


May 8, 2017

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


SEC
Mail Processing
Section
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Re: File Number 4-698
Notice of Filing of Amendment No. 2 to the National Market System Plan Governing the Consolidated Audit Trail

Dear Mr. Fields:

The Operating Committee¹ for CAT NMS, LLC (the “Company”) respectfully files with the Securities and Exchange Commission (“SEC” or “Commission”) a proposed amendment to the National Market System Plan Governing the Consolidated Audit Trail (the “CAT NMS Plan” or “Plan”)² pursuant to Rule 608 of Regulation NMS (“Rule 608”) under the Securities Exchange Act of 1934 (“Exchange Act”).³ As described more fully below, the proposed amendment would add a fee schedule to a new Exhibit B of the Plan which sets forth the CAT fees to be paid by the Participants.⁴

Requirements Pursuant to Rule 608(a)

A. Description of the Amendments to the CAT NMS Plan

(1) Executive Summary

The following provides an executive summary of the CAT funding model approved by the Operating Committee, as well as Participants’ obligations related to the payment of CAT

¹ Unless otherwise defined herein, capitalized terms are defined as set forth in the CAT NMS Plan.

² The CAT NMS Plan is a national market system plan approved by the Commission pursuant to Section 11A of the Exchange Act and the rules and regulations thereunder. *See* Securities Exchange Act Release No. 79318 (Nov. 15, 2016), 81 Fed. Reg. (Nov. 23, 2016). The full text of the CAT NMS Plan is available at www.catnmsplan.com.

³ 17 C.F.R. § 242.608.

⁴ The Participants to the CAT NMS Plan are Bats BYX Exchange, Inc., Bats BZX Exchange, Inc., Bats EDGA Exchange, Inc., Bats EDGX Exchange, Inc., BOX Options Exchange LLC, C2 Options Exchange, Incorporated, Chicago Board Options Exchange, Incorporated, Chicago Stock Exchange, Inc., Financial Industry Regulatory Authority, Inc., Investors’ Exchange LLC, Miami International Securities Exchange, LLC, MIAX PEARL, LLC, NASDAQ BX, Inc., Nasdaq GEMX, LLC, Nasdaq ISE, LLC, Nasdaq MRX, LLC, NASDAQ PHLX LLC, The NASDAQ Stock Market LLC, NYSE National, Inc., New York Stock Exchange LLC, NYSE MKT LLC, and NYSE Arca, Inc. Note that National Stock Exchange, Inc. has been renamed NYSE National, Inc. *See* Securities Exchange Act Rel. No. 79902 (Jan. 30, 2017), 82 Fed. Reg. 9258 (Feb. 3, 2017). Note further that 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 Rel. No. 80248 (Mar. 15, 2017), 82 Fed. Reg. 14547 (Mar. 21, 2017); Securities Exchange Act Rel. No. 80326 (Mar. 29, 2017), 82 Fed. Reg. 16460 (Apr. 4, 2017); and Securities Exchange Act Rel. No. 80325 (Mar. 29, 2017), 82 Fed. Reg. 16445 (Apr. 4, 2017).

Fees calculated pursuant to the CAT funding model. A detailed description of the CAT funding model and the CAT Fees follows this executive summary.

- 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 for the calculation of 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. (See Section 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 (“ATs”) that execute transactions in Eligible Securities (“Execution Venue ATs”)) through fixed tier fees based on message traffic for Eligible Securities. (See Section A(2) below)
- Industry Member Fees. Each Industry Member (other than Execution Venue ATs) will be placed into one of nine 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 and quotes 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. (See Section A(2)(B) below)
- Execution Venue Fees. Each Equity Execution Venue will be placed in one of two 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. 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 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 ATSSs) and 25 percent would be allocated to Execution Venues. In addition, the Operating Committee determined to allocate 75 percent of Execution Venue costs recovered to Equity Execution Venues and 25 percent to Options Execution Venues. (*See* Section A(2)(D) below)
- Comparability of Fees. The CAT funding model requires that the CAT 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 Venues and/or Industry Members). (*See* Section A(2)(F) below)
- Fee Schedule. The quarterly CAT Fees for each tier for Participants are set forth in the two fee schedules in proposed Exhibit B to the CAT NMS Plan, one for Execution Venues for NMS Stocks and OTC Equity Securities and one for Execution Venues for Listed Options. (*See* Section A(3) 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. As set forth in Article XI of the CAT NMS Plan, the CAT NMS Plan requires 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 ATSSs) 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”⁵ and “reflects a reasonable exercise of the Participants’ funding authority to recover the Participants’ costs related to the CAT.”⁶

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.”⁷ 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

⁵ Approval Order at 84796.

⁶ *Id.* at 84794.

⁷ *Id.* at 84795.

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.⁸

Accordingly, the funding model imposes fees on both Participants and Industry Members.

In addition, as discussed in Appendix C of the CAT NMS Plan, the Operating Committee considered the advantages and disadvantages of a variety of alternative funding and cost allocation models before selecting the proposed model.⁹ 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. First, 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.¹⁰ 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. 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 be may be easier to implement."¹¹

In addition, multiple reviews 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.¹² The self-regulatory organizations 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 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 to allocate costs to those CAT Reporters that contribute more to

⁸ *Id.* at 84794.

⁹ Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85006.

¹⁰ In choosing a tiered fee structure, the self-regulatory organizations concluded that the variety of benefits offered by a tiered fee structure, discussed above, outweighed the fact that Industry Members in any particular tier would pay different rates per message traffic order event (*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.

¹¹ Approval Order at 84796.

¹² Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85006.

the costs of creating, implementing and maintaining the CAT.¹³ 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 therefore 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.¹⁴ Correspondingly, Execution Venues with the highest market share will be in the top tier, and therefore will be charged a higher fee. Execution Venues with a lower market share will be in the lower tier and will be assessed a smaller fee for the CAT.¹⁵

The Commission also noted in approving the CAT NMS Plan that “[t]he Participants have offered a credible justification for using different criteria to charge Execution Venues (market share) and Industry Members (message traffic)”¹⁶ in the CAT funding model. 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.¹⁷ Thus, the CAT NMS Plan provides that the fees payable by Industry Members (other than Execution Venue ATs) will be based on the message traffic generated by such Industry Member.¹⁸

The CAT NMS Plan provides that the Operating Committee will use different criteria to establish fees for Execution Venues and non-Execution Venues due to the fundamental differences between the two types of entities. In particular, the CAT NMS Plan provides that fees charged to CAT Reporters that are Execution Venues will be based on the level of market share and that costs charged to Industry Members (other than Execution Venue ATs) will be based upon message traffic.¹⁹ Because most Participant message traffic consists of quotations, and Participants usually disseminate quotations in all instruments they trade, regardless of execution volume, Execution Venues that are Participants generally disseminate similar amounts of message traffic. Accordingly, basing fees for Execution Venues on message traffic would not provide the same degree of differentiation among Execution Venues that it does among Industry Members (other than Execution Venue ATs). In contrast, execution volume more accurately delineates the different levels of trading activity of Execution Venues.²⁰

The CAT NMS Plan’s funding model also is structured to avoid a “reduction in market quality.”²¹ The tiered, fixed fee funding model is designed to limit the disincentives to providing liquidity to the market. For example, the Participants expect that a firm that had 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

¹³ Approval Order at 85005.

