity level, rather than primarily on the comparability of affiliated entities; (9) commences invoicing of CAT Reporters as promptly as possible following the latest of the operative date of the Consolidated Audit Trail Funding Fees for each of the Participants and the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants; and (10) requires the proposed fees to automatically expire two years from the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants. As discussed in detail below, the Exchange proposes to amend the Original Proposal to reflect these changes.

**(1) Executive Summary**

The following provides an executive summary of the CAT funding model approved by the Operating Committee, as well as Industry Members' rights and obligations related to the payment of CAT Fees calculated pursuant to the CAT funding model, as amended by this Amendment. A detailed description of the CAT funding model and the CAT Fees, as amended by this Amendment, as well as the changes made to the Original Proposal follows this executive summary.

**(A) CAT Funding Model**

- CAT Costs. The CAT funding model is designed to establish CAT-specific fees to collectively recover the costs of building and operating the CAT from all CAT Reporters, including Industry Members and Participants. The overall CAT costs used in calculating the CAT Fees in this fee filing are comprised of Plan Processor CAT costs and non-Plan Processor CAT costs incurred, and estimated to be incurred, from November 21, 2016 through November 21, 2017. Although the CAT costs from November 21, 2016 through November 21, 2017 were used in calculating the CAT Fees, the CAT Fees set forth in this fee filing would be in effect until the automatic sunset date, as discussed below. (See Section 3(a)(2)(E) below)
- Bifurcated Funding Model. The CAT NMS Plan requires a bifurcated funding model, where costs associated with building and operating the CAT would be borne by (1) Participants and Industry Members that are Execution Venues for Eligible Securities through fixed tier fees based on market share, and (2) Industry Members (other than alternative trading systems ("ATSs") that execute transactions in Eligible Securities ("Execution Venue ATSs")) through fixed tier fees based on message traffic for Eligible Securities. (See Section 3(a)(2) below)
- Industry Member Fees. Each Industry Member (other than Execution Venue ATSs) will be placed into one of seven tiers of fixed fees, based on "message traffic" in Eligible Securities for a defined period (as discussed below). Prior to the start of CAT reporting, "message traffic" will be comprised of historical equity and equity options orders, cancels, quotes and executions provided by each

exchange and FINRA over the previous three months. After an Industry Member begins reporting to the CAT, "message traffic" will be calculated based on the Industry Member's Reportable Events reported to the CAT. Industry Members with lower levels of message traffic will pay a lower fee and Industry Members with higher levels of message traffic will pay a higher fee. To avoid disincentives to quoting behavior, Options Market Maker and equity market maker quotes will be discounted when calculating message traffic. (See Section 3(a)(2)(B) below)

- Execution Venue Fees. Each Equity Execution Venue will be placed in one of four tiers of fixed fees based on market share, and each Options Execution Venue will be placed in one of two tiers of fixed fees based on market share. Equity Execution Venue market share will be determined by calculating each Equity Execution Venue's proportion of the total volume of NMS Stock and OTC Equity shares reported by all Equity Execution Venues during the relevant time period. For purposes of calculating market share, the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF will be discounted. Similarly, market share for Options Execution Venues will be determined by calculating each Options Execution Venue's proportion of the total volume of Listed Options contracts reported by all Options Execution Venues during the relevant time period. Equity Execution Venues with a larger market share will pay a larger CAT Fee than Equity Execution Venues with a smaller market share. Similarly, Options Execution Venues with a larger market share will pay a larger CAT Fee than Options Execution Venues with a smaller market share. (See Section 3(a)(2)(C) below)

- Cost Allocation. For the reasons discussed below, in designing the model, the Operating Committee determined that 75 percent of total costs recovered would be allocated to Industry Members (other than Execution Venue ATSs) and 25 percent would be allocated to Execution Venues. In addition, the Operating Committee determined to allocate 67 percent of Execution Venue costs recovered to Equity Execution Venues and 33 percent to Options Execution Venues. (See Section 3(a)(2)(D) below)
- Comparability of Fees. The CAT funding model charges CAT Reporters with the most CAT-related activity (measured by market share and/or message traffic, as applicable) comparable CAT Fees. (See Section 3(a)(2)(F) below)

**(B) CAT Fees for Industry Members**

- Fee Schedule. The quarterly CAT Fees for each tier for Industry Members are set forth in the two fee schedules in the Consolidated Audit Trail Funding Fees, one for Equity ATSs and one for Industry Members other than Equity ATSs. (See Section 3(a)(3)(B) below)
- Quarterly Invoices. Industry Members will be billed quarterly for CAT Fees, with the invoices payable within 30 days. The quarterly invoices will identify within which tier the Industry Member falls. (See Section 3(a)(3)(C) below)
- Centralized Payment. Each Industry Member will receive from the Company one invoice for its applicable CAT Fees, not separate invoices from each Participant of which it is a member. Each Industry Member will pay its CAT Fees to the Company via the centralized system for the collection of CAT Fees established by the Operating Committee. (See Section 3(a)(3)(C) below)

- Billing Commencement. Industry Members will begin to receive invoices for CAT Fees as promptly as possible following the latest of the operative date of the Consolidated Audit Trail Funding Fees for each of the Participants and the operative date of the Plan amendment adopting CAT Fees for Participants. (See Section 3(a)(2)(G) below)
- Sunset Provision. The Consolidated Audit Trail Funding Fees will sunset automatically two years from the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants. (See Section 3(a)(2)(J) below)

**(2) Description of the CAT Funding Model**

Article XI of the CAT NMS Plan requires the Operating Committee to approve the operating budget, including projected costs of developing and operating the CAT for the upcoming year. In addition to a budget, Article XI of the CAT NMS Plan provides that the Operating Committee has discretion to establish funding for the Company, consistent with a bifurcated funding model, where costs associated with building and operating the Central Repository would be borne by (1) Participants and Industry Members that are Execution Venues through fixed tier fees based on market share, and (2) Industry Members (other than Execution Venue ATSs) through fixed tier fees based on message traffic. In its order approving the CAT NMS Plan, the Commission determined that the proposed funding model was "reasonable"[20] and "reflects a reasonable exercise of the Participants' funding authority to recover the Participants' costs related to the CAT."[21]

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[20] Approval Order at 84796.

[21] Id. at 84794.

More specifically, the Commission stated in approving the CAT NMS Plan that "[t]he Commission believes that the proposed funding model is reasonably designed to allocate the costs of the CAT between the Participants and Industry Members."[22] The Commission further noted the following:

> The Commission believes that the proposed funding model reflects a reasonable exercise of the Participants' funding authority to recover the Participants' costs related to the CAT. The CAT is a regulatory facility jointly owned by the Participants and . . . the Exchange Act specifically permits the Participants to charge their members fees to fund their self-regulatory obligations. The Commission further believes that the proposed funding model is designed to impose fees reasonably related to the Participants' self-regulatory obligations because the fees would be directly associated with the costs of establishing and maintaining the CAT, and not unrelated SRO services.[23]

Accordingly, the funding model approved by the Operating Committee imposes fees on both Participants and Industry Members.

As discussed in Appendix C of the CAT NMS Plan, in developing and approving the approved funding model, the Operating Committee considered the advantages and disadvantages of a variety of alternative funding and cost allocation models before selecting the proposed model.[24] After analyzing the various alternatives, the Operating Committee determined that the proposed tiered, fixed fee funding model provides a variety of advantages in comparison to the alternatives.

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22 Id. at 84795.

23 Id. at 84794.

24 Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85006.

In particular, the fixed fee model, as opposed to a variable fee model, provides transparency, ease of calculation, ease of billing and other administrative functions, and predictability of a fixed fee. Such factors are crucial to estimating a reliable revenue stream for the Company and for permitting CAT Reporters to reasonably predict their payment obligations for budgeting purposes. Additionally, a strictly variable or metered funding model based on message volume would be far more likely to affect market behavior and place an inappropriate burden on competition.

In addition, reviews from varying time periods of current broker-dealer order and trading data submitted under existing reporting requirements showed a wide range in activity among broker-dealers, with a number of broker-dealers submitting fewer than 1,000 orders per month and other broker-dealers submitting millions and even billions of orders in the same period. Accordingly, the CAT NMS Plan includes a tiered approach to fees. The tiered approach helps ensure that fees are equitably allocated among similarly situated CAT Reporters and furthers the goal of lessening the impact on smaller firms.[25] In addition, in choosing a tiered fee structure, the Operating Committee concluded that the variety of benefits offered by a tiered fee structure, discussed above, outweighed the fact that CAT Reporters in any particular tier would pay different rates per message traffic order event or per market share (*e.g.*, an Industry Member with the largest amount of message traffic in one tier would pay a smaller amount per order event than an Industry Member in the same tier with the least amount of message traffic). Such

[25] Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85006.

variation is the natural result of a tiered fee structure.[26] The Operating Committee considered several approaches to developing a tiered model, including defining fee tiers based on such factors as size of firm, message traffic or trading dollar volume. After analyzing the alternatives, it was concluded that the tiering should be based on message traffic which will reflect the relative impact of CAT Reporters on the CAT System.

Accordingly, the CAT NMS Plan contemplates that costs will be allocated across the CAT Reporters on a tiered basis in order to allocate higher costs to those CAT Reporters that contribute more to the costs of creating, implementing and maintaining the CAT and lower costs to those that contribute less.[27] The fees to be assessed at each tier are calculated so as to recoup a proportion of costs appropriate to the message traffic or market share (as applicable) from CAT Reporters in each tier. Therefore, Industry Members generating the most message traffic will be in the higher tiers, and will be charged a higher fee. Industry Members with lower levels of message traffic will be in lower tiers and will be assessed a smaller fee for the CAT.[28] Correspondingly, Execution Venues with the highest market shares will be in the top tier, and will be charged higher fees. Execution Venues with the lowest market shares will be in the lowest tier and will be assessed smaller fees for the CAT.[29]

The CAT NMS Plan states that Industry Members (other than Execution Venue ATSs) will be charged based on message traffic, and that Execution Venues will be

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26 Moreover, as the SEC noted in approving the CAT NMS Plan, "[t]he Participants also have offered a reasonable basis for establishing a funding model based on broad tiers, in that it may be easier to implement." Approval Order at 84796.

27 Approval Order at 85005.

28 Id.

29 Id.

charged based on market share.[30] While there are multiple factors that contribute to the cost of building, maintaining and using the CAT, processing and storage of incoming message traffic is one of the most significant cost drivers for the CAT.[31] Thus, the CAT NMS Plan provides that the fees payable by Industry Members (other than Execution Venue ATSs) will be based on the message traffic generated by such Industry Member.[32]

In contrast to Industry Members, which determine the degree to which they produce message traffic that constitute CAT Reportable Events, the CAT Reportable Events of the Execution Venues are largely derivative of quotations and orders received from Industry Members that they are required to display. The business model for Execution Venues (other than FINRA), however, is focused on executions in their markets. As a result, the Operating Committee believes that it is more equitable to charge Execution Venues based on their market share rather than their message traffic.

Focusing on message traffic would make it more difficult to draw distinctions between large and small Execution Venues and, in particular, between large and small options exchanges. For instance, the Operating Committee analyzed the message traffic of Execution Venues and Industry Members for the period of April 2017 to June 2017 and placed all CAT Reporters into a nine-tier framework (*i.e.*, a single tier may include both Execution Venues and Industry Members). The Operating Committee's analysis found that the majority of exchanges (15 total) were grouped in Tiers 1 and 2. Moreover,

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30 Section 11.3(a) and (b) of the CAT NMS Plan.

31 Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85005.

32 Section 11.3(b) of the CAT NMS Plan.

virtually all of the options exchanges were in Tiers 1 and 2.[33] Given the resulting concentration of options exchanges in Tiers 1 and 2 under this approach, the analysis shows that a funding model for Execution Venues based on message traffic would make it more difficult to distinguish between large and small options exchanges, as compared to the proposed fee approach that bases fees for Execution Venues on market share.

The CAT NMS Plan's funding model also is structured to avoid a "reduction in market quality."[34] The tiered, fixed fee funding model is designed to limit the disincentives to providing liquidity to the market. For example, the Operating Committee expects that a firm that has a large volume of quotes would likely be categorized in one of the upper tiers, and would not be assessed a fee for this traffic directly as they would under a more directly metered model. In contrast, strictly variable or metered funding models based on message volume are far more likely to affect market behavior. In approving the CAT NMS Plan, the SEC stated that "[t]he Participants also offered a reasonable basis for establishing a funding model based on broad tiers, in that it may be . . . less likely to have an incremental deterrent effect on liquidity provision." [35]

The funding model also is structured to avoid a reduction market quality because it discounts Options Market Maker and equity market maker quotes when calculating message traffic for Options Market Makers and equity market makers, respectively. As discussed in more detail below, the Operating Committee determined to discount the Options Market Maker quotes by the trade to quote ratio for options when calculating

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33 The Operating Committee notes that this analysis did not place MIAX PEARL in Tier 1 or Tier 2 since the exchange commenced trading on February 6, 2017.

34 Section 11.2(e) of the CAT NMS Plan.

35 Approval Order at 84796.

message traffic for Options Market Makers. Similarly, to avoid disincentives to quoting behavior on the equities side as well, the Operating Committee determined to discount equity market maker quotes by the trade to quote ratio for equities when calculating message traffic for equity market makers. The proposed discounts recognize the value of the market makers' quoting activity to the market as a whole.

The CAT NMS Plan is further structured to avoid potential conflicts raised by the Operating Committee determining fees applicable to its own members – the Participants. First, the Company will operate on a "break-even" basis, with fees imposed to cover costs and an appropriate reserve. Any surpluses will be treated as an operational reserve to offset future fees and will not be distributed to the Participants as profits.[36] To ensure that the Participants' operation of the CAT will not contribute to the funding of their other operations, Section 11.1(c) of the CAT NMS Plan specifically states that "[a]ny surplus of the Company's revenues over its expenses shall be treated as an operational reserve to offset future fees." In addition, as set forth in Article VIII of the CAT NMS Plan, the Company "intends to operate in a manner such that it qualifies as a 'business league' within the meaning of Section 501(c)(6) of the [Internal Revenue] Code." To qualify as a business league, an organization must "not [be] organized for profit and no part of the net earnings of [the organization can] inure[] to the benefit of any private shareholder or individual."[37] As the SEC stated when approving the CAT NMS Plan, "the Commission believes that the Company's application for Section 501(c)(6) business league status addresses issues raised by commenters about the Plan's proposed allocation of profit and loss by mitigating concerns that the Company's earnings could be used to

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36 Id. at 84792.

37 26 U.S.C. 501(c)(6).

benefit individual Participants."[38] The Internal Revenue Service recently has determined that the Company is exempt from federal income tax under Section 501(c)(6) of the Internal Revenue Code.

The funding model also is structured to take into account distinctions in the securities trading operations of Participants and Industry Members. For example, the Operating Committee designed the model to address the different trading characteristics in the OTC Equity Securities market. Specifically, the Operating Committee proposes to discount the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF by the average shares per trade ratio between NMS Stocks and OTC Equity Securities to adjust for the greater number of shares being traded in the OTC Equity Securities market, which is generally a function of a lower per share price for OTC Equity Securities when compared to NMS Stocks. In addition, the Operating Committee also proposes to discount Options Market Maker and equity market maker message traffic in recognition of their role in the securities markets. Furthermore, the funding model creates separate tiers for Equity and Options Execution Venues due to the different trading characteristics of those markets.

Finally, by adopting a CAT-specific fee, the Operating Committee will be fully transparent regarding the costs of the CAT. Charging a general regulatory fee, which would be used to cover CAT costs as well as other regulatory costs, would be less transparent than the selected approach of charging a fee designated to cover CAT costs only.

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[38] Approval Order at 84793.

A full description of the funding model is set forth below. This description includes the framework for the funding model as set forth in the CAT NMS Plan, as well as the details as to how the funding model will be applied in practice, including the number of fee tiers and the applicable fees for each tier. The complete funding model is described below, including those fees that are to be paid by the Participants. The proposed Consolidated Audit Trail Funding Fees, however, do not apply to the Participants; the proposed Consolidated Audit Trail Funding Fees only apply to Industry Members. The CAT Fees for Participants will be imposed separately by the Operating Committee pursuant to the CAT NMS Plan.

**(A) Funding Principles**

Section 11.2 of the CAT NMS Plan sets forth the principles that the Operating Committee applied in establishing the funding for the Company. The Operating Committee has considered these funding principles as well as the other funding requirements set forth in the CAT NMS Plan and in Rule 613 in developing the proposed funding model. The following are the funding principles in Section 11.2 of the CAT NMS Plan:

- To create transparent, predictable revenue streams for the Company that are aligned with the anticipated costs to build, operate and administer the CAT and other costs of the Company;
- To establish an allocation of the Company's related costs among Participants and Industry Members that is consistent with the Exchange Act, taking into account the timeline for implementation of the CAT and distinctions in the securities trading operations of Participants and Industry

Members and their relative impact upon the Company's resources and operations;

- To establish a tiered fee structure in which the fees charged to: (i) CAT Reporters that are Execution Venues, including ATSs, are based upon the level of market share; (ii) Industry Members' non-ATS activities are based upon message traffic; (iii) the CAT Reporters with the most CAT-related activity (measured by market share and/or message traffic, as applicable) are generally comparable (where, for these comparability purposes, the tiered fee structure takes into consideration affiliations between or among CAT Reporters, whether Execution Venue and/or Industry Members);
- To provide for ease of billing and other administrative functions;
- To avoid any disincentives such as placing an inappropriate burden on competition and a reduction in market quality; and
- To build financial stability to support the Company as a going concern.

