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June 6, 2017

Via Electronic Mail (rule-comments@sec.gov)

Mr. Brent J. Fields
Secretary
U.S. Securities & Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090

Re: File No. SR-BatsBYX-2017-11; File No. SR-BatsBZX-2017-38; File No. SR-BatsEDGA-2017-13; File No. SR-BatsEDGX-2017-22; File No. SR-BOX-2017-16; File No. SR-C2-2017-017; File No. SR-CBOE-2017-040; File No. SR-CHX-2017-08; File No. SR-IEX-2017-16; File No. SR-MIAX-2017-18; File No. SR-PEARL-2017-20; File No. SR-BX-2017-023; File No. SR-GEMX-2017-17; File No. SR-ISE-2017-45; File No. SR-MRX-2017-04; File No. SR-PHLX-2017-37; File No. SR-NASDAQ-2017-046; File No. SR- NYSE-2017-22; File No. SR-NYSEARCA-2017-52; File No. SR-NYSEMKT-2017-26; File No. SR-FINRA-2017-011; Self-Regulatory Organizations; Notice of Filing and Immediate Effectiveness of a Proposed Rule Change to Adopt a Fee Schedule to Establish the Fees for Industry Members Related to the National Market System Plan Governing the Consolidated Audit Trail

Dear Mr. Fields:

The Securities Industry and Financial Markets Association ("SIFMA")[1] submits this letter to the Securities and Exchange Commission ("Commission") to comment on the above-referenced proposed rule changes filed by the self-regulatory organizations that are the Plan Participants the Consolidated Audit Trail ("CAT") National Market System ("NMS") Plan. In these filings, the Plan Participants propose to amend their fee schedules to establish the fees for "Industry Members". Many of our comments on this issue remain the same as expressed in our July 2016 comment letter on the CAT NMS Plan[2] because the Plan Participants have not addressed those comments. For the Commission's consideration, we have attached our July 2016 comment letter filed in response to the proposed CAT NMS Plan, and we request that the Commission consider the arguments on the CAT funding model in that letter as being

[1] The Securities Industry and Financial Markets Association (SIFMA) brings together the shared interests of hundreds of securities firms, banks and asset managers. SIFMA's mission is to support a strong financial industry, investor opportunity, capital formation, job creation and economic growth, while building trust and confidence in the financial markets. SIFMA, with offices in New York and Washington, D.C., is the U.S. regional member of the Global Financial Markets Association (GFMA). For more information, visit http://www.sifma.org.

[2] *See* Letter from Theodore R. Lazo, Managing Director and Associate General Counsel, SIFMA to Brent J. Fields, Secretary, Securities and Exchange Commission dated July 18, 2016 ("**SIFMA CAT Comment Letter**").

incorporated in this letter. Discussed in further detail below, SIFMA opposes the proposals from both a policy perspective and that they do not satisfy the requirements of the Securities Exchange Act of 1934 ("Exchange Act"). Accordingly, we urge the Commission to suspend the filings pursuant to Section 19(b)(3)(C) of the Exchange Act.

SIFMA Policy Concerns with Proposed CAT Funding Models

SIFMA has repeatedly raised funding of the CAT as a critical issue. Because it is such a critical issue, the CAT funding model should have been the product of collaboration between the Participants and the broker-dealer community. Instead, the Plan Participants developed the proposed fee schedules without incorporating any substantive input from the Industry Members. Moreover, the Plan Participants chose to file the proposals for immediate effectiveness under the Exchange Act without soliciting public comment on the model. If the Plan Participants had engaged in a good faith effort to solicit input on the proposals, then it is possible an appropriate solution could have been achieved. However, given that the Plan Participants want to impose the vast majority of costs and expenses of building and operating the CAT on broker-dealers and the severity of our concerns with the proposals, the Plan Participants have left us with no choice but to urge the Commission to suspend the proposals and institute proceedings to determine whether the proposals should be approved or disapproved.

At the heart of our July 2016 comments is the fact that the Plan Participants have no justification for imposing a CAT fee at all. The self-regulatory model in the securities industry is premised on broker-dealer funding, but broker-dealers already provide the Plan Participants a significant amount of regulatory funding through membership fees, registration and licensing fees, dedicated regulatory fees, options regulatory fees, and monetary fines.[3] The proposals provide insufficient financial details on why broker-dealers, which would be tasked with paying nearly all of the costs and expenses of the CAT, should be subject to any CAT fees, especially in light of the Participants' existing regulatory revenue. The Plan Participants disingenuously state in the proposals that the Operating Committee is "required" under the CAT NMS Plan to impose fees on broker-dealers, but there is no such requirement in the Plan. Nothing under Rule 613 directs or "requires" the Plan Participants to impose a broker-dealer fee to cover the CAT. Rather, the decision to impose fees on broker-dealers was a unilateral decision made by the Plan Participants and one that was fully under their control, as they drafted the CAT NMS Plan. Accordingly, as we have stated previously, there should be no new fee for the CAT until market participants are provided with a complete picture as to how regulatory fees are currently allocated, how the CAT fee fits into the existing regulatory framework and why assessing broker-dealers an additive regulatory fee is necessary to fund the creation and operation of the CAT.

The process undertaken to establish CAT fees for broker-dealers is also unacceptably conflicted. The Plan Participants (except for FINRA) are for-profit companies that compete with

[3] *Id.*

broker-dealers for order flow, and the proposed fee schedules allocate nearly all the costs of developing and operating the CAT to broker-dealers. Specifically, broker-dealers and ATSs collectively under the proposed funding model are allocated approximately 88% of the total costs of building and operating the CAT under the proposed fee schedules.[4] Even if a CAT fee is appropriate, it should be established by an independent third party in order to prevent the Plan Participants from constructing a payment mechanism that is intended to benefit their own bottom line at the expense of their competitors.

SIFMA Regulatory Concerns with the Proposed CAT Funding Models

Notwithstanding our policy objections to any CAT fee on broker-dealers, the current proposals do not satisfy the requirements of the Exchange Act as they are not an equitable allocation of reasonable fees under Section 6(b)(4) or Section 15A(b)(5). The Plan Participants state outright in the proposal that they have structured the fee schedule with a goal of imposing 75% of the total CAT costs to broker-dealers. On its face, this is not an equitable allocation of fees for a system that is being created by and for the benefit of the Plan Participants. The only justification provided by the Plan Participants is that the 75%/25% division was chosen to maintain "comparability" across the funding model, keeping in view that comparability should consider affiliations among or between CAT reporters.[5]

In this case, however, "comparability" only means providing that the **maximum** amount that any SRO will be required to pay is comparable to the maximum amount any single broker-dealer will be required to pay. Even so, the proposed fees are not comparable at the highest tiers. The Tier 1 fee for a broker-dealer ($404,016) would be substantially higher than the Tier 1 execution venue fee for the Participants ($253,500 for equities and $230,460 for options). At the outset, the proposal fails even the Participants' own dubious claim that "comparable" is the same as "equitable."