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.* at 84796.

¹⁷ Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85005.

¹⁸ Section 11.3(b) of the CAT NMS Plan.

¹⁹ Section 11.2(c) of the CAT NMS Plan.

²⁰ Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85005.

²¹ Section 11.2(e) of the CAT NMS Plan.

variable or metered funding models based on message volume were 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.”²²

The CAT NMS Plan is structured to avoid potential conflicts raised by the Operating Committee determining fees applicable to its own members – the Participants. First, the Company will be operated 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.²³ 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.”²⁴ 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.”²⁵

Finally, by adopting a CAT-specific fee, the Participants 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 Industry Members. Proposed Exhibit B, however, does not apply to Industry Members; proposed Exhibit B only applies to Participants. The CAT Fees for Industry Members will be imposed separately by the Operating Committee pursuant to rules adopted by the individual self-regulatory organizations.

²² Approval Order at 84796.

²³ *Id.* at 84792.

²⁴ 26 U.S.C. 501(c)(6).

²⁵ Approval Order at 84793.

(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.

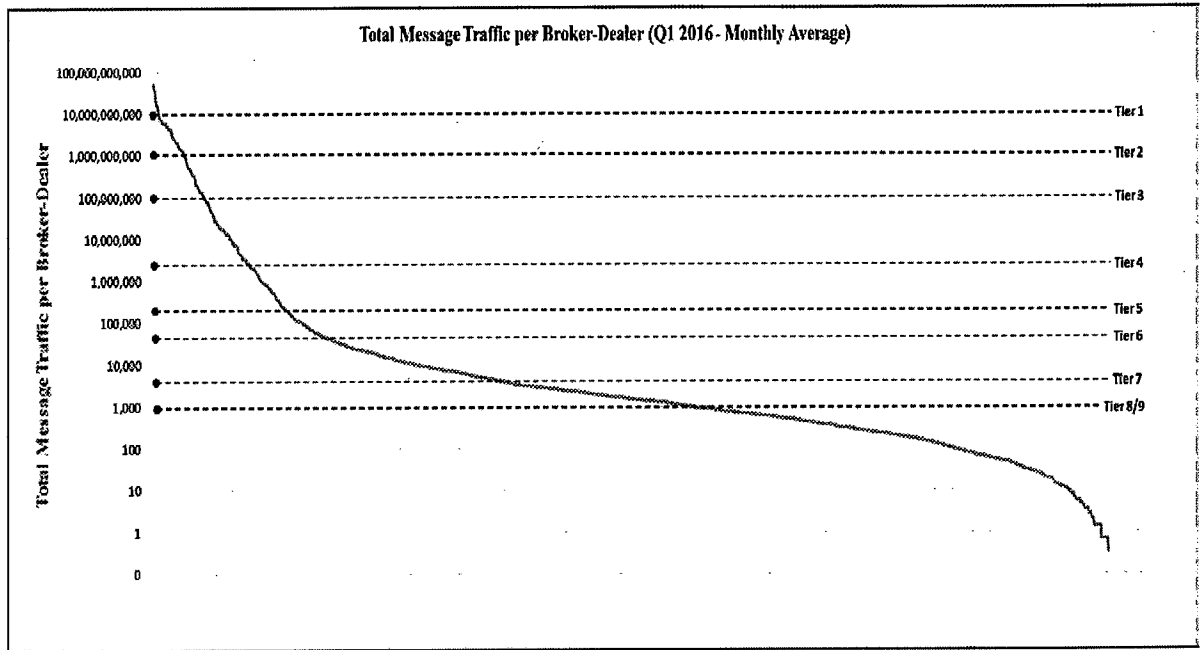
In accordance with Section 11.3(b), the Operating Committee approved a tiered fee structure for Industry Members (other than Execution Venue ATSSs) as described in this section. In determining the tiers, the Operating Committee considered the funding principles set forth in Section 11.2 of the CAT NMS 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 nine tiers results in the fairest allocation of fees, best distinguishing between Industry Members with differing levels of message traffic. Thus, each such Industry Member will be placed into one of nine tiers of fixed fees, based on “message traffic” for a defined period (as discussed below). A nine tier structure was selected to provide the widest 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 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 nine tiers would best group firms with similar levels of message traffic, charging those firms with higher impact on the CAT more, while lowering the burden of Industry Members that have less CAT-related activity.

Each Industry Member (other than Execution Venue ATSSs) 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 allow the funding model to ensure that the total CAT fees collected recover the intended 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 tiers that 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.

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 stability and 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 nine Industry Member tiers across the monthly average of total equity and equity options orders, cancels and quotes in Q1 2016 and identifies relative gaps across varying levels of Industry Member message traffic 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 directly driven, not by fixed message traffic thresholds, but rather by fixed percentages of Industry Members across tiers to account for fluctuating levels of message traffic across time and to provide for the financial stability of 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 A(2)(H).



Industry Member Tier	Monthly Average Message Traffic per Industry Member (Orders, Quotes and Cancels)
Tier 1	> 10,000,000,000
Tier 2	> 1,000,000,000
Tier 3	> 100,000,000
Tier 4	> 2,500,000
Tier 5	> 200,000
Tier 6	> 50,000
Tier 7	> 5,000
Tier 8	> 1,000
Tier 9	≤ 1,000

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

Industry Member Tier	Percentage of Industry Members	Percentage of Industry Member Recovery	Percentage of Total Recovery
Tier 1	0.500%	8.50%	6.38%
Tier 2	2.500%	35.00%	26.25%
Tier 3	2.125%	21.25%	15.94%
Tier 4	4.625%	15.75%	11.81%
Tier 5	3.625%	7.75%	5.81%
Tier 6	4.000%	5.25%	3.94%
Tier 7	17.500%	4.50%	3.38%
Tier 8	20.125%	1.50%	1.13%
Tier 9	45.000%	0.50%	0.38%
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 and quotes provided by each exchange and FINRA over the previous three months.²⁶ 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 order routes and executions originated by a member of FINRA, and excluding order rejects and

²⁶ 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 (Mar. 1, 2017, 81 Fed. Reg. 11856 (Mar. 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

implied orders.²⁷ 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). 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.