**(B) Industry Member Tiering**

Under Section 11.3(b) of the CAT NMS Plan, the Operating Committee is required to establish fixed fees to be payable by Industry Members, based on message traffic generated by such Industry Member, with the Operating Committee establishing at least five and no more than nine tiers.

The CAT NMS Plan clarifies that the fixed fees payable by Industry Members pursuant to Section 11.3(b) shall, in addition to any other applicable message traffic, include message traffic generated by: (i) an ATS that does not execute orders that is sponsored by such Industry Member; and (ii) routing orders to and from any ATS

sponsored by such Industry Member. In addition, the Industry Member fees will apply to Industry Members that act as routing broker-dealers for exchanges. The Industry Member fees will not be applicable, however, to an ATS that qualifies as an Execution Venue, as discussed in more detail in the section on Execution Venue tiering.

In accordance with Section 11.3(b), the Operating Committee approved a tiered fee structure for Industry Members (other than Execution Venue ATSs) as described in this section. In determining the tiers, the Operating Committee considered the funding principles set forth in Section 11.2 of the CAT NMS Plan, seeking to create funding tiers that take into account the relative impact on CAT System resources of different Industry Members, and that establish comparable fees among the CAT Reporters with the most Reportable Events. The Operating Committee has determined that establishing seven tiers results in an allocation of fees that distinguishes between Industry Members with differing levels of message traffic. Thus, each such Industry Member will be placed into one of seven tiers of fixed fees, based on "message traffic" for a defined period (as discussed below).

A seven tier structure was selected to provide a wide range of levels for tiering Industry Members such that Industry Members submitting significantly less message traffic to the CAT would be adequately differentiated from Industry Members submitting substantially more message traffic. The Operating Committee considered historical message traffic from multiple time periods, generated by Industry Members across all exchanges and as submitted to FINRA's Order Audit Trail System ("OATS"), and considered the distribution of firms with similar levels of message traffic, grouping together firms with similar levels of message traffic. Based on this, the Operating

Committee determined that seven tiers would group firms with similar levels of message traffic, charging those firms with higher impact on the CAT more, while lowering the burden on Industry Members that have less CAT-related activity. Furthermore, the selection of seven tiers establishes comparable fees among the largest CAT Reporters.

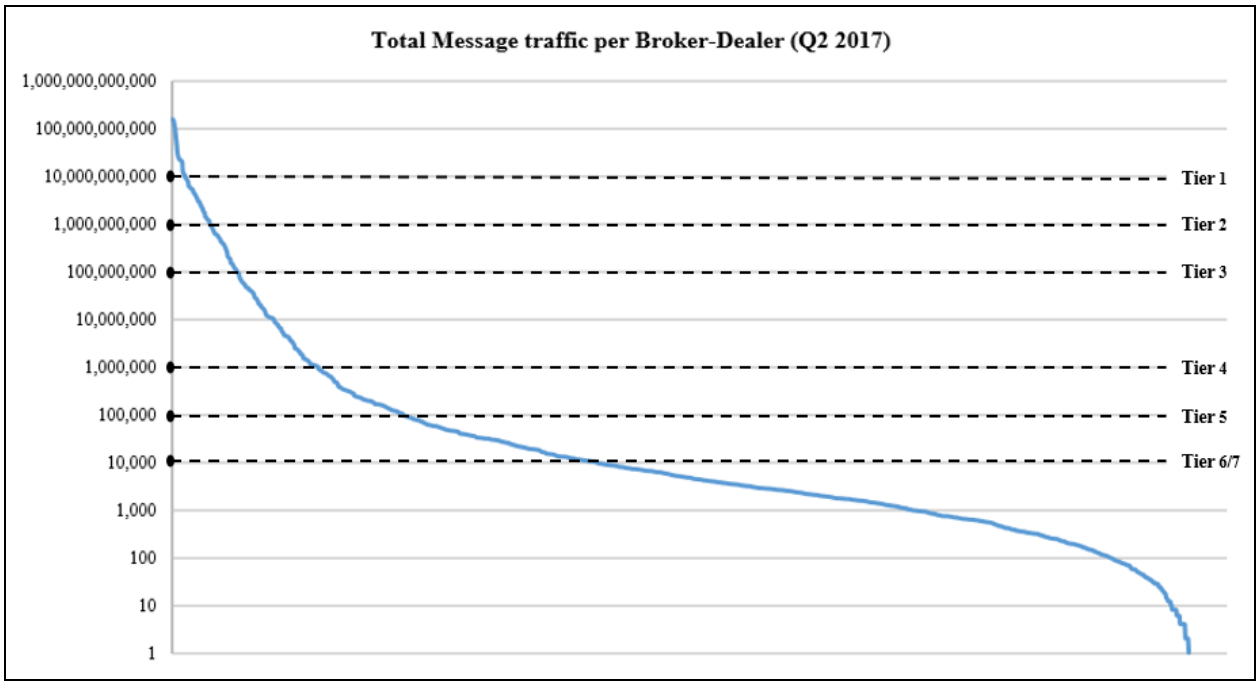
Each Industry Member (other than Execution Venue ATSs) will be ranked by message traffic and tiered by predefined Industry Member percentages (the "Industry Member Percentages"). The Operating Committee determined to use predefined percentages rather than fixed volume thresholds to ensure that the total CAT Fees collected recover the expected CAT costs regardless of changes in the total level of message traffic. To determine the fixed percentage of Industry Members in each tier, the Operating Committee analyzed historical message traffic generated by Industry Members across all exchanges and as submitted to OATS, and considered the distribution of firms with similar levels of message traffic, grouping together firms with similar levels of message traffic. Based on this, the Operating Committee identified seven tiers that would group firms with similar levels of message traffic.

The percentage of costs recovered by each Industry Member tier will be determined by predefined percentage allocations (the "Industry Member Recovery Allocation"). In determining the fixed percentage allocation of costs recovered for each tier, the Operating Committee considered the impact of CAT Reporter message traffic on the CAT System as well as the distribution of total message volume across Industry Members while seeking to maintain comparable fees among the largest CAT Reporters. Accordingly, following the determination of the percentage of Industry Members in each tier, the Operating Committee identified the percentage of total market volume for each

tier based on the historical message traffic upon which Industry Members had been initially ranked. Taking this into account along with the resulting percentage of total recovery, the percentage allocation of costs recovered for each tier were assigned, allocating higher percentages of recovery to tiers with higher levels of message traffic while avoiding any inappropriate burden on competition. Furthermore, by using percentages of Industry Members and costs recovered per tier, the Operating Committee sought to include elasticity within the funding model, allowing the funding model to respond to changes in either the total number of Industry Members or the total level of message traffic.

The following chart illustrates the breakdown of seven Industry Member tiers across the monthly average of total equity and equity options orders, cancels, quotes and executions in the second quarter of 2017 as well as message traffic thresholds between the largest of Industry Member message traffic gaps. The Operating Committee referenced similar distribution illustrations to determine the appropriate division of Industry Member percentages in each tier by considering the grouping of firms with similar levels of message traffic and seeking to identify relative breakpoints in the message traffic between such groupings. In reviewing the chart and its corresponding table, note that while these distribution illustrations were referenced to help differentiate between Industry Member tiers, the proposed funding model is driven by fixed percentages of Industry Members across tiers to account for fluctuating levels of message traffic over time. This approach also provides financial stability for the CAT by ensuring that the funding model will recover the required amounts regardless of changes in the number of Industry Members or the amount of message traffic. Actual messages in any

tier will vary based on the actual traffic in a given measurement period, as well as the number of firms included in the measurement period. The Industry Member Percentages and Industry Member Recovery Allocation for each tier will remain fixed with each Industry Member's tier to be reassigned periodically, as described below in Section 3(a)(2)(I).




| Industry Member Tier | Approximate Message Traffic per Industry Member (Q2 2017) (Orders, Quotes, Cancels and Executions) |
|---|---|
| Tier 1 | > 10,000,000,000 |
| Tier 2 | 1,000,000,000 – 10,000,000,000 |
| Tier 3 | 100,000,000 – 1,000,000,000 |
| Tier 4 | 1,000,000 – 100,000,000 |
| Tier 5 | 100,000 – 1,000,000 |
| Tier 6 | 10,000 – 100,000 |

| | |
|---|---|
| Tier 7 | < 10,000 |

Based on the above analysis, the Operating Committee approved the following Industry Member Percentages and Industry Member Recovery Allocations:

| **Industry Member Tier** | **Percentage of Industry Members** | **Percentage of Industry Member Recovery** | **Percentage of Total Recovery** |
|---|---|---|---|
| Tier 1 | 0.900% | 12.00% | 9.00% |
| Tier 2 | 2.150% | 20.50% | 15.38% |
| Tier 3 | 2.800% | 18.50% | 13.88% |
| Tier 4 | 7.750% | 32.00% | 24.00% |
| Tier 5 | 8.300% | 10.00% | 7.50% |
| Tier 6 | 18.800% | 6.00% | 4.50% |
| Tier 7 | 59.300% | 1.00% | 0.75% |
| **Total** | **100%** | **100%** | **75%** |

For the purposes of creating these tiers based on message traffic, the Operating Committee determined to define the term “message traffic” separately for the period before the commencement of CAT reporting and for the period after the start of CAT reporting. The different definition for message traffic is necessary as there will be no Reportable Events as defined in the Plan, prior to the commencement of CAT reporting. Accordingly, prior to the start of CAT reporting, “message traffic” will be comprised of historical equity and equity options orders, cancels, quotes and executions provided by

each exchange and FINRA over the previous three months. Prior to the start of CAT reporting, orders would be comprised of the total number of equity and equity options orders received and originated by a member of an exchange or FINRA over the previous three-month period, including principal orders, cancel/replace orders, market maker orders originated by a member of an exchange, and reserve (iceberg) orders as well as executions originated by a member of FINRA, and excluding order rejects, system-modified orders, order routes and implied orders.[39] In addition, prior to the start of CAT reporting, cancels would be comprised of the total number of equity and equity option cancels received and originated by a member of an exchange or FINRA over a three-month period, excluding order modifications (*e.g.*, order updates, order splits, partial cancels) and multiple cancels of a complex order. Furthermore, prior to the start of CAT reporting, quotes would be comprised of information readily available to the exchanges and FINRA, such as the total number of historical equity and equity options quotes received and originated by a member of an exchange or FINRA over the prior three-month period. Additionally, prior to the start of CAT reporting, executions would be comprised of the total number of equity and equity option executions received or originated by a member of an exchange or FINRA over a three-month period.

After an Industry Member begins reporting to the CAT, "message traffic" will be calculated based on the Industry Member's Reportable Events reported to the CAT as will be defined in the Technical Specifications.[40]

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39 Consequently, firms that do not have "message traffic" reported to an exchange or OATS before they are reporting to the CAT would not be subject to a fee until they begin to report information to CAT.

40 If an Industry Member (other than an Execution Venue ATS) has no orders, cancels, quotes and executions prior to the commencement of CAT Reporting, or

Quotes of Options Market Makers and equity market makers will be included in the calculation of total message traffic for those market makers for purposes of tiering under the CAT funding model both prior to CAT reporting and once CAT reporting commences.[41] To address potential concerns regarding burdens on competition or market quality of including quotes in the calculation of message traffic, however, the Operating Committee determined to discount the Options Market Maker quotes by the trade to quote ratio for options when calculating message traffic for Options Market Makers. Based on available data for June 2016 through June 2017, the trade to quote ratio for options is 0.01%. Similarly, to avoid disincentives to quoting behavior on the equities side, the Operating Committee determined to discount equity market maker quotes by the trade to quote ratio for equities. Based on available data for June 2016 through June 2017, the trade to quote ratio for equities is 5.43%.[42] The trade to quote ratio for options and the trade to quote ratio for equities will be calculated every three months when tiers are recalculated (as discussed below).

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no Reportable Events after CAT reporting commences, then the Industry Member would not have a CAT Fee obligation.

41 The SEC approved exemptive relief permitting Options Market Maker quotes to be reported to the Central Repository by the relevant Options Exchange in lieu of requiring that such reporting be done by both the Options Exchange and the Options Market Maker, as required by Rule 613 of Regulation NMS. See Securities Exchange Act Release No. 77265 (March 1, 2017), 81 FR 11856 (March 7, 2016). This exemption applies to Options Market Maker quotes for CAT reporting purposes only. Therefore, notwithstanding the reporting exemption provided for Options Market Maker quotes, Options Market Maker quotes will be included in the calculation of total message traffic for Options Market Makers for purposes of tiering under the CAT funding model both prior to CAT reporting and once CAT reporting commences.

42 The trade to quote ratios were calculated based on the inverse of the average of the monthly equity SIP and OPRA quote to trade ratios from June 2016 – June 2017 that were compiled by the Financial Information Forum using data from Nasdaq and SIAC.

The Operating Committee has determined to calculate fee tiers every three months, on a calendar quarter basis, based on message traffic from the prior three months. Based on its analysis of historical data, the Operating Committee believes that calculating tiers based on three months of data will provide the best balance between reflecting changes in activity by Industry Members while still providing predictability in the tiering for Industry Members. Because fee tiers will be calculated based on message traffic from the prior three months, the Operating Committee will begin calculating message traffic based on an Industry Member's Reportable Events reported to the CAT once the Industry Member has been reporting to the CAT for three months. Prior to that, fee tiers will be calculated as discussed above with regard to the period prior to CAT reporting.

**(C) Execution Venue Tiering**

Under Section 11.3(a) of the CAT NMS Plan, the Operating Committee is required to establish fixed fees payable by Execution Venues. Section 1.1 of the CAT NMS Plan defines an Execution Venue as "a Participant or an alternative trading system ("ATS") (as defined in Rule 300 of Regulation ATS) that operates pursuant to Rule 301 of Regulation ATS (excluding any such ATS that does not execute orders)."[43]

The Operating Committee determined that ATSs should be included within the definition of Execution Venue. The Operating Committee believes that it is appropriate to treat ATSs as Execution Venues under the proposed funding model since ATSs have

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43 Although FINRA does not operate an execution venue, because it is a Participant, it is considered an "Execution Venue" under the Plan for purposes of determining fees.

business models that are similar to those of exchanges, and ATSs also compete with exchanges.

Given the differences between Execution Venues that trade NMS Stocks and/or OTC Equity Securities and Execution Venues that trade Listed Options, Section 11.3(a) addresses Execution Venues that trade NMS Stocks and/or OTC Equity Securities separately from Execution Venues that trade Listed Options. Equity and Options Execution Venues are treated separately for two reasons. First, the differing quoting behavior of Equity and Options Execution Venues makes comparison of activity between such Execution Venues difficult. Second, Execution Venue tiers are calculated based on market share of share volume, and it is therefore difficult to compare market share between asset classes (*i.e.*, equity shares versus options contracts). Discussed below is how the funding model treats the two types of Execution Venues.

**(I) NMS Stocks and OTC Equity Securities**

Section 11.3(a)(i) of the CAT NMS Plan states that each Execution Venue that (i) executes transactions or, (ii) in the case of a national securities association, has trades reported by its members to its trade reporting facility or facilities for reporting transactions effected otherwise than on an exchange, in NMS Stocks or OTC Equity Securities will pay a fixed fee depending on the market share of that Execution Venue in NMS Stocks and OTC Equity Securities, with the Operating Committee establishing at least two and not more than five tiers of fixed fees, based on an Execution Venue's NMS Stocks and OTC Equity Securities market share. For these purposes, market share for Execution Venues that execute transactions will be calculated by share volume, and market share for a national securities association that has trades reported by its members

to its trade reporting facility or facilities for reporting transactions effected otherwise than on an exchange in NMS Stocks or OTC Equity Securities will be calculated based on share volume of trades reported, provided, however, that the share volume reported to such national securities association by an Execution Venue shall not be included in the calculation of such national security association's market share.

In accordance with Section 11.3(a)(i) of the CAT NMS Plan, the Operating Committee approved a tiered fee structure for Equity Execution Venues and Option Execution Venues. In determining the Equity Execution Venue Tiers, the Operating Committee considered the funding principles set forth in Section 11.2 of the CAT NMS Plan, seeking to create funding tiers that take into account the relative impact on system resources of different Equity Execution Venues, and that establish comparable fees among the CAT Reporters with the most Reportable Events. Each Equity Execution Venue will be placed into one of four tiers of fixed fees, based on the Execution Venue's NMS Stocks and OTC Equity Securities market share. In choosing four tiers, the Operating Committee performed an analysis similar to that discussed above with regard to the non-Execution Venue Industry Members to determine the number of tiers for Equity Execution Venues. The Operating Committee determined to establish four tiers for Equity Execution Venues, rather than a larger number of tiers as established for non-Execution Venue Industry Members, because the four tiers were sufficient to distinguish between the smaller number of Equity Execution Venues based on market share. Furthermore, the selection of four tiers serves to help establish comparability among the largest CAT Reporters.