Going further, the scope of the CAT fees is unreasonably broad. As we have stated previously, broker-dealers should not be required to cover any costs or expenses of the CAT other than the direct costs to build and operate the system itself. Broker-dealers should not be obligated to cover costs that the Participants incur as the cost of doing business as SROs. Yet, under the current proposal, broker-dealers would be required to cover just those sorts of fees. Specifically, the CAT fees would include reimbursement to the Participants of third-party support fees (historical legal fees, consulting fees, and audit fees), operational reserve, and insurance costs.[6] Those costs are the responsibility of the Participants, which will own and operate the system. Further, in response to the statement that the Plan Participants intend on

[4] 87.525% total broker-dealer allocation is calculated by: (75% Industry Member Allocation) + (3/13 Tier 1 Equity Execution Venue ATS * 6.5% Allocation) + (36/40 Tier 2 Equity Execution Venue ATS * 12.25% Allocation).

[5] *See* Securities Exchange Act Release No. 80710 (May 17, 2017), 82 FR 23639, 23648 (May 23, 2017).

[6] *Id.*

filing a separate fee filing to recoup the CAT costs incurred prior to November 21, 2016,[7] as we stated in our July 2016 comment letter, there is absolutely no justification for broker-dealers to be responsible for those costs.[8] Like the third-party fees that the Plan Participants are currently seeking to push to broker-dealers, the costs incurred before November 21, 2016, are the sole responsibility of the Participants as costs to comply with their own regulatory requirements.

The tiering methods under the proposal are also inequitable and unreasonable. The Plan Participants state that processing and storage of incoming message traffic is one of the most significant cost drivers for the CAT.[9] On that basis, the Plan Participants justify the proposal to establish nine tiers for broker-dealer fees based on message traffic.[10] However, the Plan Participants proposals inexplicably propose a tiering mechanism for themselves that is based not on their relative impact to the CAT system, but instead on their relative market share. Going further, the Plan Participants have established only two tiers for execution venues, claiming that two tiers were sufficient to distinguish between the venues and that additional tiers would have resulted in significantly higher fees for Tier 1 execution venues and diminish comparability between execution venues and Industry Members.[11] In other words, the Plan Participants have built the fee structure to minimize the costs to themselves and maximize the costs to broker-dealers – the Participants' competitors.

What is more, the Plan Participants propose to take their regulatory leverage over their competitors even further by imposing unreasonable costs on Alternative Trading Systems ("ATS"). By classifying ATSs as "Execution Venues," the Plan Participants impose significant annual costs ($155,200) on even the smallest ATS, particularly in comparison to the amount of reports it sends to the CAT. In contrast, the exchanges that are Tier 2 Execution Venues will create significantly more CAT messages than the Tier 2 ATSs, especially the Tier 2 options exchanges. These allocations cannot be justified with statements such as that it is "simpler" [12] to structure the fees in this manner or "too difficult"[13] to do otherwise. This aspect of the proposal would impose a burden on competition not necessary or appropriate in furtherance of the purposes of the Exchange Act. Specifically, the CAT fee for ATSs would create a significant burden on smaller ATSs and a substantial barrier to entry for new ATSs. The burden and barrier on ATSs would not apply to exchanges, which can simply leverage their statutory fee authority on broker-dealers to recoup their expenses.

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[7] *Id*. n.42.

[8] *See* **SIFMA CAT Comment Letter** at 15.

[9] *See* 82 FR 23642.

[10] *Id*. at 23643.

[11] *Id*. at 23646.

[12] *Id.*

[13] *Id*. at 23645.

All of this ends in a result that we warned in our July 2016 letter, a fee structure designed by for-profit market participants determined to further their own commercial interests. The Plan Participants have constructed a payment mechanism that is intended to benefit their own bottom line at the expense of their competitors, which also happen to be subject to the Participants' regulation. As such, this is not a case where commercial parties can negotiate reasonable terms. Instead, the Plan Participants are imposing unreasonable fees on their competitors/regulatees, that broker-dealers have no choice to pay or else be subject to regulatory action by the Participants.

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For these reasons, the Commission should suspend the proposals pursuant to Section 19(b)(3)(C) of the Exchange Act. SIFMA greatly appreciates the Commission's consideration of the issues raised above and would be pleased to discuss these comments in greater detail with the Commission and the Staff. If you have any questions, please contact either me (at 202-962-7383 or tlazo@sifma.org) or Timothy Cummings (at 212-313-1239 or tcummings@sifma.org).

Sincerely,

Theodore R. Lazo
Managing Director and
Associate General Counsel

cc: The Honorable Jay Clayton, Chairman
The Honorable Michael S. Piwowar, Commissioner
The Honorable Kara M. Stein, Commissioner

Gary Goldsholle, Deputy Director, Division of Trading and Markets
David S. Shillman, Associate Director, Division of Trading and Markets

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July 18, 2016

Via Electronic Mail (rule-comments@sec.gov)

Mr. Brent J. Fields
Secretary
U.S. Securities & Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090

Re: File No. 4-698: Joint Industry Plan; Notice of Filing of the National Market System Plan Governing the Consolidated Audit Trail

Dear Mr. Fields:

The Securities Industry and Financial Markets Association ("SIFMA")[1] submits this letter to comment on the National Market System ("NMS") Plan Governing the Consolidated Audit Trail ("CAT").[2] SIFMA has supported the development of the CAT and believes that, if successfully implemented, the CAT will be a critical aspect of market infrastructure, and provide an invaluable opportunity to enhance the information capture and reporting structure that exists today.

This comment period is critical because there are a number of important issues in the CAT proposal that we believe must be resolved before the CAT NMS Plan (the "Plan") is approved and before the CAT's construction begins. These issues fall into a number of categories that SIFMA and its members have identified as priority concerns as the Plan and CAT move forward.

- **Elimination of Systems:** The CAT has the potential to provide significant ancillary benefits – to regulators and member firms alike. Key among these will be the elimination of redundant reporting systems. SIFMA believes there are certain steps the Securities and Exchange Commission ("SEC") and self-regulatory organizations ("SROs") can take that will increase the likelihood that all parties will not only reap these benefits, but do so sooner and more thoroughly than currently contemplated by the Plan. Our comments

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[2] Joint Industry Plan; Notice of Filing of the National Market System Plan Governing the Consolidated Audit Trail, Securities Exchange Act Release No. 77724 (Apr. 27, 2016) ("CAT Plan Release").

below relate primarily to timing, error rate improvement, and cost management goals to improve this outcome.

- **Cost and Funding:** SIFMA has repeatedly raised CAT funding as a critical issue that requires collaboration between the SROs and broker-dealers. SIFMA urges the SEC to call upon the SROs to address a threshold question at the outset: namely, whether there has been sufficient justification offered in the CAT Plan to require broker-dealers to bear any of the financial burden of funding a system that exists to receive and process information that broker-dealers are required to report under SEC regulations. In addition, we urge the SEC to direct the SROs to engage an independent third party to provide an objective and transparent analysis of the CAT funding issues.

- **Data Security:** Keeping CAT Data secure and confidential is of primary importance not only to the efficacy of the system itself, but also to the confidence of market participants. It is therefore imperative that the CAT be held to the highest security standards – with particular focus on ongoing security and confidentiality of information transmitted to and stored within the CAT and the primary importance of securing customers' personally identifiable information.