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.²⁸

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).”²⁹

The Participants determined that ATSS should be included within the definition of Execution Venue. Given the similarity between the activity of exchanges and ATSS, both of which meet the definition of an “exchange” as set forth in the Exchange Act and the fact that the similar trading models would have similar anticipated burdens on the CAT, the Participants determined that ATSS should be treated in the same manner as the exchanges for the purposes of determining the level of fees associated with the CAT.³⁰

²⁷ 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.

²⁸ If an Industry Member (other than an Execution Venue ATS) has no orders, cancels or quotes 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.

²⁹ 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.

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

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 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 two tiers of fixed fees, based on the Execution Venue's NMS Stocks and OTC Equity Securities market share. In choosing two 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 two tiers for Equity Execution Venues, rather than a larger number of tiers as established for non-Execution Venue Industry Members, because the two tiers were sufficient to distinguish between the smaller number of Equity Execution Venues based on market share. Furthermore, the incorporation of additional Equity Execution Venue tiers would result in significantly higher fees for Tier 1 Equity Execution Venues and diminish comparability between Execution Venues and Industry Members.

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 looked at historical market share of share volume for execution venues. Equities Execution Venue market share of share volume were sourced from market statistics made publicly-available by Bats Global Markets, Inc. ("Bats"). ATS market share of share volume was sourced from market statistics made publicly-available by FINRA. FINRA trading reporting facility ("TRF") market share of share volume was sourced from market statistics made publicly available by Bats. As indicated by FINRA, ATSS accounted for 37.80% of the share volume across the TRFs during the recent tiering period. A 37.80/62.20 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 TRF market share of share volume.

Based on this, the Operating Committee considered the distribution of Execution Venues, and grouped together Execution Venues with similar levels of market share of share volume. In doing so, the Participants considered that, as previously noted, Execution Venues in many cases have similar levels of message traffic due to quoting activity, and determined that it was simpler and more appropriate to have fewer, rather than more, Execution Venue tiers to distinguish between Execution Venues.

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 recovered 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 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 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 the tier with a higher level of market share while avoiding any inappropriate burden on competition. Furthermore, due to the similar levels of impact on the CAT System across Execution Venues, there is less variation in CAT Fees between the highest and lowest of tiers for Execution Venues. Furthermore, by using percentages of Equity Execution Venues and costs recovered per tier, the Operating Committee sought to include stability and 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%	26.00%	6.50%
Tier 2	75.00%	49.00%	12.25%
Total	100%	75%	18.75%

The following table exhibits the relative separation of market share of share volume between Tier 1 and Tier 2 Equity Execution Venues. In reviewing the table, note that while this division was referenced as a data point 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. The Equity Execution Venue Percentages and Equity Execution Venue Recovery Allocation for each tier will remain fixed with each Equity Execution Venue tier to be reassigned periodically, as described below in Section A(2)(H).

Equity Execution Venue Tier	Equity Market Share of Share Volume
Tier 1	≥ 1%
Tier 2	< 1%

(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 of tiers as established for Industry Members (other than Execution Venue ATSS), 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.

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 recovered by 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 costs recovered 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 costs recovered per tier, the Operating Committee sought to include stability and 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%	20.00%	5.00%
Tier 2	25.00%	5.00%	1.25%
Total	100%	25%	6.25%

The following table exhibits the relative separation of market share of share volume between Tier 1 and Tier 2 Options Execution Venues. In reviewing the table, note that while this

division was referenced as a data point to help differentiate between Options Execution Venue tiers, the proposed funding model is directly driven, not by market share thresholds, but rather by fixed percentages of Options 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 Options Execution Venues included in the measurement period. The Options Execution Venue Percentages and Equity Execution Venue Recovery Allocation for each tier will remain fixed with each Options Execution Venue tier to be reassigned periodically, as described below in Section A(2)(H).

Options Execution Venue Tier	Options Market Share of Share Volume
Tier 1	≥ 1%
Tier 2	< 1%

(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. Set forth in Appendix B to this letter 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. 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 recovered from such Industry Members and Execution Venues. 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, keeping in view that comparability should consider affiliations among or between CAT Reporters (*e.g.*, firms with multiple Industry Members and/or exchange licenses). For example, the cost allocation establishes fees for the largest Industry Members (*i.e.*, those Industry Members in Tiers 1, 2 and 3) that are comparable to the largest Equity Execution Venues and Options Execution Venues (*i.e.*, those Execution Venues in Tier 1). In addition, the cost allocation establishes fees for Execution Venue complexes that are comparable to those of Industry Member complexes. For example, when analyzing alternative allocations, other possible allocations led to much higher fees for larger Industry Members than for larger Execution Venues or vice versa, and/or led to much higher fees for Industry Member complexes than Execution Venue complexes or vice versa.

Furthermore, the allocation of total CAT costs recovered 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 25 times more Industry Members expected to report to the CAT than Execution Venues (*e.g.*, an estimated 1,630 Industry Members versus 70 Execution Venues as of January 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 75 percent of Execution Venue costs recovered to Equity Execution Venues and 25 percent to Options Execution Venues. The Operating Committee determined that a 75/25 division between Equity and Options Execution Venues maintained elasticity across the funding model as well 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, and fees for the smaller Equity Execution Venues that are comparable to the smaller Options Execution Venues. 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, 2016.³¹

The Plan Processor costs relate to costs incurred by the Plan Processor and consist of the Plan Processor's current estimates of average yearly ongoing costs, including development cost, which total \$37,500,000. This amount is based upon the fees due to the Plan Processor pursuant to the 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 historic 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 insurance costs for the year. Based on discussions with potential insurance providers, assuming \$2-5 million insurance premium on \$100 million in coverage, the Company has received an estimate of \$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 operational reserve, which is comprised of three months of ongoing Plan Processor costs (\$9,375,000), third party support costs (\$1,300,000) and insurance costs (\$750,000). The Operating Committee aims to accumulate the necessary funds for the establishment of 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 for the replenishment of 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 CAT costs of \$50,700,000.

³¹ It is anticipated that CAT-related costs incurred prior to November 21, 2016 will be addressed via a separate filing.

Cost Category	Cost Component	Amount
Plan Processor	Operational Costs	\$37,500,000
	Third Party Support Costs	\$5,200,000
Non-Plan Processor	Operational Reserve	\$5,000,000 ³²
	Insurance Costs	\$3,000,000
Estimated Total		\$50,700,000

Based on the estimated costs and the calculations for the funding model described above, the Operating Committee determined to impose the following fees:³³

For Industry Members (other than Execution Venue ATSS):

Tier	Monthly CAT Fee	Quarterly CAT Fee	CAT Fees Paid Annually ³⁴
1	\$33,668	\$101,004	\$404,016
2	\$27,051	\$81,153	\$324,612
3	\$19,239	\$57,717	\$230,868
4	\$6,655	\$19,965	\$79,860
5	\$4,163	\$12,489	\$49,956
6	\$2,560	\$7,680	\$30,720
7	\$501	\$1,503	\$6,012
8	\$145	\$435	\$1,740
9	\$22	\$66	\$264

For Execution Venues for NMS Stocks and OTC Equity Securities:

Tier	Monthly CAT Fee	Quarterly CAT Fee	CAT Fees Paid Annually ³⁵
1	\$21,125	\$63,375	\$253,500
2	\$12,940	\$38,820	\$155,280

³² This \$5,000,000 represents the gradual accumulation of the funds for a target operating reserve of \$11,425,000.