Each Equity Execution Venue will be ranked by market share and tiered by predefined Execution Venue percentages, (the "Equity Execution Venue Percentages"). In determining the fixed percentage of Equity Execution Venues in each tier, the Operating Committee reviewed historical market share of share volume for Execution Venues. Equity Execution Venue market shares of share volume were sourced from market statistics made publicly-available by Bats Global Markets, Inc. ("Bats"). ATS market shares of share volume was sourced from market statistics made publicly-available by FINRA. FINRA trade reporting facility ("TRF") and ORF market share of share volume was sourced from market statistics made publicly available by FINRA. Based on data from FINRA and otcmarkets.com, ATSs accounted for 39.12% of the share volume across the TRFs and ORFs during the recent tiering period. A 39.12/60.88 split was applied to the ATS and non-ATS breakdown of FINRA market share, with FINRA tiered based only on the non-ATS portion of its market share of share volume.

The Operating Committee determined to discount the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF in recognition of the different trading characteristics of the OTC Equity Securities market as compared to the market in NMS Stocks. Many OTC Equity Securities are priced at less than one dollar—and a significant number at less than one penny—per share and low-priced shares tend to trade in larger quantities. Accordingly, a disproportionately large number of shares are involved in transactions involving OTC Equity Securities versus NMS Stocks. Because the proposed fee tiers are based on market share calculated by share volume, Execution Venue ATSs exclusively trading OTC Equity Securities and FINRA would likely be subject to higher tiers than their

operations may warrant. To address this potential concern, the Operating Committee determined to discount the market share of Execution Venue ATSs exclusively trading OTC Equity Securities and the market share of the FINRA ORF by multiplying such market share by the average shares per trade ratio between NMS Stocks and OTC Equity Securities in order to adjust for the greater number of shares being traded in the OTC Equity Securities market. Based on available data for the second quarter of 2017, the average shares per trade ratio between NMS Stocks and OTC Equity Securities is 0.17%.[44] The average shares per trade ratio between NMS Stocks and OTC Equity Securities will be recalculated every three months when tiers are recalculated.

Based on this, the Operating Committee considered the distribution of Execution Venues, and grouped together Execution Venues with similar levels of market share. The percentage of costs recovered by each Equity Execution Venue tier will be determined by predefined percentage allocations (the "Equity Execution Venue Recovery Allocation"). In determining the fixed percentage allocation of costs to be recovered from each tier, the Operating Committee considered the impact of CAT Reporter market share activity on the CAT System as well as the distribution of total market volume across Equity Execution Venues while seeking to maintain comparable fees among the largest CAT Reporters. Accordingly, following the determination of the percentage of Execution Venues in each tier, the Operating Committee identified the percentage of total market volume for each tier based on the historical market share upon which Execution Venues

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44 The average shares per trade ratio for both NMS Stocks and OTC Equity Securities from the second quarter of 2017 was calculated using publicly available market volume data from Bats and OTC Markets Group, and the totals were divided to determine the average number of shares per trade between NMS Stocks and OTC Equity Securities.

had been initially ranked. Taking this into account along with the resulting percentage of total recovery, the percentage allocation of cost recovery for each tier were assigned, allocating higher percentages of recovery to the tier with a higher level of market share while avoiding any inappropriate burden on competition. Furthermore, by using percentages of Equity Execution Venues and cost recovery per tier, the Operating Committee sought to include elasticity within the funding model, allowing the funding model to respond to changes in either the total number of Equity Execution Venues or changes in market share.

Based on this analysis, the Operating Committee approved the following Equity Execution Venue Percentages and Recovery Allocations:

| • **Equity Execution Venue Tier** | • **Percentage of Equity Execution Venues** | • **Percentage of Execution Venue Recovery** |
|---|---|---|
| • Tier 1 | • 25.00% | • 33.25% |
| • Tier 2 | • 42.00% | • 25.73% |
| • Tier 3 | • 23.00% | • 8.00% |
| • Tier 4 | • 10.00% | • 0.02% |
| • **Total** | • **100%** | • **67%** |

**(II) Listed Options**

Section 11.3(a)(ii) of the CAT NMS Plan states that each Execution Venue that executes transactions in Listed Options will pay a fixed fee depending on the Listed Options market share of that Execution Venue, with the Operating Committee establishing at least two and no more than five tiers of fixed fees, based on an Execution Venue's Listed Options market share. For these purposes, market share will be calculated by contract volume.

In accordance with Section 11.3(a)(ii) of the CAT NMS Plan, the Operating Committee approved a tiered fee structure for Options Execution Venues. In determining the tiers, the Operating Committee considered the funding principles set forth in Section 11.2 of the CAT NMS Plan, seeking to create funding tiers that take into account the relative impact on system resources of different Options Execution Venues, and that establish comparable fees among the CAT Reporters with the most Reportable Events. Each Options Execution Venue will be placed into one of two tiers of fixed fees, based on the Execution Venue's Listed Options market share. In choosing two tiers, the Operating Committee performed an analysis similar to that discussed above with regard to Industry Members (other than Execution Venue ATSs) to determine the number of tiers for Options Execution Venues. The Operating Committee determined to establish two tiers for Options Execution Venues, rather than a larger number, because the two tiers were sufficient to distinguish between the smaller number of Options Execution Venues based on market share. Furthermore, due to the smaller number of Options Execution Venues, the incorporation of additional Options Execution Venue tiers would result in significantly higher fees for Tier 1 Options Execution Venues and reduce comparability between Execution Venues and Industry Members. Furthermore, the

selection of two tiers served to establish comparable fees among the largest CAT Reporters.

Each Options Execution Venue will be ranked by market share and tiered by predefined Execution Venue percentages, (the "Options Execution Venue Percentages"). To determine the fixed percentage of Options Execution Venues in each tier, the Operating Committee analyzed the historical and publicly available market share of Options Execution Venues to group Options Execution Venues with similar market shares across the tiers. Options Execution Venue market share of share volume were sourced from market statistics made publicly-available by Bats. The process for developing the Options Execution Venue Percentages was the same as discussed above with regard to Equity Execution Venues.

The percentage of costs to be recovered from each Options Execution Venue tier will be determined by predefined percentage allocations (the "Options Execution Venue Recovery Allocation"). In determining the fixed percentage allocation of cost recovery for each tier, the Operating Committee considered the impact of CAT Reporter market share activity on the CAT System as well as the distribution of total market volume across Options Execution Venues while seeking to maintain comparable fees among the largest CAT Reporters. Furthermore, by using percentages of Options Execution Venues and cost recovery per tier, the Operating Committee sought to include elasticity within the funding model, allowing the funding model to respond to changes in either the total number of Options Execution Venues or changes in market share. The process for developing the Options Execution Venue Recovery Allocation was the same as discussed above with regard to Equity Execution Venues.

Based on this analysis, the Operating Committee approved the following Options Execution Venue Percentages and Recovery Allocations:

| ***Options Execution Venue Tier*** | ***Percentage of Options Execution Venues*** | ***Percentage of Execution Venue Recovery*** | ***Percentage of Total Recovery*** |
|---|---|---|---|
| *Tier 1* | *75.00%* | *28.25%* | *7.06%* |
| *Tier 2* | *25.00%* | *4.75%* | *1.19%* |
| ***Total*** | ***100%*** | ***33%*** | ***8.25%*** |

**(III) Market Share/Tier Assignments**

The Operating Committee determined that, prior to the start of CAT reporting, market share for Execution Venues would be sourced from publicly-available market data. Options and equity volumes for Participants will be sourced from market data made publicly available by Bats while Execution Venue ATS volumes will be sourced from market data made publicly available by FINRA and OTC Markets. Set forth in the Appendix are two charts, one listing the current Equity Execution Venues, each with its rank and tier, and one listing the current Options Execution Venues, each with its rank and tier.

After the commencement of CAT reporting, market share for Execution Venues will be sourced from data reported to the CAT. Equity Execution Venue market share will be determined by calculating each Equity Execution Venue's proportion of the total volume of NMS Stock and OTC Equity shares reported by all Equity Execution Venues

during the relevant time period (with the discounting of market share of Execution Venue ATSs exclusively trading OTC Equity Securities, as described above). Similarly, market share for Options Execution Venues will be determined by calculating each Options Execution Venue's proportion of the total volume of Listed Options contracts reported by all Options Execution Venues during the relevant time period.

The Operating Committee has determined to calculate fee tiers for Execution Venues every three months based on market share from the prior three months. Based on its analysis of historical data, the Operating Committee believes calculating tiers based on three months of data will provide the best balance between reflecting changes in activity by Execution Venues while still providing predictability in the tiering for Execution Venues.

**(D) Allocation of Costs**

In addition to the funding principles discussed above, including comparability of fees, Section 11.1(c) of the CAT NMS Plan also requires expenses to be fairly and reasonably shared among the Participants and Industry Members. Accordingly, in developing the proposed fee schedules pursuant to the funding model, the Operating Committee calculated how the CAT costs would be allocated between Industry Members and Execution Venues, and how the portion of CAT costs allocated to Execution Venues would be allocated between Equity Execution Venues and Options Execution Venues. These determinations are described below.

**(I) Allocation Between Industry Members and Execution Venues**

In determining the cost allocation between Industry Members (other than Execution Venue ATSs) and Execution Venues, the Operating Committee analyzed a range of possible splits for revenue recovery from such Industry Members and Execution Venues, including 80%/20%, 75%/25%, 70%/30% and 65%/35% allocations. Based on this analysis, the Operating Committee determined that 75 percent of total costs recovered would be allocated to Industry Members (other than Execution Venue ATSs) and 25 percent would be allocated to Execution Venues. The Operating Committee determined that this 75%/25% division maintained the greatest level of comparability across the funding model. For example, the cost allocation establishes fees for the largest Industry Members (i.e., those Industry Members in Tiers 1) that are comparable to the largest Equity Execution Venues and Options Execution Venues (*i.e.*, those Execution Venues in Tier 1).

Furthermore, the allocation of total CAT cost recovery recognizes the difference in the number of CAT Reporters that are Industry Members versus CAT Reporters that are Execution Venues. Specifically, the cost allocation takes into consideration that there are approximately 23 times more Industry Members expected to report to the CAT than Execution Venues (*e.g.*, an estimated 1541 Industry Members versus 67 Execution Venues as of June 2017).

**(II) Allocation Between Equity Execution Venues and Options Execution Venues**

The Operating Committee also analyzed how the portion of CAT costs allocated to Execution Venues would be allocated between Equity Execution Venues and Options Execution Venues. In considering this allocation of costs, the Operating Committee

analyzed a range of alternative splits for revenue recovered between Equity and Options Execution Venues, including a 70%/30%, 67%/33%, 65%/35%, 50%/50% and 25%/75% split. Based on this analysis, the Operating Committee determined to allocate 67 percent of Execution Venue costs recovered to Equity Execution Venues and 33 percent to Options Execution Venues. The Operating Committee determined that a 67%/33% allocation between Equity and Options Execution Venues maintained the greatest level of fee equitability and comparability based on the current number of Equity and Options Execution Venues. For example, the allocation establishes fees for the larger Equity Execution Venues that are comparable to the larger Options Execution Venues. Specifically, Tier 1 Equity Execution Venues would pay a quarterly fee of $81,047 and Tier 1 Options Execution Venues would pay a quarterly fee of $81,379. In addition to fee comparability between Equity Execution Venues and Options Execution Venues, the allocation also establishes equitability between larger (Tier 1) and smaller (Tier 2) Execution Venues based upon the level of market share. Furthermore, the allocation is intended to reflect the relative levels of current equity and options order events.

**(E) Fee Levels**

The Operating Committee determined to establish a CAT-specific fee to collectively recover the costs of building and operating the CAT. Accordingly, under the funding model, the sum of the CAT Fees is designed to recover the total cost of the CAT. The Operating Committee has determined overall CAT costs to be comprised of Plan

Processor costs and non-Plan Processor costs, which are estimated to be $50,700,000 in total for the year beginning November 21, 2016.[45]

The Plan Processor costs relate to costs incurred and to be incurred through November 21, 2017 by the Plan Processor and consist of the Plan Processor's current estimates of average yearly ongoing costs, including development costs, which total $37,500,000. This amount is based upon the fees due to the Plan Processor pursuant to the Company's agreement with the Plan Processor.

The non-Plan Processor estimated costs incurred and to be incurred by the Company through November 21, 2017 consist of three categories of costs. The first category of such costs are third party support costs, which include legal fees, consulting fees and audit fees from November 21, 2016 until the date of filing as well as estimated third party support costs for the rest of the year. These amount to an estimated $5,200,000. The second category of non-Plan Processor costs are estimated cyber-insurance costs for the year. Based on discussions with potential cyber-insurance providers, assuming $2-5 million cyber-insurance premium on $100 million coverage, the Company has estimated $3,000,000 for the annual cost. The final cost figures will be determined following receipt of final underwriter quotes. The third category of non-Plan Processor costs is the CAT operational reserve, which is comprised of three months of ongoing Plan Processor costs ($9,375,000), third party support costs ($1,300,000) and cyber-insurance costs ($750,000). The Operating Committee aims to accumulate the necessary funds to establish the three-month operating reserve for the Company through the CAT Fees charged to CAT Reporters for the year. On an ongoing basis, the

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[45] It is anticipated that CAT-related costs incurred prior to November 21, 2016 will be addressed via a separate filing.

Operating Committee will account for any potential need to replenish the operating reserve or other changes to total cost during its annual budgeting process. The following table summarizes the Plan Processor and non-Plan Processor cost components which comprise the total estimated CAT costs of $50,700,000 for the covered period.

| Cost Category | Cost Component | Amount |
|---|---|---|
| Plan Processor | Operational Costs | $37,500,000 |
| Non-Plan Processor | Third Party Support Costs | $5,200,000 |
| | Operational Reserve | $5,000,000[46] |
| | Cyber-insurance Costs | $3,000,000 |
| | **Estimated Total** | **$50,700,000** |

Based on these estimated costs and the calculations for the funding model described above, the Operating Committee determined to impose the following fees:[47]

For Industry Members (other than Execution Venue ATSs):

| Tier | Percentage of Industry Members | Quarterly CAT Fee |
|---|---|---|
| 1 | 0.900% | $81,483 |
| 2 | 2.150% | $59,055 |

46 This $5,000,000 represents the gradual accumulation of the funds for a target operating reserve of $11,425,000.

47 Note that all monthly, quarterly and annual CAT Fees have been rounded to the nearest dollar.

| | | |
|---|---|---|
| 3 | 2.800% | $40,899 |
| 4 | 7.750% | $25,566 |
| 5 | 8.300% | $7,428 |
| 6 | 18.800% | $1,968 |
| 7 | 59.300% | $105 |

For Execution Venues for NMS Stocks and OTC Equity Securities:

| **Tier** | **Percentage of Equity Execution Venues** | **Quarterly CAT Fee** |
|---|---|---|
| 1 | 25.00% | $81,048 |
| 2 | 42.00% | $37,062 |
| 3 | 23.00% | $21,126 |
| 4 | 10.00% | $129 |

For Execution Venues for Listed Options:

| **Tier** | **Percentage of Options Execution Venues** | **Quarterly CAT Fee** |
|---|---|---|
| 1 | 75.00% | $81,381 |
| 2 | 25.00% | $37,629 |

The Operating Committee has calculated the schedule of effective fees for Industry Members (other than Execution Venue ATSs) and Execution Venues in the following manner. Note that the calculation of CAT Fees assumes 52 Equity Execution

Venues, 15 Options Execution Venues and 1,541 Industry Members (other than Execution Venue ATSs) as of June 2017.