- **Implementation Timeline:** SIFMA believes there should be appropriate time allocated to reassess more carefully and tailor the accompanying schedules and milestones that are included in the Plan to make the roll-out of the CAT as efficient as possible once technical specifications are prescribed. Implementation of CAT should include sufficient lead time to enable all reporting firms, including smaller broker-dealers, to establish the internal structure, technical expertise, systems, and contractual arrangements necessary for such reporting. A reasonable timeframe can only be determined once the CAT Reporter technical specifications have been published. The implementation schedule should be designed to provide iterative interactions between broker-dealers and the CAT Processor in terms of developing and executing final system specifications.

- **Governance:** The CAT should be overseen in a transparent manner that delivers strong collaboration between the SROs and their members. As such, broker-dealers should be integrally involved in CAT governance, with full voting rights. In the alternative, however, we provide specific recommendations on the Advisory Committee structure, designed to ensure it operates as an effective, integrated part of the CAT governance.

- **Data Use:** The development of the Plan has included very little discussion of how the SEC and the SROs will actually use the CAT data. As such, we provide an analysis of regulatory use cases and recommendations for how the Plan should be revised so that the CAT will be able to perform those functions. In addition, we address broker-dealers' ownership rights in and access to all raw data they submit to the CAT. We also believe the Plan should be amended to state specifically when the SROs and the CAT Processor may – and more importantly *may not* – use raw data or CAT processed data for

commercial purposes. SIFMA also objects to the broad grant of access to CAT Data that would be given to all of the SROs.

- **Operational Issues:** SIFMA raises provides recommendations on specific operational issues implicated by the CAT reporting structure as currently proposed. These include issues with respect to clock synchronization, time stamp on allocations, primary market transactions, and legal entity identifiers.

Before providing our substantive analysis, we offer SIFMA's perspective on the process for developing the Plan. In adopting Rule 613, the SEC envisioned close collaboration between the SROs and broker-dealers, with the SROs benefiting from "draw[ing] on the knowledge and experience of [their] members."[3] SIFMA acknowledges the efforts the SROs have made to date to hold public events to inform broker-dealers and other industry participants about their progress in developing the Plan. In addition, the SIFMA recognizes the efforts the SROs have made in communicating to broker-dealers through the Development Advisory Group ("DAG"). The DAG has been an effective means to incorporate broker-dealers' review and analysis of technical matters and the details of specific operational matters.

However, the SROs did not incorporate meaningful input from broker-dealers or through the DAG on several critical policy issues. In the Plan, the SROs discuss at length their incorporation of broker-dealer feedback, but on critical policies the lack of collaboration with the broker-dealers has led to some untenable proposals in the Plan that unnecessarily favor the SRO at the expense of broker-dealers. For example:

- The SROs have proposed a schedule for elimination of systems under which duplicative systems such as the Financial Industry Regulatory Authority's ("FINRA") Order Audit Trail System ("OATS") could run in parallel with the CAT for years. If the SROs had worked with the broker-dealers on this issue, we could have developed a more practical schedule to eliminate systems within months of CAT becoming operational.

- The SROs have proposed a funding model for CAT that would impose a vast majority of the building and operational costs to broker-dealers, without providing any real justification or providing any information about their current receipt and use of regulatory fees from broker-dealers. The SROs also propose to charge the broker-dealers to recoup the legal and consulting expenses they have incurred in carrying out their regulatory obligations under Rule 613 to develop the Plan. If the SROs had worked with the broker-dealers on this issue or prioritized greater transparency on cost and funding issues, we could have developed a reasonable funding model supported by evidence and analysis.

- The SROs have proposed a governance structure for CAT that follows the same flawed model that has been used in other NMS Plans, with no meaningful representation by

[3] Consolidated Audit Trail, Securities Exchange Act Release No. 67457, at 245 (Jul. 18, 2012).

broker-dealers. If the SROs had worked with the broker-dealers on this issue, we could have developed a workable governance model that avoided the mistakes of the past.

Given the wide scope and unprecedented anticipated cost of the CAT, broker-dealers should be active participants in the CAT's ongoing development, rather than having only a limited opportunity to view and comment after the fact on proposals that the SROs separately develop. SIFMA's member firms have unique expertise, insight and experience that strongly complement that of the exchanges on these matters. Going forward, establishing a true collaboration between the exchanges and the broker-dealer community will provide the opportunity for the CAT to be informed by the insights and interests of all of the affected market participants at a time when they can be readily incorporated without delaying or impeding a successful CAT construction and implementation.

I. Elimination of Duplicative Systems

In adopting Rule 613, the SEC recognized that the CAT has the potential to provide significant ancillary benefits – to SROs and broker-dealers alike. Key among these would be the elimination of redundant reporting systems. Such elimination would create efficiencies for SROs responsible for maintaining and reviewing reports submitted to other separate systems and for broker-dealers required to maintain various systems and perform the monitoring necessary to comply with various regulatory reporting obligations – often functions that are executed through separate systems. Broker-dealers also will benefit from increased efficiencies of operating and reporting to a single or reduced number of systems. For example, broker-dealers may be able to reduce the time and resources devoted to: (i) maintaining multiple databases that are capable of interfacing with disjointed reporting systems; (ii) investigating and reconciling potential disparities across multiple reporting obligations; (iii) conducting daily oversight measures to ensure timely, complete, and accurate reporting to numerous legacy platforms; (iv) running redundant regulatory reporting program reviews; (v) sustaining duplicative contracts for new and existing correspondents;[4] and (vi) replicating reported data to internal databases for data analysis purposes.

SIFMA believes there are steps the SEC and SROs can take that will increase the likelihood that all parties will not only receive these benefits, but do so sooner and more thoroughly than currently provided under the Plan. This includes setting more appropriate timing for system eliminations and establishing effective error rate management targets. In addition, to support the rationale for this part of the CAT plan and to ensure stakeholders realize greater efficiencies and benefits associated with this regulatory goal, SIFMA encourages the SEC to reevaluate requirements to expedite the timing or provide additional explanation for the reasoning and cost estimates associated with the delay in eliminating duplicative systems. As detailed below, SIFMA outlines a possible framework for the elimination of duplicate systems with a specific focus on the elimination of OATS and Electronic Blue Sheets ("EBS"), but with a

[4] Clearing firms and service bureaus will be required to obtain, maintain and reconcile duplicative contracts for correspondent firms to comply with reporting obligations to multiple systems.

modularity that would encourage the rapid retirement of other current systems such as the Consolidated Audit Trail System ("COATS").[5]

A. Timing

SIFMA believes that the SEC should reevaluate the proposed timeframe for eliminating duplicative systems outlined in the Plan. The current proposal to provide two and a half years for evaluating system elimination is too long and gives the SROs far more leeway than necessary to evaluate and file to retire existing systems once CAT is operational. Among other things, the maintenance of duplicative reporting systems for this period will require additional infrastructure, personnel, and other avoidable expenses that should be weeded out immediately upon commencement of the CAT's operation. Unless there is strict timeline discipline, the SROs will not have sufficient incentive to migrate surveillances to CAT from existing systems.

To aid in speeding the eliminations of duplicative systems, CAT should be designed in the first instance to include all data field information necessary to allow prompt elimination of redundant systems. For example, the OATS stands out as one of the primary reporting systems that should be retired when CAT is up and running. In order to accomplish this, the CAT should at the onset include all necessary data fields to facilitate the elimination of OATS reporting.[6] In addition, the SEC should impose a moratorium on changes to OATS reporting requirements to coincide with the launch of CAT; any changes or new information required should be incorporated into the CAT reporting requirements to enable firms to dedicate resources to the successful launch and operation of CAT rather than the maintenance of a legacy system.