³³ Note that all monthly, quarterly and annual CAT Fees have been rounded to the nearest dollar.

³⁴ This column represents the approximate total CAT Fees paid each year by each Industry Member (other than Execution Venue ATSS) (i.e., "CAT Fees Paid Annually" = "Monthly CAT Fee" x 12 months).

³⁵ This column represents the approximate total CAT Fees paid each year by each Execution Venue for NMS Stocks and OTC Equity Securities (i.e., "CAT Fees Paid Annually" = "Monthly CAT Fee" x 12 months).

For Execution Venues for Listed Options:

Tier	Monthly CAT Fee	Quarterly CAT Fee	CAT Fees Paid Annually ³⁶
1	\$19,205	\$57,615	\$230,460
2	\$13,204	\$39,612	\$158,448

As noted above, the fees set forth in the tables reflect the Operating Committee's decision to ensure comparable fees between Execution Venues and Industry Members. The fees of the top tiers for Industry Members (other than Execution Venue ATSS) are not identical to the top tier for Execution Venues, however, because the Operating Committee also determined that the fees for Execution Venue complexes should be comparable to those of Industry Member complexes. The difference in the fees reflects this decision to recognize affiliations.

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 Reporter fees assumes 53 Equity Execution Venues, 15 Options Execution Venues and 1,631 Industry Members (other than Execution Venue ATSS) as of January 2017.

³⁶ This column represents the approximate total CAT Fees paid each year by each Execution Venue for Listed Options (*i.e.*, "CAT Fees Paid Annually" = "Monthly CAT Fee" x 12 months).

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	0.500%	8.50%	6.38%
Tier 2	2.500%	35.00%	26.25%
Tier 3	2.125%	21.25%	15.94%
Tier 4	4.625%	15.75%	11.81%
Tier 5	3.625%	7.75%	5.81%
Tier 6	4.000%	5.25%	3.94%
Tier 7	17.500%	4.50%	3.38%
Tier 8	20.125%	1.50%	1.13%
Tier 9	45.000%	0.50%	0.38%
Total	100%	100%	75%

Industry Member Tier	Estimated Number of Industry Members
Tier 1	8
Tier 2	41
Tier 3	35
Tier 4	75
Tier 5	59
Tier 6	65
Tier 7	285
Tier 8	328
Tier 9	735
Total	1,631

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

$$1,631 [\text{Estimated Tot. IMs}] \times 0.5\% [\% \text{ of Tier 1 IMs}] = 8 [\text{Estimated Tier 1 IMs}]$$

$$\left(\frac{\$50,700,000 [\text{Tot. Ann. CAT Costs}] \times 75\% [\text{IM \% of Tot. Ann. CAT Costs}] \times 8.50\% [\% \text{ of Tier 1 IM Recovery}]}{8 [\text{Estimated Tier 1 IMs}]} \right) \div 12 [\text{Months per year}] = \$33,668$$

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

$$1,631 [\text{Estimated Tot. IMs}] \times 2.5\% [\% \text{ of Tier 2 IMs}] = 41 [\text{Estimated Tier 2 IMs}]$$

$$\left(\frac{\$50,700,000 [\text{Tot. Ann. CAT Costs}] \times 75\% [\text{IM \% of Tot. Ann. CAT Costs}] \times 35\% [\% \text{ of Tier 2 IM Recovery}]}{41 [\text{Estimated Tier 2 IMs}]} \right) \div 12 [\text{Months per year}] = \$27,051$$

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

$$1,631 [\text{Estimated Tot. IMs}] \times 2.125\% [\% \text{ of Tier 3 IMs}] = 35 [\text{Estimated Tier 3 IMs}]$$

$$\left(\frac{\$50,700,000 [\text{Tot. Ann. CAT Costs}] \times 75\% [\text{IM \% of Tot. Ann. CAT Costs}] \times 21.25\% [\% \text{ of Tier 3 IM Recovery}]}{35 [\text{Estimated Tier 3 IMs}]} \right) \div 12 [\text{Months per year}] = \$19,239$$

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

$$1,631 [\text{Estimated Tot. IMs}] \times 4.625\% [\% \text{ of Tier 4 IMs}] = 75 [\text{Estimated Tier 4 IMs}]$$

$$\left(\frac{\$50,700,000 [\text{Tot. Ann. CAT Costs}] \times 75\% [\text{IM \% of Tot. Ann. CAT Costs}] \times 15.75\% [\% \text{ of Tier 4 IM Recovery}]}{75 [\text{Estimated Tier 4 IMs}]} \right) \div 12 [\text{Months per year}] = \$6,655$$

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

$$1,631 [\text{Estimated Tot. IMs}] \times 3.625\% [\% \text{ of Tier 5 IMs}] = 59 [\text{Estimated Tier 5 IMs}]$$

$$\left(\frac{\$50,700,000 [\text{Tot. Ann. CAT Costs}] \times 75\% [\text{IM \% of Tot. Ann. CAT Costs}] \times 7.75\% [\% \text{ of Tier 5 IM Recovery}]}{59 [\text{Estimated Tier 5 IMs}]} \right) \div 12 [\text{Months per year}] = \$4,163$$

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

$$1,631 [\text{Estimated Tot. IMs}] \times 4\% [\% \text{ of Tier 6 IMs}] = 65 [\text{Estimated Tier 6 IMs}]$$

$$\left(\frac{\$50,700,000 [\text{Tot. Ann. CAT Costs}] \times 75\% [\text{IM \% of Tot. Ann. CAT Costs}] \times 5.25\% [\% \text{ of Tier 6 IM Recovery}]}{65 [\text{Estimated Tier 6 IMs}]} \right) \div 12 [\text{Months per year}] = \$2,560$$

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

$$1,631 [\text{Estimated Tot. IMs}] \times 17.5\% [\% \text{ of Tier 7 IMs}] = 285 [\text{Estimated Tier 7 IMs}]$$

$$\left(\frac{\$50,700,000 [\text{Tot. Ann. CAT Costs}] \times 75\% [\text{IM \% of Tot. Ann. CAT Costs}] \times 4.50\% [\% \text{ of Tier 7 IM Recovery}]}{285 [\text{Estimated Tier 7 IMs}]} \right) \div 12 [\text{Months per year}] = \$501$$