**Calculation of Annual Tier Fees for Industry Members ("IM")**

| Industry Member Tier | Percentage of Industry Members | Percentage of Industry Member Recovery | Percentage of Total Recovery |
|---|---|---|---|
| Tier 1 | 0.900% | 12.00% | 9.00% |
| Tier 2 | 2.150% | 20.50% | 15.38% |
| Tier 3 | 2.800% | 18.50% | 13.88% |
| Tier 4 | 7.750% | 32.00% | 24.00% |
| Tier 5 | 8.300% | 10.00% | 7.50% |
| Tier 6 | 18.800% | 6.00% | 4.50% |
| Tier 7 | 59.300% | 1.00% | 0.75% |
| **Total** | **100%** | **100%** | **75%** |

| Industry Member Tier | Estimated Number of Industry Members |
|---|---|
| Tier 1 | 14 |
| Tier 2 | 33 |
| Tier 3 | 43 |
| Tier 4 | 119 |
| Tier 5 | 128 |
| Tier 6 | 290 |
| Tier 7 | 914 |
| **Total** | **1,541** |

**Calculation 1.1 (Calculation of a Tier 1 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 0.9\%\ [\%\ of\ Tier\ 1\ IMs] = 14\ [Estimated\ Tier\ 1\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 12\%\ [\%\ of\ Tier\ 1\ IM\ Recovery]}{14\ [Estimated\ Tier\ 1\ IMs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$27{,}161}$$

**Calculation 1.2 (Calculation of a Tier 2 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 2.15\%\ [\%\ of\ Tier\ 2\ IMs] = 33\ [Estimated\ Tier\ 2\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 20.5\%\ [\%\ of\ Tier\ 2\ IM\ Recovery]}{33\ [Estimated\ Tier\ 2\ IMs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$19{,}685}$$

**Calculation 1.3 (Calculation of a Tier 3 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 2.125\%\ [\%\ of\ Tier\ 3\ IMs] = 43\ [Estimated\ Tier\ 3\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 18.5\%\ [\%\ of\ Tier\ 3\ IM\ Recovery]}{43\ [Estimated\ Tier\ 3\ IMs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$13{,}633}$$

**Calculation 1.4 (Calculation of a Tier 4 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 7.75\%\ [\%\ of\ Tier\ 4\ IMs] = 119\ [Estimated\ Tier\ 4\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 32\%\ [\%\ of\ Tier\ 4\ IM\ Recovery]}{119\ [Estimated\ Tier\ 4\ IMs]}\right) \div 12\ [\text{Months per year}] =$$

**$8522**

**Calculation 1.5 (Calculation of a Tier 5 Industry Member Annual Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 8.3\%\ [\%\ of\ Tier\ 5\ IMs] = 128\ [Estimated\ Tier\ 5\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 7.75\%\ [\%\ of\ Tier\ 5\ IM\ Recovery]}{128\ [Estimated\ Tier\ 5\ IMs]}\right) \div 12\ [\text{Months per year}] =$$

**$2476**

**Calculation 1.6 (Calculation of a Tier 6 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 18.8\%\ [\%\ of\ Tier\ 6\ IMs] = 290\ [Estimated\ Tier\ 6\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 6\%\ [\%\ of\ Tier\ 6\ IM\ Recovery]}{290\ [Estimated\ Tier\ 6\ IMs]}\right) \div 12\ [\text{Months per year}] =$$

**$656**

**Calculation 1.7 (Calculation of a Tier 7 Industry Member Monthly Fee)**

$$1{,}541\ [Estimated\ Tot.IMs]\ \times 59.3\%\ [\%\ of\ Tier\ 7\ IMs] = 914\ [Estimated\ Tier\ 7\ IMs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 75\%\ [IM\ \%\ of\ Tot.Ann.CAT\ Costs] \times 1\%\ [\%\ of\ Tier\ 7\ IM\ Recovery]}{914\ [Estimated\ Tier\ 7\ IMs]}\right) \div 12\ [\text{Months per year}] =$$

**$35**

## Calculation of Annual Tier Fees for Equity Execution Venues ("EV")

| • **Equity Execution Venue Tier** | • **Percentage of Equity Execution Venues** | • **Percentage of Execution Venue Recovery** |
|---|---|---|
| • Tier 1 | • 25.00% | • 33.25% |
| • Tier 2 | • 42.00% | • 25.73% |
| • Tier 3 | • 23.00% | • 8.00% |
| • Tier 4 | • 10.00% | • 49.00% |
| • **Total** | • **100%** | • **67%** |

| **Equity Execution Venue Tier** | **Estimated Number of Equity Execution Venues** |
|---|---|
| Tier 1 | 13 |
| Tier 2 | 22 |
| Tier 3 | 12 |
| Tier 4 | 5 |
| **Total** | **52** |

**Calculation 2.1 (Calculation of a Tier 1 Equity Execution Venue Monthly Fee)**

$$52\ [Estimated\ Tot.Equity\ EVs]\ \times 25\%\ [\%\ of\ Tier\ 1\ Equity\ EVs] = 13\ [Estimated\ Tier\ 1\ Equity\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.\ Ann.CAT\ Costs] \times 33.25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 26\%\ [\%\ of\ Tier\ 1\ Equity\ EV\ Recovery]}{13\ [Estimated\ Tier\ 1\ Equity\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$27{,}016}$$

**Calculation 2.2 (Calculation of a Tier 2 Equity Execution Venue Monthly Fee)**

$$52\ [Estimated\ Tot.Equity\ EVs]\ \times 42\%\ [\%\ of\ Tier\ 2\ Equity\ EVs] = 22\ [Estimated\ Tier\ 2\ Equity\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.\ Ann.CAT\ Costs] \times 25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 25.73\%\ [\%\ of\ Tier\ 2\ Equity\ EV\ Recovery]}{22\ [Estimated\ Tier\ 2\ Equity\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$12{,}353}$$

**Calculation 2.3 (Calculation of a Tier 3 Equity Execution Venue Monthly Fee)**

$$52\ [Estimated\ Tot.Equity\ EVs]\ \times 23\%\ [\%\ of\ Tier\ 2\ Equity\ EVs] = 12\ [Estimated\ Tier\ 2\ Equity\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.\ Ann.CAT\ Costs] \times 25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 8\%\ [\%\ of\ Tier\ 2\ Equity\ EV\ Recovery]}{12\ [Estimated\ Tier\ 2\ Equity\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$7{,}042}$$

**Calculation 2.4 (Calculation of a Tier 4 Equity Execution Venue Monthly Fee)**

$$52\ [Estimated\ Tot.Equity\ EVs]\ \times 10\%\ [\%\ of\ Tier\ 2\ Equity\ EVs] = 5\ [Estimated\ Tier\ 2\ Equity\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.\ Ann.CAT\ Costs] \times 25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 0.02\%\ [\%\ of\ Tier\ 2\ Equity\ EV\ Recovery]}{5\ [Estimated\ Tier\ 2\ Equity\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$42}$$

## Calculation of Annual Tier Fees for Options Execution Venues ("EV")

| ***Options Execution Venue Tier*** | ***Percentage of Options Execution Venues*** | ***Percentage of Execution Venue Recovery*** | ***Percentage of Total Recovery*** |
|---|---|---|---|
| *Tier 1* | *75.00%* | *28.25%* | *7.06%* |
| *Tier 2* | *25.00%* | *4.75%* | *1.19%* |
| ***Total*** | ***100%*** | ***33%*** | ***8.25%*** |

| Options Execution Venue Tier | Estimated Number of Options Execution Venues |
|---|---|
| Tier 1 | 11 |
| Tier 2 | 4 |
| **Total** | **15** |

**Calculation 3.1 (Calculation of a Tier 1 Options Execution Venue Monthly Fee)**

$$15\ [Estimated\ Tot.Options\ EVs]\ \times 75\%\ [\%\ of\ Tier\ 1\ Options\ EVs] = 11\ [Estimated\ Tier\ 1\ Options\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 28.25\%\ [\%\ of\ Tier\ 1\ Options\ EV\ Recovery]}{11\ [Estimated\ Tier\ 1\ Options\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$27{,}127}$$

**Calculation 3.2 (Calculation of a Tier 2 Options Execution Venue Annual Fee)**

$$15\ [Estimated\ Tot.Options\ EVs]\ \times 25\%\ [\%\ of\ Tier\ 2\ Options\ EVs] = 4\ [Estimated\ Tier\ 2\ Options\ EVs]$$

$$\left(\frac{\$50{,}700{,}000\ [Tot.Ann.CAT\ Costs] \times 25\%\ [EV\ \%\ of\ Tot.Ann.CAT\ Costs] \times 4.75\%\ [\%\ of\ Tier\ 2\ Options\ EV\ Recovery]}{4\ [Estimated\ Tier\ 2\ Options\ EVs]}\right) \div 12\ [\text{Months per year}] = \mathbf{\$12{,}543}$$

**Traceability of Total CAT Fees**

| Type | Industry Member Tier | Estimated Number of Members | CAT Fees Paid Annually | Total Recovery |
|---|---|---|---|---|
| Industry Members | Tier 1 | 14 | $325,932 | $4,563,048 |
| | Tier 2 | 33 | $236,220 | $7,795,260 |
| | Tier 3 | 43 | $163,596 | $7,034,628 |
| | Tier 4 | 119 | $102,264 | $12,169,416 |
| | Tier 5 | 128 | $29,712 | $3,803,136 |
| | Tier 6 | 290 | $7,872 | $2,282,880 |
| | Tier 7 | 914 | $420 | $383,880 |
| | **Total** | **1,541** | **-** | **$38,032,248** |
| Equity Execution Venues | Tier 1 | 13 | $324,192 | $4,214,496 |
| | Tier 2 | 22 | $148,248 | $3,261,456 |
| | Tier 3 | 12 | $84,504 | $1,014,048 |
| | Tier 4 | 5 | $516 | $2,580 |
| | **Total** | **52** | **-** | **$8,492,580** |
| Options Execution Venues | Tier 1 | 11 | $325,524 | $3,580,764 |
| | Tier 2 | 4 | $150,516 | $602,064 |
| | **Total** | **15** | **-** | **$4,182,828** |
| | | | **Total** | **$50,700,000** |

| Type | Industry Member Tier | Estimated Number of Members | CAT Fees Paid Annually | Total Recovery |
|---|---|---|---|---|
| | | | **Excess**[48] | **$7,656** |

**(F) Comparability of Fees**

The funding principles require a funding model in which the fees charged to the CAT Reporters with the most CAT-related activity (measured by market share and/or message traffic, as applicable) are generally comparable (where, for these comparability purposes, the tiered fee structure takes into consideration affiliations between or among CAT Reporters, whether Execution Venue and/or Industry Members). Accordingly, in creating the model, the Operating Committee sought to establish comparable fees for the top tier of Industry Members (other than Execution Venue ATSs), Equity Execution Venues and Options Execution Venues. Specifically, each Tier 1 CAT Reporter would be required to pay a quarterly fee of approximately $81,000.

**(G) Billing Onset**

Under Section 11.1(c) of the CAT NMS Plan, to fund the development and implementation of the CAT, the Company shall time the imposition and collection of all fees on Participants and Industry Members in a manner reasonably related to the timing when the Company expects to incur such development and implementation costs. The Company is currently incurring such development and implementation costs and will continue to do so prior to the commencement of CAT reporting and thereafter. In

48 The amount in excess of the total CAT costs will contribute to the gradual accumulation of the target operating reserve of $11.425 million.

accordance with the CAT NMS Plan, all CAT Reporters, including both Industry Members and Execution Venues (including Participants), will be invoiced as promptly as possible following the latest of the operative date of the Consolidated Audit Trail Funding Fees for each of the Participants and the operative date of the Plan amendment adopting CAT Fees for Participants.

**(H) Changes to Fee Levels and Tiers**

Section 11.3(d) of the CAT NMS Plan states that "[t]he Operating Committee shall review such fee schedule on at least an annual basis and shall make any changes to such fee schedule that it deems appropriate. The Operating Committee is authorized to review such fee schedule on a more regular basis, but shall not make any changes on more than a semi-annual basis unless, pursuant to a Supermajority Vote, the Operating Committee concludes that such change is necessary for the adequate funding of the Company." With such reviews, the Operating Committee will review the distribution of Industry Members and Execution Venues across tiers, and make any updates to the percentage of CAT Reporters allocated to each tier as may be necessary. In addition, the reviews will evaluate the estimated ongoing CAT costs and the level of the operating reserve. To the extent that the total CAT costs decrease, the fees would be adjusted downward, and to the extent that the total CAT costs increase, the fees would be adjusted upward.[49] Furthermore, any surplus of the Company's revenues over its expenses is to be included within the operational reserve to offset future fees. The limitations on more frequent changes to the fee, however, are intended to provide budgeting certainty for the

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[49] The CAT Fees are designed to recover the costs associated with the CAT. Accordingly, CAT Fees would not be affected by increases or decreases in other non-CAT expenses incurred by the Participants, such as any changes in costs related to the retirement of existing regulatory systems, such as OATS.

CAT Reporters and the Company.[50] To the extent that the Operating Committee approves changes to the number of tiers in the funding model or the fees assigned to each tier, then the Operating Committee will file such changes with the SEC pursuant to Rule 608 of the Exchange Act, and the Participants will file such changes with the SEC pursuant to Section 19(b) of the Exchange Act and Rule 19b-4 thereunder, and any such changes will become effective in accordance with the requirements of those provisions.

**(I) Initial and Periodic Tier Reassignments**

The Operating Committee has determined to calculate fee tiers every three months based on market share or message traffic, as applicable, from the prior three months. For the initial tier assignments, the Company will calculate the relevant tier for each CAT Reporter using the three months of data prior to the commencement date. As with the initial tier assignment, for the tri-monthly reassignments, the Company will calculate the relevant tier using the three months of data prior to the relevant tri-monthly date. Any movement of CAT Reporters between tiers will not change the criteria for each tier or the fee amount corresponding to each tier.

In performing the tri-monthly reassignments, the assignment of CAT Reporters in each assigned tier is relative. Therefore, a CAT Reporter's assigned tier will depend, not only on its own message traffic or market share, but also on the message traffic/market share across all CAT Reporters. For example, the percentage of Industry Members (other than Execution Venue ATSs) in each tier is relative such that such Industry Member's assigned tier will depend on message traffic generated across all CAT Reporters as well as the total number of CAT Reporters. The Operating Committee will inform CAT

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[50] Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85006.

Reporters of their assigned tier every three months following the periodic tiering process, as the funding model will compare an individual CAT Reporter's activity to that of other CAT Reporters in the marketplace.

The following demonstrates a tier reassignment. In accordance with the funding model, the top 75% of Options Execution Venues in market share are categorized as Tier 1 while the bottom 25% of Options Execution Venues in market share are categorized as Tier 2. In the sample scenario below, Options Execution Venue L is initially categorized as a Tier 2 Options Execution Venue in Period A due to its market share. When market share is recalculated for Period B, the market share of Execution Venue L increases, and it is therefore subsequently reranked and reassigned to Tier 1 in Period B. Correspondingly, Options Execution Venue K, initially a Tier 1 Options Execution Venue in Period A, is reassigned to Tier 2 in Period B due to decreases in its market share.

| **Period A** | | | **Period B** | | |
|---|---|---|---|---|---|
| **Options Execution Venue** | **Market Share Rank** | **Tier** | **Options Execution Venue** | **Market Share Rank** | **Tier** |
| **Options Execution Venue A** | 1 | 1 | **Options Execution Venue A** | 1 | 1 |
| **Options Execution Venue B** | 2 | 1 | **Options Execution Venue B** | 2 | 1 |
| **Options Execution Venue C** | 3 | 1 | **Options Execution Venue C** | 3 | 1 |
| **Options Execution Venue D** | 4 | 1 | **Options Execution Venue D** | 4 | 1 |
| **Options Execution Venue E** | 5 | 1 | **Options Execution Venue E** | 5 | 1 |
| **Options Execution Venue F** | 6 | 1 | **Options Execution Venue F** | 6 | 1 |
| **Options Execution Venue G** | 7 | 1 | **Options Execution Venue I** | 7 | 1 |
| **Options Execution Venue H** | 8 | 1 | **Options Execution Venue H** | 8 | 1 |
| **Options Execution Venue I** | 9 | 1 | **Options Execution Venue G** | 9 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| **Options Execution Venue J** | 10 | 1 | **Options Execution Venue J** | 10 | 1 |
| **Options Execution Venue K** | 11 | 1 | **Options Execution Venue L** | 11 | 1 |
| **Options Execution Venue L** | 12 | 2 | **Options Execution Venue K** | 12 | 2 |
| **Options Execution Venue M** | 13 | 2 | **Options Execution Venue N** | 13 | 2 |
| **Options Execution Venue N** | 14 | 2 | **Options Execution Venue M** | 14 | 2 |
| **Options Execution Venue O** | 15 | 2 | **Options Execution Venue O** | 15 | 2 |

For each periodic tier reassignment, the Operating Committee will review the new tier assignments, particularly those assignments for CAT Reporters that shift from the lowest tier to a higher tier. This review is intended to evaluate whether potential changes to the market or CAT Reporters (e.g., dissolution of a large CAT Reporter) adversely affect the tier reassignments.

**(J) Sunset Provision**

The Operating Committee developed the proposed funding model by analyzing currently available historical data. Such historical data, however, is not as comprehensive as data that will be submitted to the CAT. Accordingly, the Operating Committee believes that it will be appropriate to revisit the funding model once CAT Reporters have actual experience with the funding model. Accordingly, the Operating Committee determined to include an automatic sunsetting provision for the proposed fees. Specifically, the Operating Committee determined that the CAT Fees should automatically expire two years after the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants. The Operating Committee intends to monitor the operation of the funding model during this two year period and to evaluate its

effectiveness during that period. Such a process will inform the Operating Committee's approach to funding the CAT after the two year period.

**(3) Proposed CAT Fee Schedule**

The Exchange proposes the Consolidated Audit Trail Funding Fees to impose the CAT Fees determined by the Operating Committee on the Exchange's members. The proposed fee schedule has four sections, covering definitions, the fee schedule for CAT Fees, the timing and manner of payments, and the automatic sunsetting of the CAT Fees. Each of these sections is discussed in detail below.

**(A) Definitions**

Paragraph (a) of the proposed fee schedule sets forth the definitions for the proposed fee schedule. Paragraph (a)(1) states that, for purposes of the Consolidated Audit Trail Funding Fees, the terms "CAT", "CAT NMS Plan," "Industry Member," "NMS Stock," "OTC Equity Security", "Options Market Maker", and "Participant" are defined as set forth in Rule 6810 and Chapter IX, Section 8(a) (Consolidated Audit Trail – Definitions).

The proposed fee schedule imposes different fees on Equity ATSs and Industry Members that are not Equity ATSs. Accordingly, the proposed fee schedule defines the term "Equity ATS." First, paragraph (a)(2) defines an "ATS" to mean an alternative trading system as defined in Rule 300(a) of Regulation ATS under the Securities Exchange Act of 1934, as amended, that operates pursuant to Rule 301 of Regulation ATS. This is the same definition of an ATS as set forth in Section 1.1 of the CAT NMS Plan in the definition of an "Execution Venue." Then, paragraph (a)(4) defines an

"Equity ATS" as an ATS that executes transactions in NMS Stocks and/or OTC Equity Securities.

Paragraph (a)(3) of the proposed fee schedule defines the term "CAT Fee" to mean the Consolidated Audit Trail Funding Fee(s) to be paid by Industry Members as set forth in paragraph (b) in the proposed fee schedule.