In addition, as a general matter, the Plan should allow for elimination of individual systems as they each become redundant or unnecessary. Importantly, firms should roll off OATS and other redundant reporting systems once production reporting commences on CAT. Thus, SIFMA believes that the CAT operational proposals should explicitly include a requirement for SROs to retire redundant reporting systems. SROs lack incentive to retire existing systems, so there must be a regulatory obligation driving this imperative on an ongoing basis. Likewise, the Plan should not enable the SROs to move to planning for fixed income or primary market transaction reporting prior to mapping out the elimination of redundant systems.

It should go without saying, but the SROs should not be permitted to delay a systems elimination plan until fixed income or primary market transactions are incorporated into the CAT. The CAT also should be designed to allow the ready addition of data fields over time to increase the ability to retire other systems and capture additional necessary information. SIFMA acknowledges that expanding the CAT in a way that would allow for the elimination of such other legacy reporting systems may mean that the CAT must include information, products, or functionality not absolutely necessary to meet the minimum initial CAT requirements under Rule

[5] SIFMA also encourages the SEC to evaluate the potential elimination of other reporting requirements that may become duplicative with the onset of CAT, such as Large Trader Reporting.
[6] The industry supported the inclusion of OTC-equities in phase one of CAT to facilitate retirement of OATS upon CAT production.

613. However, SIFMA believes that building in this capacity and flexibility will increase the scope of efficiencies and ancillary benefits, including long-term cost reductions that can be achieved through the operation of CAT instead of the maintenance of cumbersome duplicative systems. Moreover, the overall cost reductions of expanding the CAT at the outset (and establishing the flexibility to expand it further over time) to eliminate redundant systems should justify what ought to be marginal associated costs.

Finally, record retention by CAT should be established for periods long enough to satisfy regulatory requirements associated with other regulatory systems, e.g., the seven year record retention requirement for EBS. In addition, the SEC should consider the extent to which CAT reporting could fulfill SEC and SRO recordkeeping obligations for a reporting firm. This is especially true for small firms who do not enjoy benefits from economies of scale associated with data storage.

B. Error Rates

As another driver that will affect the potential elimination of systems, it is important for standards related to error rates to be implemented thoughtfully and in a fair and equitable manner. The term "error rate" should be more specifically defined to ensure that the CAT Processor, SROs, and broker-dealers have a consistent understanding of what is meant by the term. Moreover, the error rate definition should indicate the timeframe to be measured and whether all errors are treated equally. SIFMA also believes that error rates should be specific to equities, options, and customer data rather than a composite score based on each input. In this regard, customer data should not be subject to an error rate during the first six months of production reporting.

As proposed, the Plan would set a maximum initial error rate of 5% for data submitted to and maintained by the Central Repository with expectations of lowering the error rate to 1% over time. SIFMA believes there is not enough information available at this point to determine the correct error rate. However, we would like to see the error rate reduced as quickly as possible in order to facilitate the elimination of duplicative systems. To reduce the error rate at implementation, the Plan should structure a test period to bring reporting near a 1% error rate when CAT is launched in production. The Plan should then utilize the information gathered during this test period and through the initial launch and review the error rates three months after the CAT is operational. Disparities in error rate tolerance between CAT and other existing regulatory reporting systems should not serve as a pretext for prolonging the lifespan of those legacy systems. Rather, the CAT should go into production at a confidence level that allows its reporting to serve as many existing regulatory requirements and accompanying surveillance programs as possible.

SIFMA's members have looked to their experiences with the implementation of OATS and noted that these types of systems involve steep learning curves and inevitable operational challenges as firms navigate reporting logistics. The CAT will be even more complex and require reporting by a significant number of broker-dealers that will be reporting to this type of system for the first time. As a result, it is reasonable to anticipate transition-related challenges

that can be corrected as the quirks of a new system are resolved. For this reason, SIFMA believes firms should have an opportunity to reduce their error rate prior to onboarding to CAT. In addition, SIFMA believes that CAT Reporters should receive a grace period before error correction rates are disseminated to the regulators. This will provide them with a window to better understand the data being returned by the CAT, and how it is evaluating data submissions. On an ongoing basis, error rates should be calculated based on data that is corrected within the error correction period as opposed to at the point of an initial submission.

In this vein, the CAT Processor should be incentivized to work collaboratively with firms to reduce error rates. SIFMA recognizes that, in addition to the challenges reporting firms will face during initial implementation, the support services of the CAT Processor will face significant pressure as they field numerous questions and guide first-time users through the operations. Implementation can only be successful if broker-dealers and the CAT Processor work together to make the data as reliable as possible. Moreover, SIFMA encourages the CAT Processor to provide report cards to CAT Reporters as a crucial tool for firms to evaluate their progress and understand how they compare to their peers.

Error rates used for elimination of duplicative systems should be post-correction error rates that are compiled on the same scope as duplicative systems, and when a firm meets the necessary standards, should allow for individual firm exemptions from duplicative reporting.

C. Cost

SIFMA disagrees with the SROs' estimate in the Plan that it should cost $2.6 billion to retire redundant systems. Rather, CAT stands as an entirely new and additional cost, one that should replace legacy reporting systems, such as OATS and EBS, and that would allow firms to reallocate costs currently spent on those systems to the CAT. SIFMA believes a more accurate cost estimate associated with retiring redundant systems should be in the range of $10,000-100,000 per firm.

SIFMA encourages the SEC to reevaluate this cost estimate, or at a minimum, provide additional explanation regarding what costs the estimate reflects. For example, if the $2.6 billion estimate represents the cost of operating and maintaining duplicative systems in parallel, that should be made clear. Likewise, the cost estimates should clearly indicate how shorter time periods where duplicative systems must be maintained would result in reduced costs including the elimination of the current implementation phases between large and small broker dealers.

D. A Potential Framework for Considering the Elimination of Duplicative Systems

The Plan would benefit significantly by the addition of a principles-based framework for eliminating potentially duplicative systems, as well as the application of that framework to specific systems for consideration by the Commission and the public. Such a framework would comprise the following factors and considerations:

Phased elimination: There is a wide variation in the technical abilities and complexities of the systems used by the approximately 1800 broker-dealers that will be required to report data to the Central Repository. In modifying their systems to meet these new obligations, it is likely that some broker-dealers would be ready to report to the Central Repository much sooner than others. In addition, the accuracy of reporting may vary significantly across different broker-dealers, and the time it takes different broker-dealers to improve their reporting accuracy may likewise vary considerably.

To avoid the possibility that the elimination of a duplicative system is subject to the implementation schedule and reporting accuracies of the "slowest" broker-dealers, the Central Repository should be constructed so that once data is collected from "early-implementers" who have achieved sufficient accuracy, those broker-dealers will be able to individually retire their own reporting to duplicative systems. As more fully described below, this method of "staggering" the elimination of duplicative systems on a per-member basis likely requires the Central Repository to include at the outset certain features and functions that will allow SROs to extract data stored in the Central Repository reported by early-implementers to use in combination with data still being submitted by late-implementers via legacy systems. However, as discussed above, the costs savings to broker-dealers who can eliminate duplicative systems early will generally outweigh the costs of any new features or functions required to be added to the Central Repository to facilitate the staggered elimination of such systems by different broker-dealers.