Calculation 1.8 (Calculation of a Tier 8 Industry Member Monthly Fee)

$$1,631 [\text{Estimated Tot. IMs}] \times 20.125\% [\% \text{ of Tier 8 IMs}] = 328 [\text{Estimated Tier 8 IMs}]$$

$$\left(\frac{\$50,700,000 [\text{Tot. Ann. CAT Costs}] \times 75\% [\text{IM \% of Tot. Ann. CAT Costs}] \times 1.50\% [\% \text{ of Tier 8 IM Recovery}]}{328 [\text{Estimated Tier 8 IMs}]} \right) \div 12 [\text{Months per year}] = \$145$$

Calculation 1.9 (Calculation of a Tier 9 Industry Member Monthly Fee)

$$1,631 \text{ [Estimated Tot. IMs]} \times 45\% \text{ [% of Tier 9 IMs]} = 735 \text{ [Estimated Tier 9 IMs]}$$

$$\left(\frac{\$50,700,000 \text{ [Tot. Ann. CAT Costs]} \times 75\% \text{ [IM \% of Tot. Ann. CAT Costs]} \times 0.50\% \text{ [% of Tier 9 IM Recovery]}}{735 \text{ [Est. Tier 9 IMs]}} \right) \div 12 \text{ [Months per year]} = \$22$$

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%	26.00%	6.50%
Tier 2	75.00%	49.00%	12.25%
Total	100%	75%	18.75%

Equity Execution Venue Tier	Estimated Number of Equity Execution Venues
Tier 1	13
Tier 2	40
Total	53

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

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

$$\left(\frac{\$50,700,000 \text{ [Tot. Ann. CAT Costs]} \times 25\% \text{ [EV \% of Tot. Ann. CAT Costs]} \times 26\% \text{ [% of Tier 1 Equity EV Recovery]}}{13 \text{ [Estimated Tier 1 Equity EVs]}} \right) \div 12 \text{ [Months per year]} = \$21,125$$

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

$$52 \text{ [Estimated Tot. Equity EVs]} \times 75\% \text{ [% of Tier 2 Equity EVs]} = 40 \text{ [Estimated Tier 2 Equity EVs]}$$

$$\left(\frac{\$50,700,000 \text{ [Tot. Ann. CAT Costs]} \times 25\% \text{ [EV \% of Tot. Ann. CAT Costs]} \times 49\% \text{ [% of Tier 2 Equity EV Recovery]}}{40 \text{ [Estimated Tier 2 Equity EVs]}} \right) \div 12 \text{ [Months per year]} = \$12,940$$

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%	20.00%	5.00%
Tier 2	25.00%	5.00%	1.25%
Total	100%	25%	6.25%

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)

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

$$\left(\frac{\$50,700,000 \text{ [Tot. Ann. CAT Costs]} \times 25\% \text{ [EV \% of Tot. Ann. CAT Costs]} \times 20\% \text{ [% of Tier 1 Options EV Recovery]}}{11 \text{ [Estimated Tier 1 Options EVs]}} \right) \div 12 \text{ [Months per year]} = \$19,205$$

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

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

$$\left(\frac{\$50,700,000 \text{ [Tot. Ann. CAT Costs]} \times 25\% \text{ [EV \% of Tot. Ann. CAT Costs]} \times 5\% \text{ [% of Tier 2 Options EV Recovery]}}{4 \text{ [Estimated Tier 2 Options EVs]}} \right) \div 12 \text{ [Months per year]} = \$13,204$$

Traceability of Total CAT Fees

Type	Industry Member Tier	Estimated Number of Members	CAT Fees Paid Annually	Total Recovery
Industry Members	Tier 1	8	\$404,016	\$3,232,128
	Tier 2	41	\$324,612	\$13,309,092
	Tier 3	35	\$230,868	\$8,080,380
	Tier 4	75	\$79,860	\$5,989,500
	Tier 5	59	\$49,956	\$2,947,404
	Tier 6	65	\$30,720	\$1,996,800
	Tier 7	285	\$6,012	\$1,713,420
	Tier 8	328	\$1,740	\$570,720
	Tier 9	735	\$264	\$194,040
	Total	1,631	-	\$38,033,484
Equity Execution Venues	Tier 1	13	\$253,500	\$3,295,500
	Tier 2	40	\$155,280	\$6,211,200
	Total	53	-	\$9,506,700
Options Execution Venues	Tier 1	11	\$230,460	\$2,535,060
	Tier 2	4	\$158,448	\$633,792
	Total	15	-	\$3,168,852
Total				\$50,709,036
Excess³⁷				\$9,036

(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,

³⁷ The amount in excess of the total CAT costs will contribute to the gradual accumulation of the target operating reserve of \$11.425 million.

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 take account of the affiliations between or among CAT Reporters – that is, where affiliated entities may have multiple Industry Member and/or Execution Venue licenses, by maintaining relative comparability of fees among such affiliations with the most expected CAT-related activity. To do this, the Participants identified representative affiliations in the largest tier of both Execution Venues and Industry Members and compared the aggregate fees that would be paid by such firms.

While the proposed fees for Tier 1 and Tier 2 Industry Members are relatively higher than those of Tier 1 and Tier 2 Execution Venues, Execution Venue complex fees are relatively higher than those of Industry Member complexes largely due to affiliations between Execution Venues. The tables set forth below describe the largest Execution Venue and Industry Member complexes and their associated fees:³⁸

Execution Venue Complexes			
Execution Venue Complex	Listing of Equity Execution Venue Tiers	Listing of Options Execution Venue Tier	Total Fees by EV Complex
<i>Execution Venue Complex 1</i>	<ul style="list-style-type: none"> • Tier 1 (x2) • Tier 2 (x1) 	<ul style="list-style-type: none"> • Tier 1 (x4) • Tier 2 (x2) 	\$1,900,962
<i>Execution Venue Complex 2</i>	<ul style="list-style-type: none"> • Tier 1 (x2) 	<ul style="list-style-type: none"> • Tier 1 (x2) • Tier 2 (x1) 	\$1,863,801
<i>Execution Venue Complex 3</i>	<ul style="list-style-type: none"> • Tier 1 (x2) • Tier 2 (x2) 	<ul style="list-style-type: none"> • Tier 1 (x2) 	\$1,278,447

³⁸ Note that the analysis of the complexes was performed on a best efforts basis, as all affiliations between the 1631 Industry Members may not be included.