Finally, Paragraph (a)(6) defines an "Execution Venue" as a Participant or an ATS (excluding any such ATS that does not execute orders). This definition is the same substantive definition as set forth in Section 1.1 of the CAT NMS Plan. Paragraph (a)(5) defines an "Equity Execution Venue" as an Execution Venue that trades NMS Stocks and/or OTC Equity Securities.

**(B) Fee Schedule**

The Exchange proposes to impose the CAT Fees applicable to its Industry Members through paragraph (b) of the proposed fee schedule. Paragraph (b)(1) of the proposed fee schedule sets forth the CAT Fees applicable to Industry Members other than Equity ATSs. Specifically, paragraph (b)(1) states that the Company will assign each Industry Member (other than an Equity ATS) to a fee tier once every quarter, where such tier assignment is calculated by ranking each Industry Member based on its total message traffic (with discounts for equity market maker quotes and Options Market Maker quotes based on the trade to quote ratio for equities and options, respectively) for the three months prior to the quarterly tier calculation day and assigning each Industry Member to a tier based on that ranking and predefined Industry Member percentages. The Industry Members with the highest total quarterly message traffic will be ranked in Tier 1, and the Industry Members with lowest quarterly message traffic will be ranked in Tier 7. Each

quarter, each Industry Member (other than an Equity ATS) shall pay the following CAT Fee corresponding to the tier assigned by the Company for such Industry Member for that quarter:

| Tier | Percentage of Industry Members | Quarterly CAT Fee |
|---|---|---|
| 1 | 0.900% | $81,483 |
| 2 | 2.150% | $59,055 |
| 3 | 2.800% | $40,899 |
| 4 | 7.750% | $25,566 |
| 5 | 8.300% | $7,428 |
| 6 | 18.800% | $1,968 |
| 7 | 59.300% | $105 |

Paragraph (b)(2) of the proposed fee schedule sets forth the CAT Fees applicable to Equity ATSs.[51] These are the same fees that Participants that trade NMS Stocks and/or OTC Equity Securities will pay. Specifically, paragraph (b)(2) states that the Company will assign each Equity ATS to a fee tier once every quarter, where such tier assignment is calculated by ranking each Equity Execution Venue based on its total market share of NMS Stocks and OTC Equity Securities (with a discount for Equity ATSs exclusively trading OTC Equity Securities based on the average shares per trade ratio between NMS Stocks and OTC Equity Securities) for the three months prior to the quarterly tier calculation day and assigning each Equity ATS to a tier based on that

[51] Note that no fee schedule is provided for Execution Venue ATSs that execute transactions in Listed Options, as no such Execution Venue ATSs currently exist due to trading restrictions related to Listed Options.

ranking and predefined Equity Execution Venue percentages. The Equity ATSs with the higher total quarterly market share will be ranked in Tier 1, and the Equity ATSs with the lowest quarterly market share will be ranked in Tier 4. Specifically, paragraph (b)(2) states that, each quarter, each Equity ATS shall pay the following CAT Fee corresponding to the tier assigned by the Company for such Equity ATS for that quarter:

| Tier | Percentage of Equity Execution Venues | Quarterly CAT Fee |
|---|---|---|
| 1 | 25.00% | $81,048 |
| 2 | 42.00% | $37,062 |
| 3 | 23.00% | $21,126 |
| 4 | 10.00% | $129 |

**(C) Timing and Manner of Payment**

Section 11.4 of the CAT NMS Plan states that the Operating Committee shall establish a system for the collection of fees authorized under the CAT NMS Plan. The Operating Committee may include such collection responsibility as a function of the Plan Processor or another administrator. To implement the payment process to be adopted by the Operating Committee, paragraph (c)(1) of the proposed fee schedule states that the Company will provide each Industry Member with one invoice each quarter for its CAT Fees as determined pursuant to paragraph (b) of the proposed fee schedule, regardless of whether the Industry Member is a member of multiple self-regulatory organizations. Paragraph (c)(1) further states that each Industry Member will pay its CAT Fees to the Company via the centralized system for the collection of CAT Fees established by the Company in the manner prescribed by the Company. The Exchange will provide

Industry Members with details regarding the manner of payment of CAT Fees by Regulatory Notice.

All CAT fees will be billed and collected centrally through the Company via the Plan Processor. Although each Participant will adopt its own fee schedule regarding CAT Fees, no CAT Fees or portion thereof will be collected by the individual Participants. Each Industry Member will receive from the Company one invoice for its applicable CAT fees, not separate invoices from each Participant of which it is a member. The Industry Members will pay the CAT Fees to the Company via the centralized system for the collection of CAT fees established by the Company.[52]

Section 11.4 of the CAT NMS Plan also states that Participants shall require each Industry Member to pay all applicable authorized CAT Fees within thirty days after receipt of an invoice or other notice indicating payment is due (unless a longer payment period is otherwise indicated). Section 11.4 further states that, if an Industry Member fails to pay any such fee when due, such Industry Member shall pay interest on the outstanding balance from such due date until such fee is paid at a per annum rate equal to the lesser of: (i) the Prime Rate plus 300 basis points; or (ii) the maximum rate permitted by applicable law. Therefore, in accordance with Section 11.4 of the CAT NMS Plan, the Exchange proposed to adopt paragraph (c)(2) of the proposed fee schedule. Paragraph (c)(2) of the proposed fee schedule states that each Industry Member shall pay CAT Fees within thirty days after receipt of an invoice or other notice indicating payment is due (unless a longer payment period is otherwise indicated). If an Industry Member fails to pay any such fee when due, such Industry Member shall pay interest on the

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[52] Section 11.4 of the CAT NMS Plan.

outstanding balance from such due date until such fee is paid at a per annum rate equal to the lesser of: (i) the Prime Rate plus 300 basis points; or (ii) the maximum rate permitted by applicable law.

**(D) Sunset Provision**

The Operating Committee has determined to require that the CAT Fees automatically sunset two years from the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants. Accordingly, the Exchange proposes paragraph (d) of the fee schedule, which states that "[t]hese Consolidated Audit Trailing Funding Fees will automatically expire two years after the operative date of the amendment of the CAT NMS Plan that adopts CAT fees for the Participants."

**(4) Changes to Prior CAT Fee Plan Amendment**

The proposed funding model set forth in this Amendment is a revised version of the Original Proposal. The Commission received a number of comment letters in response to the Original Proposal.[53] The SEC suspended the Original Proposal and instituted proceedings to determine whether to approve or disapprove it.[54] Pursuant to those proceedings, additional comment letters were submitted regarding the proposed funding model.[55] In developing this Amendment, the Operating Committee carefully considered these comments and made a number of changes to the Original Proposal to address these comments where appropriate.

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53 For a description of the comments submitted in response to the Original Proposal, see Suspension Order.

54 Suspension Order.

55 See MFA Letter; SIFMA Letter; FIA Principal Traders Group Letter; Belvedere Letter; Sidley Letter; Group One Letter; and Virtu Financial Letter.

This Amendment makes the following changes to the Original Proposal: (1) adds two additional CAT Fee tiers for Equity Execution Venues; (2) discounts the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF by the average shares per trade ratio between NMS Stocks and OTC Equity Securities (calculated as 0.17% based on available data from the second quarter of 2017) when calculating the market share of Execution Venue ATSs exclusively trading OTC Equity Securities and FINRA; (3) discounts the Options Market Maker quotes by the trade to quote ratio for options (calculated as 0.01% based on available data for June 2016 through June 2017) when calculating message traffic for Options Market Makers; (4) discounts equity market maker quotes by the trade to quote ratio for equities (calculated as 5.43% based on available data for June 2016 through June 2017) when calculating message traffic for equity market makers; (5) decreases the number of tiers for Industry Members (other than the Execution Venue ATSs) from nine to seven; (6) changes the allocation of CAT costs between Equity Execution Venues and Options Execution Venues from 75%/25% to 67%/33%; (7) adjusts tier percentages and recovery allocations for Equity Execution Venues, Options Execution Venues and Industry Members (other than Execution Venue ATSs); (8) focuses the comparability of CAT Fees on the individual entity level, rather than primarily on the comparability of affiliated entities; (9) commences invoicing of CAT Reporters as promptly as possible following the latest of the operative date of the Consolidated Audit Trail Funding Fees for each of the Participants and the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants; and (10) requires the proposed fees to automatically

expire two years from the operative date of the CAT NMS Plan amendment adopting CAT Fees for the Participants.

**(A) Equity Execution Venues**

**(i) Small Equity Execution Venues**

In the Original Proposal, the Operating Committee proposed to establish two fee tiers for Equity Execution Venues. The Commission and commenters raised the concern that, by establishing only two tiers, smaller Equity Execution Venues (e.g., those Equity ATSs representing less than 1% of NMS market share) would be placed in the same fee tier as larger Equity Execution Venues, thereby imposing an undue or inappropriate burden on competition.[56] To address this concern, the Operating Committee proposes to add two additional tiers for Equity Execution Venues, a third tier for smaller Equity Execution Venues and a fourth tier for the smallest Equity Execution Venues.

Specifically, the Original Proposal had two tiers of Equity Execution Venues. Tier 1 required the largest Equity Execution Venues to pay a quarterly fee of $63,375. Based on available data, these largest Equity Execution Venues were those that had equity market share of share volume greater than or equal to 1%.[57] Tier 2 required the remaining smaller Equity Execution Venues to pay a quarterly fee of $38,820.

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56 See Suspension Order at 31664; SIFMA Letter at 3.

57 Note that while these equity market share thresholds were referenced as data points to help differentiate between Equity Execution Venue tiers, the proposed funding model is directly driven not by market share thresholds, but rather by fixed percentages of Equity Execution Venues across tiers to account for fluctuating levels of market share across time. Actual market share in any tier will vary based on the actual market activity in a given measurement period, as well as the number of Equity Execution Venues included in the measurement period.

To address concerns about the potential for the $38,820 quarterly fee to impose an undue burden on smaller Equity Execution Venues, the Operating Committee determined to move to a four tier structure for Equity Execution Venues. Tier 1 would continue to include the largest Equity Execution Venues by share volume (that is, based on currently available data, those with market share of equity share volume greater than or equal to one percent), and these Equity Execution Venues would be required to pay a quarterly fee of $81,048. The Operating Committee determined to divide the original Tier 2 into three tiers. The new Tier 2 Equity Execution Venues, which would include the next largest Equity Execution Venues by equity share volume, would be required to pay a quarterly fee of $37,062. The new Tier 3 Equity Execution Venues would be required to pay a quarterly fee of $21,126. The new Tier 4 Equity Execution Venues, which would include the smallest Equity Execution Venues by share volume, would be required to pay a quarterly fee of $129.

In developing the proposed four tier structure, the Operating Committee considered keeping the existing two tiers, as well as shifting to three, four or five Equity Execution Venue tiers (the maximum number of tiers permitted under the Plan), to address the concerns regarding small Equity Execution Venues. For each of the two, three, four and five tier alternatives, the Operating Committee considered the assignment of various percentages of Equity Execution Venues to each tier as well as various percentage of Equity Execution Venue recovery allocations for each alternative. As discussed below in more detail, each of these options was considered in the context of the full model, as changes in each variable in the model affect other variables in the model when allocating the total CAT costs among CAT Reporters. The Operating Committee

determined that the four tier alternative addressed the spectrum of different Equity Execution Venues. The Operating Committee determined that neither a two tier structure nor a three tier structure sufficiently accounted for the range of market shares of smaller Equity Execution Venues. The Operating Committee also determined that, given the limited number of Equity Execution Venues, that a fifth tier was unnecessary to address the range of market shares of the Equity Execution Venues.

By increasing the number of tiers for Equity Execution Venues and reducing the proposed CAT Fees for the smaller Equity Execution Venues, the Operating Committee believes that the proposed fees for Equity Execution Venues would not impose an undue or inappropriate burden on competition under Section 6 or Section 15A of the Exchange Act. Moreover, the Operating Committee believes that the proposed fees appropriately take into account the distinctions in the securities trading operations of different Equity Execution Venues, as required under the funding principles of the CAT NMS Plan.[58] The larger number of tiers more closely tracks the variety of sizes of equity share volume of Equity Execution Venues. In addition, the reduction in the fees for the smaller Equity Execution Venues recognizes the potential burden of larger fees on smaller entities. In particular, the very small quarterly fee of $129 for Tier 4 Equity Execution Venues reflects the fact that certain Equity Execution Venues have a very small share volume due to their typically more focused business models.

Accordingly, with this Amendment, the Exchange proposes to amend paragraph (b)(2) of the proposed fee schedule to add the two additional tiers for Equity Execution

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[58] Section 11.2(b) of the CAT NMS Plan.

Venues, to establish the percentages and fees for Tiers 3 and 4 as described, and to revise the percentages and fees for Tiers 1 and 2 as described.

**(ii) Execution Venues for OTC Equity Securities**

In the Original Proposal, the Operating Committee proposed to group Execution Venues for OTC Equity Securities and Execution Venues for NMS Stocks in the same tier structure. The Commission and commenters raised concerns as to whether this determination to place Execution Venues for OTC Equity Securities in the same tier structure as Execution Venues for NMS Stocks would result in an undue or inappropriate burden on competition, recognizing that the application of share volume may lead to different outcomes as applied to OTC Equity Securities and NMS Stocks.[59] To address this concern, the Operating Committee proposes to discount the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF by the average shares per trade ratio between NMS Stocks and OTC Equity Securities (0.17% for the second quarter of 2017) in order to adjust for the greater number of shares being traded in the OTC Equity Securities market, which is generally a function of a lower per share price for OTC Equity Securities when compared to NMS Stocks.

As commenters noted, many OTC Equity Securities are priced at less than one dollar—and a significant number at less than one penny—and low-priced shares tend to trade in larger quantities. Accordingly, a disproportionately large number of shares are involved in transactions involving OTC Equity Securities versus NMS Stocks, which has the effect of overstating an Execution Venue's true market share when the Execution

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[59] See Suspension Order at 31664-5.

Venue is involved in the trading of OTC Equity Securities. Because the proposed fee tiers are based on market share calculated by share volume, Execution Venue ATSs trading OTC Equity Securities and FINRA may be subject to higher tiers than their operations may warrant.[60] The Operating Committee proposes to address this concern in two ways. First, the Operating Committee proposes to increase the number of Equity Execution Venue tiers, as discussed above. Second, the Operating Committee determined to discount the market share of Execution Venue ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF when calculating their tier placement. Because the disparity in share volume between Execution Venues trading in OTC Equity Securities and NMS Stocks is based on the different number of shares per trade for OTC Equity Securities and NMS Stocks, the Operating Committee believes that discounting the share volume of such Execution Venue ATSs as well as the market share of the FINRA ORF would address the difference in shares per trade for OTC Equity Securities and NMS Stocks. Specifically, the Operating Committee proposes to impose a discount based on the objective measure of the average shares per trade ratio between NMS Stocks and OTC Equity Securities. Based on available data from the second quarter of 2017, the average shares per trade ratio between NMS Stocks and OTC Equity Securities is 0.17%.

The practical effect of applying such a discount for trading in OTC Equity Securities is to shift Execution Venue ATSs exclusively trading OTC Equity Securities to tiers for smaller Execution Venues and with lower fees. For example, under the Original Proposal, one Execution Venue ATS exclusively trading OTC Equity Securities was

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[60] Suspension Order at 31664-5.

placed in the first CAT Fee tier, which had a quarterly fee of $63,375. With the imposition of the proposed tier changes and the discount, this ATS would be ranked in Tier 3 and would owe a quarterly fee of $21,126.

In developing the proposed discount for Equity Execution Venue ATSs exclusively trading OTC Equity Securities and FINRA, the Operating Committee evaluated different alternatives to address the concerns related to OTC Equity Securities, including creating a separate tier structure for Execution Venues trading OTC Equity Securities (like the separate tier for Options Execution Venues) as well as the proposed discounting method for Execution Venue ATSs exclusively trading OTC Equity Securities and FINRA. For these alternatives, the Operating Committee considered how each alternative would affect the recovery allocations. In addition, each of these options was considered in the context of the full model, as changes in each variable in the model affect other variables in the model when allocating the total CAT costs among CAT Reporters. The Operating Committee did not adopt a separate tier structure for Equity Execution Venues trading OTC Equity Securities as they determined that the proposed discount approach appropriately addresses the concern. The Operating Committee determined to adopt the proposed discount because it directly relates to the concern regarding the trading patterns and operations in the OTC Equity Securities markets, and is an objective discounting method.

By increasing the number of tiers for Equity Execution Venues and imposing a discount on the market share of share volume calculation for trading in OTC Equity Securities, the Operating Committee believes that the proposed fees for Equity Execution Venues would not impose an undue or inappropriate burden on competition under

Section 6 or Section 15A of the Exchange Act. Moreover, the Operating Committee believes that the proposed fees appropriately take into account the distinctions in the securities trading operations of different Equity Execution Venues, as required under the funding principles of the CAT NMS Plan.[61] As discussed above, the larger number of tiers more closely tracks the variety of sizes of equity share volume of Equity Execution Venues. In addition, the proposed discount recognizes the different types of trading operations at Equity Execution Venues trading OTC Equity Securities versus those trading NMS Stocks, thereby more closing matching the relative revenue generation by Equity Execution Venues trading OTC Equity Securities to their CAT Fees.