Facilitation of ongoing surveillance: Because one of the purposes of the CAT is to facilitate surveillance of the equity and equity options markets by SROs, if those SROs are not (yet) prepared to transition their existing surveillance processes into the CAT, or if the CAT does not yet contain the required functionality for surveillance to be performed in a way that meets SROs' needs, then it may not be possible to eliminate a duplicative system even if all broker-dealers were accurately reporting all required data to the Central Repository. For example, in the situation that all CAT surveillance and control modules are not operational to replace the OATS surveillance and monitoring functions, it would not be possible to retire OATS.

To avoid this possibility, the Central Repository should be designed from the outset to include the ability to implement all of the surveillance methods and functions currently used by SROs (e.g., OATS, EBS, and COATS). This would allow broker-dealers to eliminate their duplicative reporting systems and apply existing resources solely to reporting data to the Central Repository even if the Central Repository, or a provider SRO was not yet prepared to perform surveillance within the Repository itself. Absent this design component, broker-dealers may, because of factors beyond their control, be required to continue supporting duplicative systems even after they have fully and accurately implemented reporting to the Central Repository.

Inclusion of relevant data elements: In making a determination of whether or not a particular duplicative system can be eliminated, SROs should avoid using a simple field-mapping exercise as a threshold criteria such that a system could not be eliminated until all data

elements currently being reported can be directly mapped to equivalent fields in the Central Repository. Instead, SROs should consider the following factors:

- Are all the data elements collected by the existing reporting system actually needed for the types of surveillance and other analyses typically undertaken by the SROs? Are some of the data elements outdated? Were some data elements added over time but are no longer needed or only rarely used? The purpose of this consideration is to mitigate the risk that the elimination of a duplicative reporting system is delayed until the Central Repository can be updated to receive data that is unlikely to be meaningfully utilized by any SRO.

- If there are missing data elements, are there alternative, or potentially even improved, methods of surveillance or analysis that can be performed using data and functions within the Central Repository that do not rely on those data elements? The purpose of this consideration is to balance any potential negative impacts of eliminating an existing reporting system before an identical set of data can be collected by the Central Repository, against any potential benefits of improved surveillance that makes use of the many new data elements that are already required to be reported to the Central Repository. This analysis can be of particular importance when considering the benefits of cross-member and cross-account surveillance facilitated by the new customer-focused data elements required to be reported under Rule 613.

- Are there data elements currently collected by an existing reporting system that are not available in the Central Repository, but could be derived or computed from data in the repository? If so, and if deriving such data from within the Central Repository would allow for the (earlier) elimination of a duplicative reporting system, the design of the Central Repository should incorporate any required derivation calculations or functionality into its core architecture at the outset. This mitigates the risk that a potentially duplicative system cannot later be eliminated, or its elimination is significantly delayed, because the Central Repository was designed in a way that does not facilitate the derivation of these types of data. This is particularly important when considering the elimination of systems that currently collect position-based data (discussed further below).

Transitional operational support: To most fully realize the cost savings of eliminating a duplicative reporting system during any transitional periods when SROs are extracting data from the Central Repository to use in their own legacy surveillance or analysis systems, questions to broker-dealers regarding their reported data should be directed though the process created for the Central Repository, not through previously-established channels based on those legacy systems. SROs should first address questions to the Plan Sponsor to verify that any observed data issues are not a result of the methods by which the data is stored in the Central Repository and transmitted to the SRO.

By fully utilizing the error-correcting methods and channels of communication developed by the CAT Processor for the collection of data into the Central Repository, broker-dealers can focus on improving the accuracy of their Rule 613 data rather than continue to maintain multiple channels of communication to different SROs to support legacy systems to which they are no longer reporting any data.

E. Application of the Framework to Potentially Duplicative Systems

OATS

OATS is an event-based / transactional reporting system mandated under FINRA Rules 7410 – 7470. FINRA member firms must record and report each event in the life cycle of an order, from receipt or origination of the order through execution or cancellation. This data is used by FINRA to recreate events in the life cycle of orders and perform surveillance on the trading practices of member firms.

As per the defined framework, specifically the "facilitation of ongoing surveillance" criterion, the OATS system cannot be eliminated until FINRA can seamlessly continue performing the current surveillance on its member firms. The following conditions are necessary for that to happen:

- The relevant data elements (for applicable products) that are needed by FINRA to perform the current surveillance need to be retained as part of CAT's technical specifications so that CAT has access to the required data elements.

- The CAT Processor should be able to recreate the FINRA surveillance logic, or alternatively, CAT should be able to export OATS reportable data to the FINRA OATS system so that FINRA can continue performing the current surveillance.

- The accuracy of the CAT reportable data (which will be used for OATS surveillance) from member firms should meet an acceptable threshold for its error/rejection rate.

The inclusion of OTC equities in CAT reporting already provides product-level coverage for OATS. While the CAT data specifications are not yet finalized, the incorporation of OATS reportable data elements in the specifications should be prioritized. Based on the above, OATS is a strong candidate for elimination, provided member firms meet accuracy thresholds and either (a) the surveillance logic is recreated within the Central Repository, or (b) FINRA can utilize a subset of data from the Central Repository each day in a format that effectively mimics what it would have received via OATS.

EBS

EBS filings are reports generated by member organizations at the request of the SEC and FINRA in connection with investigations of questionable trading. The Blue Sheets provide information identifying the account holder for whom specific trades were executed and

indicating, among other attributes, whether the transaction was a buy or a sell and long or short. The receipt and review of Blue Sheets are essential components of regulatory investigations into matters such as potential insider trading or market manipulation.

As per the defined framework, the EBS system cannot be eliminated until the SEC and FINRA can continue obtaining the data they typically receive from EBS. The following conditions are necessary for that to happen:

- The relevant data elements (for all applicable products) that are included in an EBS report need to be retained as part of CAT's technical specifications so that CAT has access to the required data elements

- The accuracy of the CAT reportable data (which will be used for EBS reporting) from member firms should meet an acceptable threshold for its error/rejection rate.

Note that in contrast to OATS, retiring EBS does not depend on whether or not a specific set of surveillance criteria can be built into the Central Repository. This is because EBS is typically not used for daily, market-wide surveillance, but rather for targeted investigations based on analyses performed by regulators.

Also, though CAT will provide EBS coverage for listed equities and options, fixed income EBS reports will continue to stay within the existing EBS system. For equities and options, similar to OATS, the incorporation of EBS reportable data elements in the CAT specifications should be prioritized. Based on the above, EBS is a candidate for elimination for equities and options, provided member firms meet accuracy thresholds; however, EBS reporting for fixed income cannot be eliminated. Moreover, post-retirement, firms will still need to retain and archive data for historical EBS requests.

COATS

COATS is a system to provide a consolidated daily audit trail of quotes, orders and trades for all multiple-listed products from all options exchanges to the SEC pursuant to Chicago Board Options Exchange ("CBOE") Rule 6.24, and for use in CBOE surveillance. COATS tracks the lifecycle of an options order beginning from when the order is systemized on an exchange, all the way through to execution, partial execution, or cancellation. This data is used by CBOE to recreate events in the life cycle of orders and perform surveillance on the options trading practices of member firms.