Industry Member Complexes			
Industry Member Complex	Listing of Industry Member Tiers	Listing of ATS Tiers	Total Fees by IM Complex
<i>Industry Member Complex 1</i>	<ul style="list-style-type: none"> • Tier 1 (x2) 	<ul style="list-style-type: none"> • Tier 2 (x1) 	\$963,300
<i>Industry Member Complex 2</i>	<ul style="list-style-type: none"> • Tier 1 (x1) • Tier 4 (x1) 	<ul style="list-style-type: none"> • Tier 2 (x3) 	\$949,674
<i>Industry Member Complex 3</i>	<ul style="list-style-type: none"> • Tier 1 (x1) • Tier 2 (x1) 	<ul style="list-style-type: none"> • Tier 2 (x1) 	\$883,888
<i>Industry Member Complex 4</i>	<ul style="list-style-type: none"> • Tier 1 (x1) • Tier 2 (x1) • Tier 4 (x1) 	N/A	\$808,472
<i>Industry Member Complex 5</i>	<ul style="list-style-type: none"> • Tier 2 (x1) • Tier 3 (x1) • Tier 4 (x1) • Tier 7 (x1) 	<ul style="list-style-type: none"> • Tier 2 (x1) 	\$796,595

(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. For example, the Plan Processor has required up-front payments to begin building the CAT. In addition, the Company continues to incur consultant and legal expenses on an on-going basis to implement the CAT. Accordingly, the Operating Committee determined that all CAT Reporters, including both Industry Members and Execution Venues (including Participants), would begin to be invoiced as promptly as possible following the establishment of a billing mechanism. The Operating Committee will

issue a notice to the Participants when the billing mechanism has been established, specifying the date when such invoicing of Participants will commence.

(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.³⁹ 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 CAT Reporters and the Company.⁴⁰ 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 any such changes will become effective in accordance with the requirements of Rule 608.

(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 percentage 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 it also will depend 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 Reporters of their assigned tier

³⁹ 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 self-regulatory organizations, such as any changes in costs related to the retirement of existing regulatory systems, such as OATS.

⁴⁰ Section B.7, Appendix C of the CAT NMS Plan, Approval Order at 85006.

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 of share volume.

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

(3) Proposed CAT Fee Schedule

The Operating Committee proposes to add Exhibit B to the CAT NMS Plan to add a fee schedule setting forth the CAT Fees applicable to Participants. Proposed Exhibit B is set forth in Appendix A to this letter. Paragraph (a)(1) of proposed Exhibit B sets forth the CAT Fees applicable to Execution Venues for NMS Stocks and OTC Equity Securities. Specifically, paragraph (a)(1) states that the Company will assign each Execution Venue for NMS Stocks and/or OTC Equity Securities to a fee tier once every quarter, where such tier assignment is calculated by ranking each such Execution Venue based on its total market share for the three months prior to the quarterly tier calculation day and assigning each such Execution Venue to a tier based on that ranking and predefined percentages for such Execution Venues. The

Execution Venues for NMS Stocks and/or OTC Equity Securities with the higher total quarterly market share will be ranked in Tier 1, and such Execution Venues with the lower quarterly market share will be ranked in Tier 2. Specifically, paragraph (a) (1) states that, each quarter, each Execution Venue for NMS Stocks and/or OTC Equity Securities shall pay in the manner prescribed by the Company the following CAT Fee corresponding to the tier assigned by the CAT NMS, LLC for such Execution Venue for that quarter:

Tier	Percentage of Execution Venues for NMS Stocks and/or OTC Equity Securities	Quarterly CAT Fee
<u>1</u>	25.00%	\$63,375
<u>2</u>	75.00%	\$38,820

In addition, paragraph (a)(2) of the proposed Exhibit B states that the Company will assign each Execution Venue for Listed Options to a fee tier once every quarter, where such tier assignment is calculated by ranking each such Execution Venue based on its total market share for the three months prior to the quarterly tier calculation day and assigning each such Execution Venue to a tier based on that ranking and predefined percentages for such Execution Venues. The Execution Venues for Listed Options with the higher total quarterly market share will be ranked in Tier 1, and such Execution Venues with the lower quarterly market share will be ranked in Tier 2. Specifically, paragraph (b)(1) states that, each quarter, each Execution Venue for Listed Options shall pay in the manner prescribed by the Company the following CAT Fee corresponding to the tier assigned by the CAT NMS, LLC for such Execution Venue for that quarter:

Tier	Percentage of Execution Venues for Listed Options	Quarterly CAT Fee
<u>1</u>	25.00%	\$57,615
<u>2</u>	75.00%	\$39,612

B. Governing or Constituent Documents

Not applicable.

C. Implementation of Amendment

The terms of the proposed amendment will become effective upon filing pursuant to Rule 608(b)(3)(i) of the Exchange Act because it establishes a fee or other charge collected on behalf of all of the Participants in connection with access to, or use of, any facility contemplated by the plan (including changes in any provision with respect to distribution of any net proceeds from such fees or other charges to the sponsors and/or participants).⁴¹ At any time within sixty days of the filing of this amendment, the Commission may summarily abrogate the amendment and require that it be refiled pursuant to paragraph (b)(1) of Rule 608, if it appears to the Commission

⁴¹ 17 C.F.R. § 242.608(b)(3)(i).

that such action is necessary or appropriate in the public interest, for the protection of investors or the maintenance of fair and orderly markets, to remove impediments to, and perfect the mechanisms of, a national market system or otherwise in furtherance of the purposes of the Exchange Act.

D. Development and Implementation Phases

Not applicable.

E. Analysis of Impact on Competition

The Operating Committee does not believe that the proposed amendment will result in any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Exchange Act. The Operating Committee notes that the proposed amendment implements provisions of the CAT NMS Plan approved by the Commission, and is designed to assist the Participants in meeting their regulatory obligations pursuant to the Plan. Because all national securities exchanges and FINRA are subject to the proposed CAT Fees set forth in the proposed amendment, this is not a competitive filing that raises competition issues between and among the exchanges and FINRA.

Moreover, as previously described, the Operating Committee believes that the proposed fee schedule 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 market share to the CAT Reporter's size, smaller CAT Reporters generally pay less than larger CAT Reporters. Accordingly, the Operating Committee 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 Operating Committee does not believe that the fees will impose any burden on the competition between ATSS and exchanges. Accordingly, SRO 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.

F. Written Understanding or Agreements Relating to Interpretation of, or Participation in, Plan.

Not applicable.

G. Approval by Plan Sponsors in Accordance with Plan

Section 12.3 of the Plan states that, subject to certain exceptions, the Plan may be amended from time to time only by a written amendment, authorized by the affirmative vote of not less than two-thirds of all of the Participants, that has been approved by the SEC pursuant to Rule 608 or has otherwise become effective under Rule 608. In addition, Section 4.3(a)(vi) of the Plan requires the Operating Committee, by Majority Vote, to authorize action to determine the appropriate funding-related policies, procedures and practices-consistent with Article XI. The Operating Committee has satisfied both of these requirements.

H. Description of Operation of Facility Contemplated by the Proposed Amendment

Not applicable.

I. Terms and Conditions of Access

Not applicable.