Accordingly, with this Amendment, the Exchange proposes to amend paragraph (b)(2) of the proposed fee schedule to indicate that the market share for Equity ATSs exclusively trading OTC Equity Securities as well as the market share of the FINRA ORF would be discounted. In addition, as discussed above, to address concerns related to smaller ATSs, including those that exclusively trade OTC Equity Securities, the Exchange proposes to amend paragraph (b)(2) of the proposed fee schedule to add two additional tiers for Equity Execution Venues, to establish the percentages and fees for Tiers 3 and 4 as described, and to revise the percentages and fees for Tiers 1 and 2 as described.

**(B) Market Makers**

In the Original Proposal, the Operating Committee proposed to include both Options Market Maker quotes and equities market maker quotes in the calculation of total message traffic for such market makers for purposes of tiering for Industry Members

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[61] Section 11.2(b) of the CAT NMS Plan.

(other than Execution Venue ATSs). The Commission and commenters raised questions as to whether the proposed treatment of Options Market Maker quotes may result in an undue or inappropriate burden on competition or may lead to a reduction in market quality.[62] To address this concern, the Operating Committee determined to discount the Options Market Maker quotes by the trade to quote ratio for options when calculating message traffic for Options Market Makers. Similarly, to avoid disincentives to quoting behavior on the equities side as well, the Operating Committee determined to discount equity market maker quotes by the trade to quote ratio for equities when calculating message traffic for equities market makers.

In the Original Proposal, market maker quotes were treated the same as other message traffic for purposes of tiering for Industry Members (other than Execution Venue ATSs). Commenters noted, however, that charging Industry Members on the basis of message traffic will impact market makers disproportionately because of their continuous quoting obligations. Moreover, in the context of options market makers, message traffic would include bids and offers for every listed options strikes and series, which are not an issue for equities.[63] The Operating Committee proposes to address this concern in two ways. First, the Operating Committee proposes to discount Options Market Maker quotes when calculating the Options Market Makers' tier placement. Specifically, the Operating Committee proposes to impose a discount based on the objective measure of the trade to quote ratio for options. Based on available data from June 2016 through June 2017, the trade to quote ratio for options is 0.01%. Second, the

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62 See Suspension Order at 31663-4; SIFMA Letter at 4-6; FIA Principal Traders Group Letter at 3; Sidley Letter at 2-6; Group One Letter at 2-6; and Belvedere Letter at 2.

63 Suspension Order at 31664.

Operating Committee proposes to discount equities market maker quotes when calculating the equities market makers' tier placement. Specifically, the Operating Committee proposes to impose a discount based on the objective measure of the trade to quote ratio for equities. Based on available data for June 2016 through June 2017, this trade to quote ratio for equities is 5.43%.

The practical effect of applying such discounts for quoting activity is to shift market makers' calculated message traffic lower, leading to the potential shift to tiers for lower message traffic and reduced fees. Such an approach would move sixteen Industry Member CAT Reporters that are market makers to a lower tier than in the Original Proposal. For example, under the Original Proposal, Broker-Dealer Firm ABC was placed in the first CAT Fee tier, which had a quarterly fee of $101,004. With the imposition of the proposed tier changes and the discount, Broker-Dealer Firm ABC, an options market maker, would be ranked in Tier 3 and would owe a quarterly fee of $40,899.

In developing the proposed market maker discounts, the Operating Committee considered various discounts for Options Market Makers and equity market makers, including discounts of 50%, 25%, 0.00002%, as well as the 5.43% for option market makers and 0.01% for equity market makers. Each of these options were considered in the context of the full model, as changes in each variable in the model affect other variables in the model when allocating the total CAT costs among CAT Reporters. The Operating Committee determined to adopt the proposed discount because it directly relates to the concern regarding the quoting requirement, is an objective discounting method, and has the desired potential to shift market makers to lower fee tiers.

By imposing a discount on Options Market Makers and equities market makers' quoting traffic for the calculation of message traffic, the Operating Committee believes that the proposed fees for market makers would not impose an undue or inappropriate burden on competition under Section 6 or Section 15A of the Exchange Act. Moreover, the Operating Committee believes that the proposed fees appropriately take into account the distinctions in the securities trading operations of different Industry Members, and avoid disincentives, such as a reduction in market quality, as required under the funding principles of the CAT NMS Plan.[64] The proposed discounts recognize the different types of trading operations presented by Options Market Makers and equities market makers, as well as the value of the market makers' quoting activity to the market as a whole. Accordingly, the Operating Committee believes that the proposed discounts will not impact the ability of small Options Market Makers or equities market makers to provide liquidity.

Accordingly, with this Amendment, the Exchange proposes to amend paragraph (b)(1) of the proposed fee schedule to indicate that the message traffic related to equity market maker quotes and Options Market Maker quotes would be discounted. In addition, the Exchange proposes to define the term "Options Market Maker" in paragraph (a)(1) of the proposed fee schedule.

**(C) Comparability/Allocation of Costs**

Under the Original Proposal, 75% of CAT costs were allocated to Industry Members (other than Execution Venue ATSs) and 25% of CAT costs were allocated to Execution Venues. This cost allocation sought to maintain the greatest level of

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64 Section 11.2(b) of the CAT NMS Plan.

comparability across the funding model, where comparability considered affiliations among or between CAT Reporters. The Commission and commenters expressed concerns regarding whether the proposed 75%/25% allocation of CAT costs is consistent with the Plan's funding principles and the Exchange Act, including whether the allocation places a burden on competition or reduces market quality. The Commission and commenters also questioned whether the approach of accounting for affiliations among CAT Reporters in setting CAT Fees disadvantages non-affiliated CAT Reporters or otherwise burdens competition in the market for trading services.[65]

In response to these concerns, the Operating Committee determined to revise the proposed funding model to focus the comparability of CAT Fees on the individual entity level, rather than primarily on the comparability of affiliated entities. In light of the interconnected nature of the various aspects of the funding model, the Operating Committee determined to revise various aspects of the model to enhance comparability at the individual entity level. Specifically, to achieve such comparability, the Operating Committee determined to (1) decrease the number of tiers for Industry Members (other than Execution Venue ATSs) from nine to seven; (2) change the allocation of CAT costs between Equity Execution Venues and Options Execution Venues from 75%/25% to 67%/33%; and (3) adjust tier percentages and recovery allocations for Equity Execution Venues, Options Execution Venues and Industry Members (other than Execution Venue ATSs). With these changes, the proposed funding model provides fee comparability for the largest individual entities, with the largest Industry Members (other than Execution

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65 See Suspension Order at 31662-3; SIFMA Letter at 3; Sidley Letter at 6-7; Group One Letter at 2; and Belvedere Letter at 2.

Venue ATSs), Equity Execution Venues and Options Execution Venues each paying a CAT Fee of approximately $81,000 each quarter.

**(i) Number of Industry Member Tiers**

In the Original Proposal, the proposed funding model had nine tiers for Industry Members (other than Execution Venue ATSs). The Operating Committee determined that reducing the number of tiers from nine tiers to seven tiers (and adjusting the predefined Industry Member Percentages as well) continues to provide a fair allocation of fees among Industry Members and appropriately distinguishes between Industry Members with differing levels of message traffic. In reaching this conclusion, the Operating Committee considered historical message traffic generated by Industry Members across all exchanges and as submitted to FINRA's OATS, and considered the distribution of firms with similar levels of message traffic, grouping together firms with similar levels of message traffic. Based on this, the Operating Committee determined that seven tiers would group firms with similar levels of message traffic, while also achieving greater comparability in the model for the individual CAT Reporters with the greatest market share or message traffic.

In developing the proposed seven tier structure, the Operating Committee considered remaining at nine tiers, as well as reducing the number of tiers down to seven when considering how to address the concerns raised regarding comparability. For each of the alternatives, the Operating Committee considered the assignment of various percentages of Industry Members to each tier as well as various percentages of Industry Member recovery allocations for each alternative. Each of these options was considered in the context of its effects on the full funding model, as changes in each variable in the

model affect other variables in the model when allocating the total CAT costs among CAT Reporters. The Operating Committee determined that the seven tier alternative provided the most fee comparability at the individual entity level for the largest CAT Reporters, while both providing logical breaks in tiering for Industry Members with different levels of message traffic and a sufficient number of tiers to provide for the full spectrum of different levels of message traffic for all Industry Members.

**(ii) Allocation of CAT Costs between Equity and Options Execution Venues**

The Operating Committee also determined to adjust the allocation of CAT costs between Equity Execution Venues and Options Execution Venues to enhance comparability at the individual entity level. In the Original Proposal, 75% of Execution Venue CAT costs were allocated to Equity Execution Venues, and 25% of Execution Venue CAT costs were allocated to Options Execution Venues. To achieve the goal of increased comparability at the individual entity level, the Operating Committee analyzed a range of alternative splits for revenue recovery between Equity and Options Execution Venues, along with other changes in the proposed funding model. Based on this analysis, the Operating Committee determined to allocate 67 percent of Execution Venue costs recovered to Equity Execution Venues and 33 percent to Options Execution Venues. The Operating Committee determined that a 67/33 allocation between Equity and Options Execution Venues enhances the level of fee comparability for the largest CAT Reporters. Specifically, the largest Equity and Options Execution Venues would pay a quarterly CAT Fee of approximately $81,000.

In developing the proposed allocation of CAT costs between Equity and Options Execution Venues, the Operating Committee considered various different options for

such allocation, including keeping the original 75%25% allocation, as well as shifting to a 70%/30%, 67%/33%, or 57.75%/42.25% allocation. For each of the alternatives, the Operating Committee considered the effect each allocation would have on the assignment of various percentages of Equity Execution Venues to each tier as well as various percentages of Equity Execution Venue recovery allocations for each alternative. Moreover, each of these options was considered in the context of the full model, as changes in each variable in the model affect other variables in the model when allocating the total CAT costs among CAT Reporters. The Operating Committee determined that the 67%/33% allocation between Equity and Options Execution Venues provided the greatest level of fee comparability at the individual entity level for the largest CAT Reporters, while still providing for appropriate fee levels across all tiers for all CAT Reporters.

**(iii) Allocation of Costs between Execution Venues and Industry Members**

The Operating Committee determined to allocate 25% of CAT costs to Execution Venues and 75% to Industry Members (other than Execution Venue ATSs), as it had in the Original Proposal. The Operating Committee determined that this 75%/25% allocation, along with the other changes proposed above, led to the most comparable fees for the largest Equity Execution Venues, Options Execution Venues and Industry Members (other than Execution Venue ATSs). The largest Equity Execution Venues, Options Execution Venues and Industry Members (other than Execution Venue ATSs) would each pay a quarterly CAT Fee of approximately $81,000.

As a preliminary matter, the Operating Committee determined that it is appropriate to allocate most of the costs to create, implement and maintain the CAT to

Industry Members for several reasons. First, there are many more broker-dealers expected to report to the CAT than Participants (i.e., 1,541 broker-dealer CAT Reporters versus 22 Participants). Second, since most of the costs to process CAT reportable data is generated by Industry Members, Industry Members could be expected to contribute toward such costs. Finally, as noted by the SEC, the CAT "substantially enhance[s] the ability of the SROs and the Commission to oversee today's securities markets,"[66] thereby benefitting all market participants. After making this determination, the Operating Committee analyzed several different cost allocations, as discussed further below, and determined that an allocation where 75% of the CAT costs should be borne by the Industry Members (other than Execution Venue ATSs) and 25% should be paid by Execution Venues was most appropriate and led to the greatest comparability of CAT Fees for the largest CAT Reporters.

In developing the proposed allocation of CAT costs between Execution Venues and Industry Members (other than Execution Venue ATSs), the Operating Committee considered various different options for such allocation, including keeping the original 75%/25% allocation, as well as shifting to an 80%/20%, 70%/30%, or 65%/35% allocation. Each of these options was considered in the context of the full model, including the effect on each of the changes discussed above, as changes in each variable in the model affect other variables in the model when allocating the total CAT costs among CAT Reporters. In particular, for each of the alternatives, the Operating Committee considered the effect each allocation had on the assignment of various percentages of Equity Execution Venues, Options Execution Venues and Industry

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66 Securities Exchange Act Release No. 67457 (July 18, 2012), 77 FR 45722, 45726 (August 1, 2012) ("Rule 613 Adopting Release").

Members (other than Execution Venue ATSs) to each relevant tier as well as various percentages of recovery allocations for each tier. The Operating Committee determined that the 75%/25% allocation between Execution Venues and Industry Members (other than Execution Venue ATSs) provided the greatest level of fee comparability at the individual entity level for the largest CAT Reporters, while still providing for appropriate fee levels across all tiers for all CAT Reporters.

**(iv) Affiliations**

The funding principles set forth in Section 11.2 of the Plan require that the fees charged to CAT Reporters with the most CAT-related activity (measured by market share and/or message traffic, as applicable) are generally comparable (where, for these comparability purposes, the tiered fee structure takes into consideration affiliations between or among CAT Reporters, whether Execution Venue and/or Industry Members). The proposed funding model satisfies this requirement. As discussed above, under the proposed funding model, the largest Equity Execution Venues, Options Execution Venues, and Industry Members (other than Execution Venue ATSs) pay approximately the same fee. Moreover, the Operating Committee believes that the proposed funding model takes into consideration affiliations between or among CAT Reporters as complexes with multiple CAT Reporters will pay the appropriate fee based on the proposed fee schedule for each of the CAT Reporters in the complex. For example, a complex with a Tier 1 Equity Execution Venue and Tier 2 Industry Member will a pay the same as another complex with a Tier 1 Equity Execution Venue and Tier 2 Industry Member.

**(v) Fee Schedule Changes**

Accordingly, with this Amendment, the Exchange proposes to amend paragraphs (b)(1) and (2) of the proposed fee schedule to reflect the changes discussed in this section. Specifically, the Exchange proposes to amend paragraph (b)(1) and (2) of the proposed fee schedule to update the number of tiers, and the fees and percentages assigned to each tier to reflect the described changes.

**(D) Market Share/Message Traffic**

In the Original Proposal, the Operating Committee proposed to charge Execution Venues based on market share and Industry Members (other than Execution Venue ATSs) based on message traffic. Commenters questioned the use of the two different metrics for calculating CAT Fees.[67] The Operating Committee continues to believe that the proposed use of market share and message traffic satisfies the requirements of the Exchange Act and the funding principles set forth in the CAT NMS Plan. Accordingly, the proposed funding model continues to charge Execution Venues based on market share and Industry Members (other than Execution Venue ATSs) based on message traffic.

In drafting the Plan and the Original Proposal, the Operating Committee expressed the view that the correlation between message traffic and size does not apply to Execution Venues, which they described as producing similar amounts of message traffic regardless of size. The Operating Committee believed that charging Execution Venues based on message traffic would result in both large and small Execution Venues paying comparable fees, which would be inequitable, so the Operating Committee determined that it would be more appropriate to treat Execution Venues differently from Industry Members in the funding model. Upon a more detailed analysis of available data,

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[67] Suspension Order at 31663; FIA Principal Traders Group Letter at 2.

however, the Operating Committee noted that Execution Venues have varying levels of message traffic. Nevertheless, the Operating Committee continues to believe that a bifurcated funding model – where Industry Members (other than Execution Venue ATSs) are charged fees based on message traffic and Execution Venues are charged based on market share – complies with the Plan and meets the standards of the Exchange Act for the reasons set forth below.

Charging Industry Members based on message traffic is the most equitable means for establishing fees for Industry Members (other than Execution Venue ATSs). This approach will assess fees to Industry Members that create larger volumes of message traffic that are relatively higher than those fees charged to Industry Members that create smaller volumes of message traffic. Since message traffic, along with fixed costs of the Plan Processor, is a key component of the costs of operating the CAT, message traffic is an appropriate criterion for placing Industry Members in a particular fee tier.

The Operating Committee also believes that it is appropriate to charge Execution Venues CAT Fees based on their market share. In contrast to Industry Members (other than Execution Venue ATSs), which determine the degree to which they produce the message traffic that constitutes CAT Reportable Events, the CAT Reportable Events of Execution Venues are largely derivative of quotations and orders received from Industry Members that the Execution Venues are required to display. The business model for Execution Venues, however, is focused on executions in their markets. As a result, the Operating Committee believes that it is more equitable to charge Execution Venues based on their market share rather than their message traffic.

Similarly, focusing on message traffic would make it more difficult to draw distinctions between large and small exchanges, including options exchanges in particular. For instance, the Operating Committee analyzed the message traffic of Execution Venues and Industry Members for the period of April 2017 to June 2017 and placed all CAT Reporters into a nine-tier framework (i.e., a single tier may include both Execution Venues and Industry Members). The Operating Committee's analysis found that the majority of exchanges (15 total) were grouped in Tiers 1 and 2. Moreover, virtually all of the options exchanges were in Tiers 1 and 2.[68] Given the concentration of options exchanges in Tiers 1 and 2, the Operating Committee believes that using a funding model based purely on message traffic would make it more difficult to distinguish between large and small options exchanges, as compared to the proposed bifurcated fee approach.

In addition, the Operating Committee also believes that it is appropriate to treat ATSs as Execution Venues under the proposed funding model since ATSs have business models that are similar to those of exchanges, and ATSs also compete with exchanges. For these reasons, the Operating Committee believes that charging Execution Venues based on market share is more appropriate and equitable than charging Execution Venues based on message traffic.