The COATS reporting system is similar in nature and objective to the OATS system, and thus, the elimination criteria would follow the same rationale proposed for OATS. As per the defined framework, specifically the "facilitation of ongoing surveillance" criterion, the COATS system cannot be eliminated until CBOE can seamlessly continue performing the current surveillance on its member firms. The following conditions are necessary for that to happen:

- The relevant data elements (for applicable products) that are needed by CBOE to perform the current surveillance need to be retained as part of CAT's technical specifications so that CAT has access to the required data elements.

- The CAT Processor should be able to recreate the CBOE surveillance logic, or alternatively, CAT should be able to translate COATS reportable data to the CBOE COATS system so that CBOE can continue performing the current surveillance.

- The accuracy of the CAT reportable data (which will be used for COATS surveillance) from member firms should meet an acceptable threshold for its error/rejection rate.

While the CAT data specifications are not yet finalized, the incorporation of COATS reportable data elements in the specifications should be prioritized. Based on the above, COATS is a strong candidate for elimination, provided member firms meet accuracy thresholds and either (a) the surveillance logic is recreated within the Central Repository, or (b) CBOE can bulk-extract a subset of data from the Central Repository each day in a format that effectively mimics what it would have received via COATS.

II. Cost and Funding

The cost and funding issues around CAT are critical, both because of the costs to build and operate the CAT Processor and the costs to broker-dealers to build the necessary reporting mechanisms to the CAT. The SEC estimates that it will cost $92 million to build the CAT central repository and $135 million annually to operate it, and the SROs want to charge a fee to defray these costs. Even without an SRO fee, the SEC estimates $2.1 billion in overall industry-wide implementation costs for the CAT reporting and $1.5 billion in ongoing annual operational costs. The SEC estimates that total annual cost of the Plan would be $1.7 billion, of which $1.5 billion, or 88%, is allocated to broker-dealers to meet their data reporting requirements.

There are four primary cost components to the CAT:

1. The costs to each broker-dealer to implement and maintain its owns systems and personnel for the purpose of collecting and reporting all data required by Rule 613 to the CAT in accordance with any prescribed timing and formatting specifications.
2. The costs to SROs to build and operate the CAT with all associated systems and personnel to receive, process, and store all the data that is required to be transmitted from the broker-dealers to the CAT.
3. The costs to the SROs to create any additional systems, data structures, functionality, and general computational abilities that are requested by the SROs and the SEC to perform their regulatory duties.
4. The costs of the SROs and the SEC to maintain their own systems and personnel to execute their regulatory, surveillance, and oversight responsibilities using data in the CAT.

SIFMA has repeatedly raised CAT funding as a critical issue, and the funding proposal in the Plan should have been the product of collaboration between the SROs and the broker-dealers. However, the SROs have created a funding model with no input from broker-dealers. The plan itself includes only a high-level description of the proposed funding model. The SROs have made publically available some additional data and estimates. Separately, the SROs provided the DAG with some of its working assumptions on the proposed funding model, but they have informed the DAG that that information is not public. As such, we are not able to discuss the non-public portions of the assumptions in this letter, except to say that we view the funding burden to be excessively and unjustifiably weighted to broker-dealers.

Rule 613(a)(1)(vii) requires that within the Plan, the SROs are required to discuss:

> The detailed estimated costs for creating, implementing, and maintaining the consolidated audit trail as contemplated by the national market system plan, which estimated costs should specify:
>
> (A) An estimate of the costs to the plan sponsors for establishing and maintaining the central repository;
>
> (B) An estimate of the costs to members of the plan sponsors, initially and on an ongoing basis, for reporting the data required by the national market system plan;
>
> (C) An estimate of the costs to the plan sponsors, initially and on an ongoing basis, for reporting the data required by the national market system plan; and
>
> (D) How the plan sponsors propose to fund the creation, implementation, and maintenance of the consolidated audit trail, including the proposed allocation of such estimated costs among the plan sponsors, and between the plan sponsors and members of the plan sponsors.

Although the Plan includes numerous detailed sections addressing parts (A)-(C) above, it contains very little information on allocation of costs as required by part (D). The only discussion is contained in the Plan's Article XI, and covers just the cost of funding the Company, and not of the overall CAT itself. Moreover, as noted above, the SEC estimates that 88% of the costs for the operation of CAT must be borne by broker-dealers to meet their reporting requirements.

However, the SROs state in the Plan that they would like to additionally require broker-dealers to help fund the creation and ongoing costs of the CAT itself. Depending on how this estimated $135 million per year is allocated to broker-dealers, this could increase the broker-dealer portion of the costs of the Plan from 88% to over 96%. This raises the following initial threshold question: should broker-dealers, which are already burdened with 88% of the costs of the Plan, be responsible for funding any portion of the costs to build and operate the CAT itself?

In SIFMA's view, the SROs must substantiate the need for an additive CAT fee and they have not done so. SIFMA understands that the self-regulatory model in the securities markets is premised on being supported by broker-dealer funding, but the SROs do not have unlimited authority to charge broker-dealers. In fact, Rule 613 does not direct the SROs to impose a broker-dealer fee to cover CAT. Moreover, the SROs have not provided any analysis of how a new CAT fee would fit into the existing funding model for regulation. Currently, the SROs receive a significant amount of regulatory revenue from broker-dealers through membership fees, registration and licensing fees, dedicated regulatory fees, options regulatory fees, and monetary fines. In addition, the SROs receive a significant amount of revenue from the sale of consolidated market data, and the SEC has long contemplated that that revenue is primarily intended to fund the costs of SROs' regulatory functions, particularly those relating to the SROs' market surveillance activities.[7] Having broker-dealers directly fund a portion of the creation and ongoing use of a system owned and operated by the SROs is a significant departure from current practices. Without a detailed discussion of why this should be the case for CAT, the SROs have not fully met the requirement of Rule 613(a)(1)(vii)(D).

In light of these factors, SIFMA cannot at this time support any SRO fee for the CAT. Before permitting the SROs to impose a CAT fee on broker-dealers, the SEC should require the SROs to engage an independent third-party to conduct an audit and review of the SROs' current regulatory revenues and how that money is allocated, and the SEC should publish the results of that audit. Second, any CAT fee that the SROs do charge should be determined by an independent third party so that it is transparent and can be determined by an objective standard to be equitable and reasonable. Stated plainly, any form of funding related to the CAT Plan must be completely transparent and should not create a surplus to the SROs.

This is a unique request, but the CAT is a unique project. SIFMA urges the SEC to call upon the SROs to address a threshold question at the outset: has there been sufficient justification offered in the CAT Plan to require broker-dealers to bear any funding burden for CAT. Notably, similar existing systems, such as OATS, are operated without requiring a dedicated funding stream from the broker-dealers that report their data to that system. Rather, these systems are funded by the SROs themselves as part of their obligations under the Exchange Act and then some part of those costs are apportioned and borne by broker-dealers through other fees. At this point, we have to assume that any CAT funding model designed by the SROs themselves will be built to favor the commercial interests of one set of for-profit market participants – the exchanges – at the expense of the exchanges' competitors – the broker-dealers.