I. Method of Determination and Imposition, and Amount of, Fees and Charges

Section A of this letter describes in detail how the Operating Committee developed the proposed CAT fees, including a detailed discussion of the proposed funding model for the CAT.

J. Method and Frequency of Processor Evaluation

Not applicable.

K. Dispute Resolution

Section 11.5 of the CAT NMS Plan addresses the resolution of disputes regarding Participants' CAT fees charged to Participants and Industry Members. Specifically, Section 11.5 states that disputes with respect to fees the Company charges Participants pursuant to Article XI of the CAT NMS Plan shall be determined by the Operating Committee or a Subcommittee designated by the Operating Committee. Decisions by the Operating Committee or such designated Subcommittee on such matters shall be binding on Participants, without prejudice to the rights of any Participant to seek redress from the SEC pursuant to Rule 608 or in any other appropriate forum.

Brent J. Fields
May 8, 2017
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* * * * *

Thank you for your attention to this matter. Please contact me at (212) 229-2455 if you have any questions or comments.

Respectfully submitted,

Michael Simon
CAT NMS Plan Operating Committee Chair

[Participant Signature Pages Follow]

cc: The Hon. Jay Clayton, Chairman
The Hon. Michael S. Piwowar, Commissioner
The Hon. Kara M. Stein, Commissioner
Ms. Heather Seidel, Acting Director, Division of Trading and Markets
Mr. Gary L. Goldsholle, Deputy Director, Division of Trading and Markets
Mr. David S. Shillman, Associate Director, Division of Trading and Markets
Mr. David Hsu, Assistant Director, Division of Trading and Markets
CAT NMS Plan Participants

APPENDIX A

[Additions underlined; deletions bracketed]

EXHIBIT B

CAT FEES

(a) Participant CAT Fee Schedule.

(1) CAT Fees: Execution Venues for NMS Stocks and/or OTC Equity Securities.

The CAT NMS, LLC will assign each Execution Venue for NMS Stocks and/or OTC Equity Securities to a fee tier once every quarter, where such tier assignment is calculated by ranking each such Execution Venue based on its total market share for the three months prior to the quarterly tier calculation day and assigning each such Execution Venue to a tier based on that ranking and predefined percentages for such Execution Venues. The Execution Venues for NMS Stocks and/or OTC Equity Securities with the higher total quarterly market share will be ranked in Tier 1, and such Execution Venues with the lower quarterly market share will be ranked in Tier 2. Each quarter, each Execution Venue for NMS Stocks and/or OTC Equity Securities shall pay in the manner prescribed by the CAT NMS, LLC the following CAT Fee corresponding to the tier assigned by the CAT NMS, LLC for such Execution Venue for that quarter:

<u>Tier</u>	<u>Percentage of Execution Venues for NMS Stocks and/or OTC Equity Securities</u>	<u>Quarterly CAT Fee</u>
<u>1</u>	<u>25.00%</u>	<u>\$63,375</u>
<u>2</u>	<u>75.00%</u>	<u>\$38,820</u>

(2) CAT Fees: Execution Venues for Listed Options

The CAT NMS, LLC will assign each Execution Venue for Listed Options to a fee tier once every quarter, where such tier assignment is calculated by ranking each such Execution Venue based on its total market share for the three months prior to the quarterly tier calculation day and assigning each such Execution Venue to a tier based on that ranking and predefined percentages for such Execution Venues. The Execution Venues for Listed Options with the higher total quarterly market share will be ranked in Tier 1, and such Execution Venues with the lower quarterly market share will be ranked in Tier 2. Each quarter, each Execution Venue for Listed Options shall pay in the manner prescribed by the CAT NMS, LLC the following CAT Fee corresponding to the tier assigned by the CAT NMS, LLC for such Execution Venue for that quarter:

<u>Tier</u>	<u>Percentage of Execution Venues for Listed Options</u>	<u>Quarterly CAT Fee</u>
<u>1</u>	<u>25.00%</u>	<u>\$57,615</u>
<u>2</u>	<u>75.00%</u>	<u>\$39,612</u>

APPENDIX B

Equity Execution Venue Rank and Tier

Market Participant	Market Share of Share Volume ⁴²	Rank	Tier
OTC LINK ATS	29.90%	1	1
Financial Industry Regulatory Authority, Inc.	16.50%	2	1
The NASDAQ Stock Market LLC	9.67%	3	1
New York Stock Exchange LLC	9.08%	4	1
NYSE Arca, Inc.	7.05%	5	1
Bats EDGX Exchange, Inc.	4.89%	6	1
Bats BZX Exchange, Inc.	4.24%	7	1
Bats BYX Exchange, Inc.	3.06%	8	1
NASDAQ BX, Inc.	1.85%	9	1
UBS ATS	1.78%	10	1
Bats EDGA Exchange, Inc.	1.69%	11	1
Investors' Exchange, LLC	1.25%	12	1
CROSSFINDER	1.09%	13	1
SUPERX	0.79%	14	2
MS POOL (ATS-4)	0.68%	15	2
NASDAQ PHLX LLC	0.66%	16	2
J.P. MORGAN AST ("JPM-X")	0.56%	17	2
LEVEL ATS	0.49%	18	2
INSTINCT X	0.48%	19	2
BIDS TRADING L.P.	0.44%	20	2
BARCLAYS ATS ("LX")	0.43%	21	2
KCG MATCHIT	0.42%	22	2
SIGMA X	0.39%	23	2
INSTINET CONTINUOUS BLOCK CROSSING SYSTEM (CBX)	0.34%	24	2
Chicago Stock Exchange, Inc.	0.31%	25	2
POSIT	0.30%	26	2
CROSSSTREAM	0.25%	27	2
MS TRAJECTORY CROSS (ATS-1)	0.16%	28	2
NYSE MKT LLC	0.14%	29	2
LIQUIDNET ATS	0.13%	30	2
IBKR ATS	0.13%	31	2
MILLENNIUM	0.12%	32	2
GLOBAL OTC	0.12%	33	2

⁴² Based on November 2016 through January 2017 volume sourced from Bats and FINRA.