**(E) Time Limit**

In the Original Proposal, the Operating Committee did not impose any time limit on the application of the proposed CAT Fees. As discussed above, the Operating Committee developed the proposed funding model by analyzing currently available

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68 The Participants note that this analysis did not place MIAX PEARL in Tier 1 or Tier 2 since the exchange commenced trading on February 6, 2017.

historical data. Such historical data, however, is not as comprehensive as data that will be submitted to the CAT. Accordingly, the Operating Committee believes that it will be appropriate to revisit the funding model once CAT Reporters have actual experience with the funding model. Accordingly, the Operating Committee proposes to include a sunsetting provision in the proposed fee model. The proposed CAT Fees will sunset two years after the operative date of the CAT NMS Plan amendment adopting CAT Fees for Participants. Specifically, the Exchange proposes to add paragraph (d) of the proposed fee schedule to include this sunsetting provision. Such a provision will provide the Operating Committee and other market participants with the opportunity to reevaluate the performance of the proposed funding model.

**(F) Tier Structure/Decreasing Cost per Unit**

In the Original Proposal, the Operating Committee determined to use a tiered fee structure. The Commission and commenters questioned whether the decreasing cost per additional unit (of message traffic in the case of Industry Members, or of share volume in the case of Execution Venues) in the proposed fee schedules burdens competition by disadvantaging small Industry Members and Execution Venues and/or by creating barriers to entry in the market for trading services and/or the market for broker-dealer services.[69]

The Operating Committee does not believe that decreasing cost per additional unit in the proposed fee schedules places an unfair competitive burden on Small Industry Members and Execution Venues. While the cost per unit of message traffic or share volume necessarily will decrease as volume increases in any tiered fee model using fixed

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[69] Suspension Order at 31667.

fee percentages and, as a result, Small Industry Members and small Execution Venues may pay a larger fee per message or share, this comment fails to take account of the substantial differences in the absolute fees paid by Small Industry Members and small Execution Venues as opposed to large Industry Members and large Execution Venues. For example, under the fee proposals, Tier 7 Industry Members would pay a quarterly fee of $105, while Tier 1 Industry Members would pay a quarterly fee of $81,483. Similarly, a Tier 4 Equity Execution Venue would pay a quarterly fee of $129, while a Tier 1 Equity Execution Venue would pay a quarterly fee of $81,048. Thus, Small Industry Members and small Execution Venues are not disadvantaged in terms of the total fees that they actually pay. In contrast to a tiered model using fixed fee percentages, the Operating Committee believes that strictly variable or metered funding models based on message traffic or share volume would be more likely to affect market behavior and may present administrative challenges (*e.g.*, the costs to calculate and monitor fees may exceed the fees charged to the smallest CAT Reporters).

**(G) Other Alternatives Considered**

In addition to the various funding model alternatives discussed above regarding discounts, number of tiers and allocation percentages, the Operating Committee also discussed other possible funding models. For example, the Operating Committee considered allocating the total CAT costs equally among each of the Participants, and then permitting each Participant to charge its own members as it deems appropriate.[70] The Operating Committee determined that such an approach raised a variety of issues, including the likely inconsistency of the ensuing charges, potential for lack of

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[70] See FIA Principal Traders Group Letter at 2; Belvedere Letter at 4.

transparency, and the impracticality of multiple SROs submitting invoices for CAT charges. The Operating Committee therefore determined that the proposed funding model was preferable to this alternative.

**(H) Industry Member Input**

Commenters expressed concern regarding the level of Industry Member input into the development of the proposed funding model, and certain commenters have recommended a greater role in the governance of the CAT.[71] The Participants previously addressed this concern in its letters responding to comments on the Plan and the CAT Fees.[72] As discussed in those letters, the Participants discussed the funding model with the Development Advisory Group ("DAG"), the advisory group formed to assist in the development of the Plan, during its original development.[73] Moreover, Industry Members currently have a voice in the affairs of the Operating Committee and operation of the CAT generally through the Advisory Committee established pursuant to Rule 613(b)(7) and Section 4.13 of the Plan. The Advisory Committee attends all meetings of the Operating Committee, as well as meetings of various subcommittees and working groups, and provides valuable and critical input for the Participants' and Operating Committee's consideration. The Operating Committee continues to believe that that Industry Members have an appropriate voice regarding the funding of the Company.

**(I) Conflicts of Interest**

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71 See Suspension Order at 31662; MFA Letter at 1-2.

72 Letter from Participants to Brent J. Fields, Secretary, SEC (Sept. 23, 2016) ("Plan Response Letter"); Letter from CAT NMS Plan Participants to Brent J. Fields, Secretary, SEC (June 29, 2017) ("Fee Rule Response Letter").

73 Fee Rule Response Letter at 2; Plan Response Letter at 18.

Commenters also raised concerns regarding Participant conflicts of interest in setting the CAT Fees.[74] The Participants previously responded to this concern in both the Plan Response Letter and the Fee Rule Response Letter.[75] As discussed in those letters, the Plan, as approved by the SEC, adopts various measures to protect against the potential conflicts issues raised by the Participants' fee-setting authority. Such measures include the operation of the Company as a not for profit business league and on a break-even basis, and the requirement that the Participants file all CAT Fees under Section 19(b) of the Exchange Act. The Operating Committee continues to believe that these measures adequately protect against concerns regarding conflicts of interest in setting fees, and that additional measures, such as an independent third party to evaluate an appropriate CAT Fee, are unnecessary.

**(J) Fee Transparency**

Commenters also argued that they could not adequately assess whether the CAT Fees were fair and equitable because the Operating Committee has not provided details as to what the Participants are receiving in return for the CAT Fees.[76] The Operating Committee provided a detailed discussion of the proposed funding model in the Plan, including the expenses to be covered by the CAT Fees. In addition, the agreement between the Company and the Plan Processor sets forth a comprehensive set of services to be provided to the Company with regard to the CAT. Such services include, without limitation: user support services (e.g., a help desk); tools to allow each CAT Reporter to monitor and correct their submissions; a comprehensive compliance program to monitor

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74 See Suspension Order at 31662; FIA Principal Traders Group at 3.

75 See Plan Response Letter at 16, 17; Fee Rule Response Letter at 10-12.

76 See FIA Principal Traders Group at 3; SIFMA Letter at 3.

CAT Reporters' adherence to Rule 613; publication of detailed Technical Specifications for Industry Members and Participants; performing data linkage functions; creating comprehensive data security and confidentiality safeguards; creating query functionality for regulatory users (i.e., the Participants, and the SEC and SEC staff); and performing billing and collection functions. The Operating Committee further notes that the services provided by the Plan Processor and the costs related thereto were subject to a bidding process.

**(K) Funding Authority**

Commenters also questioned the authority of the Operating Committee to impose CAT Fees on Industry Members.[77] The Participants previously responded to this same comment in the Plan Response Letter and the Fee Rule Response Letter.[78] As the Participants previously noted, SEC Rule 613 specifically contemplates broker-dealers contributing to the funding of the CAT. In addition, as noted by the SEC, the CAT "substantially enhance[s] the ability of the SROs and the Commission to oversee today's securities markets,"[79] thereby benefitting all market participants. Therefore, the Operating Committing continues to believe that it is equitable for both Participants and Industry Members to contribute to funding the cost of the CAT.

2. Statutory Basis

The Exchange believes that its proposal is consistent with Section 6(b) of the Act,[80] in general, and furthers the objectives of Sections 6(b)(4) and 6(b)(5) of the Act,[81]

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77 See Suspension Order at 31661-2; SIFMA Letter at 2.

78 See Plan Response Letter at 9-10; Fee Rule Response Letter at 3-4.

79 Rule 613 Adopting Release at 45726.

80 15 U.S.C. 78f(b).

in particular, in that it provides for the equitable allocation of reasonable dues, fees, and other charges among members and issuers and other persons using any facility, is not designed to permit unfair discrimination between customers, issuers, brokers, or dealers, and is designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, and, in general, to protect investors and the public interest. As discussed above, the SEC approved the bifurcated, tiered, fixed fee funding model in the CAT NMS Plan, finding it was reasonable and that it equitably allocated fees among Participants and Industry Members. The Exchange believes that the proposed tiered fees adopted pursuant to the funding model approved by the SEC in the CAT NMS Plan are reasonable, equitably allocated and not unfairly discriminatory.

The Exchange believes that this proposal is consistent with the Act because it implements, interprets or clarifies the provisions of the Plan, and is designed to assist the Exchange and its Industry Members in meeting regulatory obligations pursuant to the Plan. In approving the Plan, the SEC noted that the Plan "is necessary and appropriate in the public interest, for the protection of investors and the maintenance of fair and orderly markets, to remove impediments to, and perfect the mechanism of a national market system, or is otherwise in furtherance of the purposes of the Act."[82] To the extent that this proposal implements, interprets or clarifies the Plan and applies specific requirements to Industry Members, the Exchange believes that this proposal furthers the objectives of the Plan, as identified by the SEC, and is therefore consistent with the Act.

The Exchange believes that the proposed tiered fees are reasonable. First, the total CAT Fees to be collected would be directly associated with the costs of establishing

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[81] 15 U.S.C. 78f(b)(4) and (5).

[82] Approval Order at 84697.

and maintaining the CAT, where such costs include Plan Processor costs and costs related to insurance, third party services and the operational reserve. The CAT Fees would not cover Participant services unrelated to the CAT. In addition, any surplus CAT Fees cannot be distributed to the individual Participants; such surpluses must be used as a reserve to offset future fees. Given the direct relationship between the fees and the CAT costs, the Exchange believes that the total level of the CAT Fees is reasonable.

In addition, the Exchange believes that the proposed CAT Fees are reasonably designed to allocate the total costs of the CAT equitably between and among the Participants and Industry Members, and are therefore not unfairly discriminatory. As discussed in detail above, the proposed tiered fees impose comparable fees on similarly situated CAT Reporters. For example, those with a larger impact on the CAT (measured via message traffic or market share) pay higher fees, whereas CAT Reporters with a smaller impact pay lower fees. Correspondingly, the tiered structure lessens the impact on smaller CAT Reporters by imposing smaller fees on those CAT Reporters with less market share or message traffic. In addition, the fee structure takes into consideration distinctions in securities trading operations of CAT Reporters, including ATSs trading OTC Equity Securities, and equity and options market makers.

Moreover, the Exchange believes that the division of the total CAT costs between Industry Members and Execution Venues, and the division of the Execution Venue portion of total costs between Equity and Options Execution Venues, is reasonably designed to allocate CAT costs among CAT Reporters. The 75%/25% division between Industry Members (other than Execution Venue ATSs) and Execution Venues maintains the greatest level of comparability across the funding model. For example, the cost

allocation establishes fees for the largest Industry Members (i.e., those Industry Members in Tiers 1) that are comparable to the largest Equity Execution Venues and Options Execution Venues (i.e., those Execution Venues in Tier 1). Furthermore, the allocation of total CAT cost recovery recognizes the difference in the number of CAT Reporters that are Industry Members (other than Execution Venue ATSs) versus CAT Reporters that are Execution Venues. Similarly, the 67%/33% allocation between Equity and Options Execution Venues also helps to provide fee comparability for the largest CAT Reporters.

Finally, the Exchange believes that the proposed fees are reasonable because they would provide ease of calculation, ease of billing and other administrative functions, and predictability of a fixed fee. Such factors are crucial to estimating a reliable revenue stream for the Company and for permitting CAT Reporters to reasonably predict their payment obligations for budgeting purposes.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change will impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Act. The Exchange notes that the proposed rule change implements provisions of the CAT NMS Plan approved by the Commission, and is designed to assist the Exchange in meeting its regulatory obligations pursuant to the Plan. Similarly, all national securities exchanges and FINRA are proposing this proposed fee schedule to implement the requirements of the CAT NMS Plan. Therefore, this is not a competitive fee filing and, therefore, it does not raise competition issues between and among the exchanges and FINRA.

Moreover, as previously described, the Exchange believes that the proposed rule change fairly and equitably allocates costs among CAT Reporters. In particular, the proposed fee schedule is structured to impose comparable fees on similarly situated CAT Reporters, and lessen the impact on smaller CAT Reporters. CAT Reporters with similar levels of CAT activity will pay similar fees. For example, Industry Members (other than Execution Venue ATSs) with higher levels of message traffic will pay higher fees, and those with lower levels of message traffic will pay lower fees. Similarly, Execution Venue ATSs and other Execution Venues with larger market share will pay higher fees, and those with lower levels of market share will pay lower fees. Therefore, given that there is generally a relationship between message traffic and/or market share to the CAT Reporter's size, smaller CAT Reporters generally pay less than larger CAT Reporters. Accordingly, the Exchange does not believe that the CAT Fees would have a disproportionate effect on smaller or larger CAT Reporters. In addition, ATSs and exchanges will pay the same fees based on market share. Therefore, the Exchange does not believe that the fees will impose any burden on the competition between ATSs and exchanges. Accordingly, the Exchange believes that the proposed fees will minimize the potential for adverse effects on competition between CAT Reporters in the market.

Furthermore, the tiered, fixed fee funding model limits the disincentives to providing liquidity to the market. Therefore, the proposed fees are structured to limit burdens on competitive quoting and other liquidity provision in the market.

In addition, the Operating Committee believes that the proposed changes to the Original Proposal, as discussed above in detail, address certain competitive concerns raised by commenters, including concerns related to, among other things, smaller ATSs,

ATSs trading OTC Equity Securities, market making quoting and fee comparability. As discussed above, the Operating Committee believes that the proposals address the competitive concerns raised by commenters.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

The Exchange has set forth responses to comments received regarding the Original Proposal in Section 3(a)(4) above.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

The foregoing rule change has become effective pursuant to Section 19(b)(3)(A)(ii) of the Act.[83] At any time within 60 days of the filing of the proposed rule change, the Commission summarily may temporarily suspend such rule change if it appears to the Commission that such action is: (i) necessary or appropriate in the public interest; (ii) for the protection of investors; or (iii) otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission shall institute proceedings to determine whether the proposed rule should be approved or disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. Comments may be submitted by any of the following methods:

Electronic comments:

- Use the Commission's Internet comment form (http://www.sec.gov/rules/sro.shtml); or

[83] 15 U.S.C. 78s(b)(3)(A)(ii).

- Send an e-mail to rule-comments@sec.gov. Please include File Number SR-NASDAQ-2017-046 on the subject line.

Paper comments:

- Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street, NE, Washington, DC 20549-1090.

All submissions should refer to File Number SR-NASDAQ-2017-046. This file number should be included on the subject line if e-mail is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's Internet Web site (http://www.sec.gov/rules/sro.shtml).

Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street, NE, Washington, DC 20549, on official business days between the hours of 10:00 a.m. and 3:00 p.m. Copies of the filing also will be available for inspection and copying at the principal office of the Exchange. All comments received will be posted without change; the Commission does not edit personal identifying information from submissions. You should submit only information that you wish to make available publicly.

All submissions should refer to File Number SR-NASDAQ-2017-046 and should be submitted on or before [insert date 21 days from publication in the Federal Register].

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.[84]

Eduardo A. Aleman
Assistant Secretary

[84] 17 CFR 200.30-3(a)(12).