If the SROs do impose such a fee, then it must satisfy the Securities Exchange Act of 1934, as amended (the "Exchange Act") standards of being both reasonable and equitably allocated. In our view, the SROs have individual commercial interests that may lead to biases and impact the fair determination of the fees. In addition, it is impossible to determine what a

[7] *See* Concept Release: Regulation of Market Information Fees and Revenue, Securities Exchange Act Release No. 42208 (Dec. 8, 1999).

reasonable CAT fee would be without obtaining transparency about how much the SROs currently receive in regulatory fees and how that money is spent.

SIFMA's remaining comments on the Plan's actual discussion of financial matters fall into three categories. First, we address the scope of the proposed funding authority under the Plan and emphasize that it should be dedicated exclusively to the operation of the CAT. Second, we describe our views on the SROs' proposed funding construct for the CAT. Third, we note that any CAT funding model must include a usage fee on the SROs.

A. Scope of Funding Authority

SIFMA believes that the proposed funding authority for the CAT, as articulated in Section XI of the Plan, is too broad. It should be narrowed so that it applies only to funding directly related to the reasonable implementation and operating costs of the CAT System. This should include: (i) reasonable costs related to the management of the business and affairs of the CAT; and (ii) direct costs of the building and maintenance of the Central Repository.

SIFMA takes particular exception to the SROs' proposal to use the funding authority to recover their legal and consulting costs in developing the Plan. The funding authority under Section 11.1 ***should not apply*** to the costs incurred in the creation or development of the Plan document itself. Those costs are solely the responsibility of the SROs as the entities obligated to develop the Plan as part of the regulatory cost of doing business as an SRO. There is absolutely no justification for the SROs' proposal that broker-dealers should be responsible for any of the legal and consulting costs that the SROs incurred in developing the Plan.

SIFMA also believes that any SRO funding mechanism for CAT should be centralized. It would be hopelessly and unnecessarily complicated for the SROs to try to allocate each firm's CAT fee across them because not every firm is a member of every SRO. Requiring any fees imposed on broker-dealers to be collected centrally by the CAT would be the most efficient and consistent way to collect the fees from broker-dealers. The SIPs use this method of charging firms directly for the distribution of market data, and each SRO could require its members to pay the CAT fees, understanding that the centralized CAT fees would have to satisfy the Exchange Act requirements of being equitable and reasonable. It should go without saying, but the SROs should be collectively permitted only to charge a single CAT fee, and they should not each be permitted to establish independent fees to recover their individual implementation costs related to the CAT.

B. CAT Funding Model

As noted above, SIFMA believes that any CAT funding plan approved by the SEC should be designed by a third-party independent from the SROs. Nevertheless, we offer our comments on the limited amount of funding model information the SROs have provided in the CAT Plan and on their CAT website. The Plan itself provides the outline of a funding model based on market share and message traffic:

- Fixed fees payable by each exchange and Alternative Trading Systems ("ATSs") that trades NMS Securities and Over-the-Counter ("OTC") Equity Securities based on its market share (establishing two to five tiers of fixed fees);
- Fixed fees payable by each options exchange based on its market share (establishing two to five tiers of fixed fees); and
- Fixed fees payable by each broker-dealer based on message traffic generated by such broker-dealer.[8]

The SROs also have published a power point slide with a range of fee estimates of how much firms and exchanges would pay annually in each tier. In addition, the SROs have prepared a spreadsheet that provides information on how exchange and broker-dealers might be grouped into the various tiers. The spreadsheet also provides information on possible overall costs to the larger broker-dealer and exchange complexes.

A number of critical pieces of information are notably absent. The SROs have not provided information on how they would calculate the fees. More specifically, the SROs have provided no information on how much they would charge per message or per percentage of market share. In addition, the SROs have provided no information on the metrics they would use to calculate the tiers in which exchanges and broker-dealers would be assigned. And while the SROs provided the DAG with a description of how they wanted to shift the funding burden of the CAT to broker-dealers, they have not made this description public.

The information made publicly available is not enough for SIFMA to provide a meaningful analysis, but in what is available we can offer some initial comments. For example, although the Plan suggests a mechanism for how costs would be allocated by message-traffic tiers (for broker-dealers) and market share (for exchanges and ATSs), there is no indication of the relative split between these two sets of parties, without which it is very difficult to meaningfully evaluate the funding model or the economic costs to broker-dealers, which could range to $0 through $135 million. In addition, the SROs have not provided a self-consistent rationale for the differential treatment in the allocation method between exchanges and ATSs versus non-ATS broker-dealers.

In the Plan, the SROs state that the allocation of costs for non-ATS broker-dealers will be based on tiered message traffic since message volume is the primary cost-driver of the CAT. However, the Plan instead uses a market-share methodology for allocating costs among exchanges and ATSs. The reason provided by the SROs is that since most exchanges will be publishing all of their displayed quotes to the Central Repository, using message volume for the

[8] For the avoidance of doubt, the fixed fees payable by broker-dealers pursuant to this paragraph 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 broker-dealer; (ii) routing orders to and from any ATS sponsored by such broker-dealer; and (iii) ancillary fees (e.g., fees for late or inaccurate reporting, corrections, and access and use of the CAT for regulatory and oversight purposes).

allocation of costs would not provide sufficient differentiation between exchanges, whereas market-share does. Though this may be true, the SROs do not provide any reason why differentiation between exchanges is required, especially since the SROs state that the main driver of Central Repository costs will be message volume.

In utilizing a market-share approach for the allocation of costs among exchanges and ATSs, the SROs have established a model where allocations are primarily driven by the ability of each exchange or ATS to pay (presumably based on trading fees), as opposed to the actual Central Repository costs attributed to each exchange or ATS. ATSs should not have the same fees as exchanges as they do not have the same usage requirements. If the SROs desire to use this approach for exchanges and ATSs, they should include in the Plan a rationale for why the same means-based method of allocation does not apply to non-ATS broker-dealers.

Taking this further, data published by the SEC on its equity market structure web site show the quote-to-trade ratio for exchange-traded-products ("ETPs") can be ten times greater than that for corporate stocks. This implies that market makers in ETPs may generate ten times the amount of message traffic per executed trade than markets makers in corporate stocks. Since market participants do not generally receive fees for providing quotes that do not result in an execution, nor do they have an opportunity to profit from trades unless they complete a purchase or sale, it would seem that according to the Plan, the allocation of costs to market makers in ETPs could be ten times greater than the costs to market makers in corporate stocks for the same unit of "market share." This ratio can be even more disproportionate for market makers of illiquid ETPs or in fact any illiquid stock.

Similarly, both the SEC and the SROs have always encouraged displayed quotes as a positive force for price discovery as well as to further promote fair and efficient markets. But whereas market makers typically provide displayed quotes to exchanges, there are other types of broker-dealers, as well as practices within broker-dealers, that primarily, if not exclusively, take liquidity (and do not generate significant quote-message traffic). Somewhat ironically, as proposed by the SROs in their Plan, any mechanism that allocates costs to broker-dealers strictly based on message traffic would unfortunately disadvantage broker-dealers that typically provide liquidity compared to those that may only take liquidity. The SROs do not consider this factor in their response to 613(a)(1)(vii)(D), nor do they consider these factors when justifying the different approach they took in allocating CAT costs among exchanges and ATSs based on trading share as opposed to quote traffic.