Market Participant	Market Share of Share Volume ⁴²	Rank	Tier
DEALERWEB, INC.	0.11%	34	2
CITICROSS	0.09%	35	2
BLOCKCROSS ATS	0.08%	36	2
LIQUIDNET H20 ATS	0.07%	37	2
CODA MARKETS, INC.	0.07%	38	2
INSTINET CROSSING, INSTINET BLX	0.06%	39	2
LUMINEX TRADING & ANALYTICS LLC	0.03%	40	2
LIGHT POOL	0.02%	41	2
MS RETAIL POOL	0.02%	42	2
CITIBLOC	0.02%	43	2
NYSE National, Inc.	0.01%	44	2
USTOCKTRADE SECURITIES, INC.	0.01%	45	2
AQUA SECURITIES L.P.	0.0047%	46	2
XE	0.0037%	47	2
LIQUIFI	0.0014%	48	2
VARIABLE INVESTMENT ADVISORS, INC. ATS (VIAATS)	0.000073%	49	2
BARCLAYS DIRECTEX	0.0000303%	50	2
FNC AG STOCK, LLC	0.0000225%	51	2
AX TRADING, LLC	0.0000026%	52	2
PRO SECURITIES ATS	0.0000002%	53	2

Options Execution Venue Rank and Tier

Market Participant	Market Share of Share Volume (Options Contracts) ⁴³	Rank	Tier
NASDAQ PHLX LLC	16.68%	1	1
Chicago Board Options Exchange, Incorporated	16.08%	2	1
Bats BZX Options Exchange, Inc.	11.53%	3	1
Nasdaq ISE, LLC	10.63%	4	1
NYSE Arca, Inc.	9.52%	5	1
The NASDAQ Options Market LLC	9.01%	6	1
NYSE MKT LLC	8.01%	7	1
Miami International Securities Exchange, LLC	5.84%	8	1
Nasdaq GEMX, LLC	4.16%	9	1
Chicago Board Options Exchange,	3.33%	10	1

⁴³ Based on November 2016 through January 2017 volume sourced from Bats.

Market Participant	Market Share of Share Volume	Rank	Tier
Incorporated 2			
BOX Options Exchange LLC	3.02%	11	1
Bats EDGX Options Exchange, Inc.	1.31%	12	2
NASDAQ BX, Inc.	0.67%	13	2
Nasdaq MRX, LLC	0.21%	14	2
MIAX PEARL, LLC	N/A ⁴⁴	15	2

⁴⁴ No market statistics as of January 2017. Launched trading operations on February 6, 2017.

IN WITNESS WHEREOF, the Participants have executed this Limited Liability Company Agreement as of the day and year first above written.

PARTICIPANTS:

BATS BZX EXCHANGE, INC.

By: Greg Hoogasian /MLL

Name: Greg Hoogasian

Title: Senior Vice President and Chief Regulatory Officer

BATS BYX EXCHANGE, INC.

By: Greg Hoogasian /MLL

Name: Greg Hoogasian

Title: Senior Vice President and Chief Regulatory Officer

BOX OPTIONS EXCHANGE LLC

By: Greg Hoogasian /MLL

Name: Greg Hoogasian

Title: Senior Vice President and Chief Regulatory Officer

C2 OPTIONS EXCHANGE, INCORPORATED

By: Greg Hoogasian /MLL

Name: Greg Hoogasian

Title: Senior Vice President and Chief Regulatory Officer

**CHICAGO BOARD OPTIONS EXCHANGE,
INCORPORATED**

By: Greg Hoogasian / MIA

Name: Greg Hoogasian

Title: Senior Vice President and Chief Regulatory Officer



BATS EDGA EXCHANGE, INC.

By: Greg Hoogasian / MIA

Name: Greg Hoogasian

Title: Senior Vice President and Chief Regulatory Officer

BATS EDGX EXCHANGE, INC.

By: Greg Hoogasian / MIA

Name: Greg Hoogasian

Title: Senior Vice President and Chief Regulatory Officer


**CHICAGO BOARD OPTIONS EXCHANGE,
INCORPORATED**

By: _____

Name: _____

Title: _____

CHICAGO STOCK EXCHANGE, INC.

By:  _____

Name: A. J. Kim _____

Title: VP and Associate General Counsel _____

BATS EDGA EXCHANGE, INC.

By: _____

Name: _____

Title: _____

BATS EDGX EXCHANGE, INC.

By: _____

Name: _____

Title: _____

**FINANCIAL INDUSTRY REGULATORY AUTHORITY,
INC.**

By: Marcia E. Asquith

Name: Marcia E. Asquith

Title: Executive Vice President and Corporate Secretary

NASDAQ GEMX, LLC

By: _____

Name: _____

Title: _____

NASDAQ MRX, LLC

By: _____

Name: _____

Title: _____

NASDAQ ISE, LLC

By: _____

Name: _____

Title: _____

INVESTORS' EXCHANGE, LLC

By: _____

Name: _____

Title: _____

**FINANCIAL INDUSTRY REGULATORY AUTHORITY,
INC.**

By: _____

Name: _____

Title: _____

NASDAQ GEMX, LLC

By: _____

Name: _____

Title: _____

NASDAQ MRX, LLC

By: _____

Name: _____

Title: _____

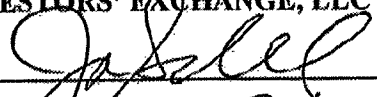
NASDAQ ISE, LLC

By: _____

Name: _____

Title: _____

INVESTORS' EXCHANGE, LLC

By: 
Name: John Schwall
Title: COO


MIAMI INTERNATIONAL SECURITIES EXCHANGE LLC

By: 

Name: Edward Deitzel

Title: EVP, CRO

MIAX PEARL, LLC

By: 

Name: Edward Deitzel

Title: EVP, CRO

NASDAQ BX, INC.

By: _____

Name: _____

Title: _____

NASDAQ PHLX LLC

By: _____

Name: _____

Title: _____

THE NASDAQ STOCK MARKET LLC

By: _____

Name: _____

Title: _____

**FINANCIAL INDUSTRY REGULATORY AUTHORITY,
INC.**

By: _____

Name: _____

Title: _____

NASDAQ GEMX, LLC

By:  _____

Name: John Zecca

Title: Sr. Vice President

NASDAQ MBX, LLC

By:  _____

Name: John Zecca

Title: Sr. Vice President

NASDAQ ISE, LLC

By:  _____

Name: John Zecca

Title: Sr. Vice President

INVESTORS' EXCHANGE, LLC

By: _____

Name: _____

Title: _____

MIAMI INTERNATIONAL SECURITIES EXCHANGE LLC

By: _____

Name: _____

Title: _____

MIAX PEARL, LLC

By: _____

Name: _____

Title: _____

NASDAQ BX, INC.

By: _____

Name: John Tecca

Title: Sr. Vice President

NASDAQ PHLX LLC

By: _____

Name: Joseph P. Cusick

Title: VP & CRO

THE NASDAQ STOCK MARKET LLC

By: _____

Name: John Tecca

Title: Sr. Vice President

NYSE NATIONAL, INC.

By: Elizabeth K. King

Name: Elizabeth K. King

Title: General Counsel & Corporate Secretary

NEW YORK STOCK EXCHANGE LLC

By: Elizabeth K. King

Name: Elizabeth K. King

Title: General Counsel & Corporate Secretary

NYSE MKT LLC

By: Elizabeth K. King

Name: Elizabeth K. King

Title: General Counsel & Corporate Secretary

NYSE ARCA, INC.

By: Elizabeth K. King

Name: Elizabeth K. King

Title: General Counsel & Corporate Secretary