**EXHIBIT 3**

## Appendix

**Equity Execution Venue Rank and Tier**

| Market Participant | Market Share of Share Volume[1] | Rank | Tier |
|---|---|---|---|
| Financial Industry Regulatory Authority, Inc. | 24.4118512850143% | 1 | 1 |
| The Nasdaq Stock Market LLC | 14.3221316394514% | 2 | 1 |
| New York Stock Exchange LLC | 13.1631222177691% | 3 | 1 |
| NYSE Arca, Inc. | 9.3963074291365% | 4 | 1 |
| Cboe EDGX Exchange, Inc. | 6.3267638314653% | 5 | 1 |
| Cboe BZX Exchange, Inc. | 6.1478229789347% | 6 | 1 |
| Cboe BYX Exchange, Inc. | 4.7643781647716% | 7 | 1 |
| Nasdaq BX, Inc. | 3.1401372815484% | 8 | 1 |
| UBS ATS | 2.3058693548856% | 9 | 1 |
| Investors' Exchange, LLC | 2.1483648334229% | 10 | 1 |
| Cboe EDGA Exchange, Inc. | 1.8513467967001% | 11 | 1 |
| CROSSFINDER | 1.6894565311740% | 12 | 1 |
| SUPERX | 1.0115687555972% | 13 | 1 |
| MS POOL (ATS-4) | 0.9188826526803% | 14 | 2 |
| Nasdaq PHLX LLC | 0.8009596014408% | 15 | 2 |
| J.P. MORGAN ATS ("JPM-X") | 0.7936361365369% | 16 | 2 |
| BARCLAYS ATS ("LX") | 0.6719255553783% | 17 | 2 |
| LEVEL ATS | 0.6571986459767% | 18 | 2 |
| INSTINCT X | 0.5956036029620% | 19 | 2 |
| BIDS TRADING L.P. | 0.5837401323782% | 20 | 2 |
| INSTINET CONTINUOUS BLOCK CROSSING SYSTEM (CBX) | 0.4723979596673% | 21 | 2 |
| KCG MATCHING | 0.4682553983691% | 22 | 2 |
| POSIT | 0.4435281677014% | 23 | 2 |
| Chicago Stock Exchange, Inc. | 0.4241409043731% | 24 | 2 |
| SIGMA X | 0.3157563290949% | 25 | 2 |
| MS TRAJECTORY CROSS (ATS-1) | 0.2654339378079% | 26 | 2 |
| NYSE American LLC | 0.2342627717196% | 27 | 2 |
| IBKR ATS | 0.2038196304470% | 28 | 2 |
| CROSSSTREAM | 0.1772292674940% | 29 | 2 |
| SIGMA X2 | 0.1705392273292% | 30 | 2 |
| LIQUIDNET ATS | 0.1499973113804% | 31 | 2 |

[1] Market share is based on Q2 2017 data made publicly available by Bats (exchange market statistics source), FINRA (ATS market statistics source), and OTC Markets (ATS market statistics source).

| Market Participant | Market Share of Share Volume[1] | Rank | Tier |
|---|---|---|---|
| MILLENNIUM | 0.1365496066290% | 32 | 2 |
| CITICROSS | 0.1349428742591% | 33 | 2 |
| LIQUIDNET H20 ATS | 0.1282036311445% | 34 | 2 |
| DEALERWEB, INC. | 0.1156677493258% | 35 | 2 |
| OTC LINK ATS[2] | 0.1148240026713% | 36 | 3 |
| BLOCKCROSS ATS | 0.0979883294279% | 37 | 3 |
| INSTINET CROSSING | 0.0763929064441% | 38 | 3 |
| CODA MARKETS, INC. | 0.0662166896390% | 39 | 3 |
| LUMINEX TRADING & ANALYTICS LLC | 0.0304261486817% | 40 | 3 |
| MS RETAIL POOL | 0.0295389976553% | 41 | 3 |
| CITIBLOC | 0.0251235534421% | 42 | 3 |
| USTOCKTRADE SECURITIES, INC. | 0.0089509616229% | 43 | 3 |
| AQUA SECURITIES L.P. | 0.0052275918715% | 44 | 3 |
| XE | 0.0031219820548% | 45 | 3 |
| GLOBAL OTC | 0.0002467471213% | 46 | 3 |
| BARCLAYS DIRECTEX | 0.0001494994467% | 47 | 3 |
| VARIABLE INVESTMENT ADVISORS, INC. ATS (VIAATS) | 0.0000002922675% | 48 | 4 |
| FNC AG STOCK, LLC | 0.0000000607782% | 49 | 4 |
| DBOT ATS, LLC | 0.0000000429086% | 50 | 4 |
| PRO SECURITIES ATS | 0.0000000000004% | 51 | 4 |
| NYSE National, Inc. | 0.0000000000000% | 52 | 4 |

**Options Execution Venue Rank and Tier**

| Market Participant | Market Share of Share Volume (Options Contracts)[3] | Rank | Tier |
|---|---|---|---|
| Cboe Exchange, Inc. | 17.30% | 1 | 1 |
| Nasdaq PHLX LLC | 16.89% | 2 | 1 |
| Cboe BZX Options Exchange, Inc. | 12.36% | 3 | 1 |
| The Nasdaq Options Market LLC | 10.01% | 4 | 1 |
| Nasdaq ISE, LLC | 9.06% | 5 | 1 |
| NYSE Arca, Inc. | 7.74% | 6 | 1 |
| NYSE American LLC | 7.60% | 7 | 1 |
| Miami International Securities Exchange, LLC | 5.07% | 8 | 1 |
| Nasdaq GEMX, LLC | 5.04% | 9 | 1 |

2 Market share for OTC Link ATS is based on the Q2 2017 data made publicly available by OTC Markets.

3 The market share is based on Q2 data made publicly available by Bats.

| Market Participant | Market Share of Share | Rank | Tier |
|---|---|---|---|
| Cboe C2 Exchange, Inc. | 3.79% | 10 | 1 |
| BOX Options Exchange LLC | 2.30% | 11 | 1 |
| Cboe EDGX Options Exchange, Inc. | 1.40% | 12 | 2 |
| Nasdaq BX, Inc. | 0.70% | 13 | 2 |
| MIAX PEARL, LLC | 0.61% | 14 | 2 |
| Nasdaq MRX, LLC | 0.13% | 15 | 2 |

**EXHIBIT 4**

Exhibit 4 shows the changes proposed in this Amendment, with the proposed changes in the original filing shown as if adopted. Proposed new language in this Amendment is underlined; proposed deletions in this Amendment are in brackets.

**The Nasdaq Stock Market Rules**

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**Equity Rules**

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**7004. Consolidated Audit Trail Funding Fees**

(a) Definitions.

(1) For purposes of the Consolidated Audit Trail Funding Fees, the terms "CAT," "CAT NMS Plan", "Industry Member", "NMS Stock", "OTC Equity Security", "Options Market Maker", and "Participant" are defined as set forth in Rule 6810 (Consolidated Audit Trail – Definitions).

(2) "ATS" means an alternative trading system as defined in Rule 300(a) of Regulation ATS under the Securities Exchange Act of 1934, as amended, that operates pursuant to Rule 301 of Regulation ATS.

(3) "CAT Fee" means the Consolidated Audit Trail Funding Fee(s) to be paid by Industry Members as set forth in paragraph (b) below.

(4) "Equity ATS" is an ATS that executes transactions in NMS Stocks and/or OTC Equity Securities.

(5) "Equity Execution Venue" means an Execution Venue that trades NMS Stocks and/or OTC Equity Securities.

(6) "Execution Venue" means a Participant or an ATS (excluding any such ATS that does not execute orders).

(b) Fee Schedule.

(1) The CAT NMS, LLC will assign each Industry Member (other than an Equity ATS) to a fee tier once every quarter, where such tier assignment is calculated by ranking each Industry Member based on its total message traffic (with discounts for equity market maker quotes and Options Market Maker quotes based on the trade to quote ratio for equities and options, respectively) for the three months prior to the quarterly tier calculation day and assigning each Industry Member to a tier based on that

ranking and predefined Industry Member percentages. The Industry Members with the highest total quarterly message traffic will be ranked in Tier 1, and the Industry Members with lowest quarterly message traffic will be ranked in Tier [9] 7. Each quarter, each Industry Member (other than an Equity ATS) shall pay the following CAT Fee corresponding to the tier assigned by the CAT NMS, LLC for such Industry Member for that quarter:

| Tier | Percentage of Industry Members | Quarterly CAT Fee |
|---|---|---|
| 1 | [0.500%] 0.900% | [$101,004] $81,483 |
| 2 | [2.500%] 2.150% | [$81,153] $59,055 |
| 3 | [2.125%] 2.800% | [$57,717] $40,899 |
| 4 | [4.625%] 7.750% | [$19,965] $25,566 |
| 5 | [3.625%] 8.300% | [$12,489] $7,428 |
| 6 | [4.000%] 18.800% | [$7,680] $1,968 |
| 7 | [17.500%] 59.300% | [$1,503] $105 |
| [8] | [20.125%] | [$435] |
| [9] | [45.000%] | [$66] |

(2) The CAT NMS, LLC will assign each Equity ATS to a fee tier once every quarter, where such tier assignment is calculated by ranking each Equity Execution Venue based on its total market share of NMS Stocks and OTC Equity Securities (with a discount for Equity ATSs exclusively trading OTC Equity Securities based on the average shares per trade ratio between NMS Stocks and OTC Equity Securities) for the three months prior to the quarterly tier calculation day and assigning each Equity Execution Venue to a tier based on that ranking and predefined Equity Execution Venue percentages. The Equity Execution Venues with the higher total quarterly market share will be ranked in Tier 1, and the Equity Execution Venues with the [lower] lowest quarterly market share will be ranked in Tier [2] 4. Each quarter, each Equity ATS shall pay the following CAT Fee corresponding to the tier assigned by the CAT NMS, LLC for such Equity ATS for that quarter:

| Tier | Percentage of Equity Execution Venues | Quarterly CAT Fee |
|---|---|---|
| 1 | 25.00% | [$63,375] $81,048 |
| 2 | [75.00%] 42.00% | [$38,820] $37,062 |

| | | |
|---|---|---|
| 3 | 23.00% | $21,126 |
| 4 | 10.00% | $129 |

(c) Timing and Manner of Payments.

(1) The CAT NMS, LLC will provide each Industry Member with one invoice each quarter for its CAT Fees as determined pursuant to paragraph (b) above, regardless of whether the Industry Member is a member of multiple self-regulatory organizations. Each Industry Member will pay its CAT Fees to the CAT NMS, LLC via the centralized system for the collection of CAT Fees established by the CAT NMS, LLC in the manner prescribed by the CAT NMS, LLC.

(2) Each Industry Member shall pay CAT Fees within thirty days after receipt of an invoice or other notice indicating payment is due (unless a longer payment period is otherwise indicated). If an Industry Member fails to pay any such fee when due, such Industry Member shall pay interest on the outstanding balance from such due date until such fee is paid at a per annum rate equal to the lesser of (i) the Prime Rate plus 300 basis points, or (ii) the maximum rate permitted by applicable law.

(d) Expiration.

These Consolidated Audit Trailing Funding Fees will automatically expire two years after the operative date of the amendment of the CAT NMS Plan that adopts CAT fees for the Participants.

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**Options Rules**

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**Chapter XV Options Pricing**

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Sec. 1 through Sec. 13 No Change.

**Sec. 14. Consolidated Audit Trail Funding Fees**

(a) Definitions.

(1) For purposes of the Consolidated Audit Trail Funding Fees, the terms "CAT," "CAT NMS Plan", "Industry Member", "NMS Stock", "OTC Equity Security", "Options Market Maker", and "Participant" are defined as set forth in Chapter IX, Section 8(a) (Consolidated Audit Trail – Definitions).

(2) "ATS" means an alternative trading system as defined in Rule 300(a) of Regulation ATS under the Securities Exchange Act of 1934, as amended, that operates pursuant to Rule 301 of Regulation ATS.

(3) "CAT Fee" means the Consolidated Audit Trail Funding Fee(s) to be paid by Industry Members as set forth in paragraph (b) below.

(4) "Equity ATS" is an ATS that executes transactions in NMS Stocks and/or OTC Equity Securities.

(5) "Equity Execution Venue" means an Execution Venue that trades NMS Stocks and/or OTC Equity Securities.

(6) "Execution Venue" means a Participant or an ATS (excluding any such ATS that does not execute orders).

(b) Fee Schedule.

(1) The CAT NMS, LLC will assign each Industry Member (other than an Equity ATS) to a fee tier once every quarter, where such tier assignment is calculated by ranking each Industry Member based on its total message traffic (with discounts for equity market maker quotes and Options Market Maker quotes based on the trade to quote ratio for equities and options, respectively) for the three months prior to the quarterly tier calculation day and assigning each Industry Member to a tier based on that ranking and predefined Industry Member percentages. The Industry Members with the highest total quarterly message traffic will be ranked in Tier 1, and the Industry Members with lowest quarterly message traffic will be ranked in Tier [9] 7. Each quarter, each Industry Member (other than an Equity ATS) shall pay the following CAT Fee corresponding to the tier assigned by the CAT NMS, LLC for such Industry Member for that quarter:

| Tier | Percentage of Industry Members | Quarterly CAT Fee |
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| 1 | [0.500%] 0.900% | [$101,004] $81,483 |
| 2 | [2.500%] 2.150% | [$81,153] $59,055 |
| 3 | [2.125%] 2.800% | [$57,717] $40,899 |
| 4 | [4.625%] 7.750% | [$19,965] $25,566 |
| 5 | [3.625%] 8.300% | [$12,489] $7,428 |
| 6 | [4.000%] 18.800% | [$7,680] $1,968 |
| 7 | [17.500%] 59.300% | [$1,503] $105 |

| | | |
|---|---|---|
| [8] | [20.125%] | [$435] |
| [9] | [45.000%] | [$66] |

(2) The CAT NMS, LLC will assign each Equity ATS to a fee tier once every quarter, where such tier assignment is calculated by ranking each Equity Execution Venue based on its total market share of NMS Stocks and OTC Equity Securities (with a discount for Equity ATSs exclusively trading OTC Equity Securities based on the average shares per trade ratio between NMS Stocks and OTC Equity Securities) for the three months prior to the quarterly tier calculation day and assigning each Equity Execution Venue to a tier based on that ranking and predefined Equity Execution Venue percentages. The Equity Execution Venues with the higher total quarterly market share will be ranked in Tier 1, and the Equity Execution Venues with the [lower] lowest quarterly market share will be ranked in Tier [2] 4. Each quarter, each Equity ATS shall pay the following CAT Fee corresponding to the tier assigned by the CAT NMS, LLC for such Equity ATS for that quarter:

| **Tier** | **Percentage of Equity Execution Venues** | **Quarterly CAT Fee** |
|---|---|---|
| 1 | 25.00% | [$63,375] $81,048 |
| 2 | [75.00%] 42.00% | [$38,820] $37,062 |
| 3 | 23.00% | $21,126 |
| 4 | 10.00% | $129 |

(c) Timing and Manner of Payments.

(1) The CAT NMS, LLC will provide each Industry Member with one invoice each quarter for its CAT Fees as determined pursuant to paragraph (b) above, regardless of whether the Industry Member is a member of multiple self-regulatory organizations. Each Industry Member will pay its CAT Fees to the CAT NMS, LLC via the centralized system for the collection of CAT Fees established by the CAT NMS, LLC in the manner prescribed by the CAT NMS, LLC.

(2) Each Industry Member shall pay CAT Fees within thirty days after receipt of an invoice or other notice indicating payment is due (unless a longer payment period is otherwise indicated). If an Industry Member fails to pay any such fee when due, such Industry Member shall pay interest on the outstanding balance from such due date until such fee is paid at a per annum rate equal to the lesser of (i) the Prime Rate plus 300 basis points, or (ii) the maximum rate permitted by applicable law.

(d) Expiration.

These Consolidated Audit Trailing Funding Fees will automatically expire two years after the operative date of the amendment of the CAT NMS Plan that adopts CAT fees for the Participants.

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**EXHIBIT 5**

Deleted text is [bracketed]. New text is underlined.

**The Nasdaq Stock Market Rules**

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**Equity Rules**

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**7004. Consolidated Audit Trail Funding Fees**

(a) Definitions.

(1) For purposes of the Consolidated Audit Trail Funding Fees, the terms "CAT", "CAT NMS Plan", "Industry Member", "NMS Stock", "OTC Equity Security", "Options Market Maker", and "Participant" are defined as set forth in Rule 6810 (Consolidated Audit Trail – Definitions).

(2) "ATS" means an alternative trading system as defined in Rule 300(a) of Regulation ATS under the Securities Exchange Act of 1934, as amended, that operates pursuant to Rule 301 of Regulation ATS.

(3) "CAT Fee" means the Consolidated Audit Trail Funding Fee(s) to be paid by Industry Members as set forth in paragraph (b) below.

(4) "Equity ATS" is an ATS that executes transactions in NMS Stocks and/or OTC Equity Securities.

(5) "Equity Execution Venue" means an Execution Venue that trades NMS Stocks and/or OTC Equity Securities.

(6) "Execution Venue" means a Participant or an ATS (excluding any such ATS that does not execute orders).

(b) Fee Schedule.

(1) The CAT NMS, LLC will assign each Industry Member (other than an Equity ATS) to a fee tier once every quarter, where such tier assignment is calculated by ranking each Industry Member based on its total message traffic (with discounts for equity market maker quotes and Options Market Maker quotes based on the trade to quote ratio for equities and options, respectively) for the three months prior to the quarterly tier calculation day and assigning each Industry Member to a tier based on that ranking and predefined Industry Member percentages. The Industry Members with the highest total quarterly message traffic will be ranked in Tier 1, and the Industry Members

with lowest quarterly message traffic will be ranked in Tier 7. Each quarter, each Industry Member (other than an Equity ATS) shall pay the following CAT Fee corresponding to the tier assigned by the CAT NMS, LLC for such Industry Member for that quarter:

| **Tier** | **Percentage of Industry Members** | **Quarterly CAT Fee** |
|---|---|---|
| 1 | 0.900% | $81,483 |
| 2 | 2.150% | $59,055 |
| 3 | 2.800% | $40,899 |
| 4 | 7.750% | $25,566 |
| 5 | 8.300% | $7,428 |
| 6 | 18.800% | $1,968 |
| 7 | 59.300% | $105 |

(2) The CAT NMS, LLC will assign each Equity ATS to a fee tier once every quarter, where such tier assignment is calculated by ranking each Equity Execution Venue based on its total market share of NMS Stocks and OTC Equity Securities (with a discount for Equity ATSs exclusively trading OTC Equity Securities based on the average shares per trade ratio between NMS Stocks and OTC Equity Securities) for the three months prior to the quarterly tier calculation day and assigning each Equity Execution Venue to a tier based on that ranking and predefined Equity Execution Venue percentages. The Equity Execution Venues with the higher total quarterly market share will be ranked in Tier 1, and the Equity Execution Venues with the lowest quarterly market share will be ranked in Tier 4. Each quarter, each Equity ATS shall pay the following CAT Fee corresponding to the tier assigned by the CAT NMS, LLC for such Equity ATS for that quarter:

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(d) Expiration.

These Consolidated Audit Trail Funding Fees will automatically expire two years after the operative date of the amendment of the CAT NMS Plan that adopts CAT fees for the Participants.

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**Options Rules**

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**Chapter XV Options Pricing**

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Sec. 1 through Sec. 13 No Change.

**Sec. 14. Consolidated Audit Trail Funding Fees**

(a) Definitions.

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