Finally, we note the SROs in their Plan make no distinction between costs of the CAT that are directly associated with the collection and processing of data reported by broker-dealers, versus those system components that are designed to support SRO surveillance, research, investigations, and market re-constructions. For instance, if an SRO is able to deprecate an internal system used for surveillance for a system or set of functions contained within the Central Repository, the costs to the CAT for supporting these functions should be allocated directly to that SRO. If the SROs simply allocate costs of the CAT based on message traffic or market share, it would seem broker-dealers would be subsidizing the costs of surveillance systems and

functions currently paid for by individual SROs, which themselves are already funded through regulatory fees paid by broker-dealers. This potential shifting of existing SROs costs to broker-dealer is not discussed or noted in the Plan.

Moreover, the Plan does not address how new costs to the CAT would be allocated when those costs are a result of SRO or SEC regulatory research needs. For example, if the SEC requested the Central Repository to significantly increase its processing capabilities (perhaps temporarily) to facilitate a large-scale analysis related to a proposed rule, market reconstruction, or market structure study, then it would be inappropriate for broker-dealers to pay for these SRO-specific system enhancements and capabilities through the general allocation of CAT costs.

The bottom line is that the SROs have not provided sufficient information on which to base a meaningful discussion of their proposed cost model. As noted above, before the SROs impose any type of CAT fee on broker-dealers, they should be providing a public accounting of their current regulatory revenues and details on how that money is spent. And if the SROs do propose a CAT fee on broker-dealers, SIFMA will want to review the basis for any such fee and make sure that the fee is both reasonable and equitable.

C. Mandatory Usage Fee for SRO Use of Data

SIFMA believes that the SROs should commit from the outset to a user fee in connection with their use of the CAT for regulatory purposes. In addition, the SEC should be responsible for fees in connection with its use of the CAT Data. These are essential components of any funding scheme. Section 11.3(c)(iii) of the Plan provides that the Operating Committee may establish "fees based on access and use of the CAT for regulatory and oversight purposes."[9] The SROs will continue to have regulatory obligations that will require the use of the CAT. Any costs imposed in connection with usage of the CAT will be offset by the costs that the SROs will save in retiring systems. In fact, imposing a user fee could create an incentive to eliminate those systems in a timely fashion.

SIFMA also believes that funding for the CAT System should come from cost savings realized by the SROs before they start charging broker-dealers. SROs need to commit now to work to identify cost reductions – whether through elimination of systems, efficiencies realized through the creation of CAT, or otherwise. In this regard, we note that as the CAT will replace other legacy reporting and audit trail systems, the costs that the SROs currently expend on maintaining and operating these systems can be reallocated toward CAT expenses. As these resources become available, they should be redirected to the CAT and offset financial burdens being borne in the interim by the broker-dealers. The consolidated nature of the CAT also should allow the SROs to conduct their market surveillance activities more efficiently, allowing for additional cost savings that can also be allocated toward CAT expenses.

[9] CAT Plan Release at 82.

Finally, the CAT Plan should be amended to specifically state that any profits arising from the CAT may not be used to fund the SROs' other operations. Section 8.5 of the CAT Plan provides that distributions of cash may be made by the CAT to the SROs.[10] The SROs state generally that they do not expect the CAT to generate profits and rather expect it to operate on a break-even basis. In addition, the SROs state that the distributions would be made in very limited situations, such as when the SROs incur tax liabilities due to their CAT ownership. And in those cases, the distribution would be only for the amount of any tax liability or, upon dissolution, the amount contributed to each SRO's capital account in the CAT. SIFMA appreciates the SROs providing this clarity. However, for the avoidance of doubt we request that the SROs formalize this guidance in the terms of the Plan.

III. Data Security and Confidentiality

SIFMA agrees with the SEC that keeping CAT Data secure and confidential is critical to the efficacy of not only the system itself, but to the confidence of market participants.[11] It is therefore imperative that the CAT be held to the highest security standards. The SROs have proposed broad requirements at both the physical and logical levels to ensure the integrity and confidentiality of the underlying data.[12] These proposed requirements, particularly those outlined in Appendix D, represent an initial step towards developing a secure audit trial. However, due to the nature and scope of the data that will be retained by the CAT Processor, additional measures must be taken to ensure the ongoing security and confidentiality of the information transmitted to and stored within the CAT.

Once populated, the CAT will be the world's largest data repository of securities transactions, maintaining data on more than one hundred million customer accounts and associated unique customer information.[13] Due to the near-limitless possibilities for such a rich data set by malicious actors, the CAT will stand as a large, valuable target for criminals and nation-states. To protect the stored data, the CAT must possess a robust, well-structured security framework.

In more detail below, we discuss specific feedback for the SEC's consideration to enhance the overall security framework of the CAT and the data stored within. Additionally, we provide additional comments regarding the importance of securing the Personally Identifiable Information ("PII") required by the Proposed Plan, which we agree warrants more stringent standards and requirements than the other order and trading data that will be stored within the system.[14]

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[10] *Id.* at Exhibit A 63.
[11] *See* SIFMA Statement on CAT Plan Proposed by SEC (Apr. 27, 2016)); *available at* http://www.sifma.org/newsroom/2016/sifma-statement-on-cat-plan-proposed-by-sec/.
[12] *See e.g.* CAT Plan Release, Appendix D - Data Security, and Functionality of the CAT System.
[13] *See e.g.* Summary of Consolidated Audit Trail Initiative, Slide 2; *available* at http://www.catnmsplan.com/web/groups/catnms/@catnms/documents/appsupportdocs/cat_consortium_process_background_050516.pdf.
[14] *See* CAT Plan Release, Appendix C - Section A. 4. (b): The Security and Confidentiality of the information Reported to the Central Repository (SEC Rule 613(a)(1)(iv)).

A. General Security Requirements

As a principal matter, CAT Data should never be extracted, removed, duplicated, or copied from the CAT. If surveillance is needed in conjunction with external data then the CAT should allow for importing of such data into the CAT query sub-system. Downloading CAT Data outside of the CAT Systems introduces additional risk and renders ineffective even the most advanced security measures that may be employed by the CAT Processor. By granting access to CAT data, under varying and amorphous circumstances to unnamed employees, SROs, or the SEC, the personal and economic information of more than one hundred million customers will be placed at an unacceptably multiplied risk due to the number of organizations and individuals who will have access to such sensitive data. SIFMA members recognize this risk and therefore all access to, and review of, CAT Data should only be done through the CAT Systems where strict access, entitlements, and other security measures can be employed by the CAT Processor. The circumstances in which any data should leave the CAT should be solely limited to the minimum amount of data required to facilitate the elimination of duplicative systems and to provide broker-dealers with access to the Raw Data which they have submitted to the CAT and the corresponding processed CAT Data.

Ensuring the security of the CAT is not limited to the manner in which users interact with the CAT Systems and the underlying data.[15] To further safeguard the CAT Data, additional focus is required as to how the data will be transmitted and stored within the Central Repository. The architecture of the Central Repository is currently unknown and left to the discretion of the CAT Processor. Explicit language indicating requirements for the overall security of data transmission and storage, rather than suggestions, should be included in the finalized CAT requirements.

The Plan highlights that the CAT System(s) must have encrypted internet connectivity, and that CAT reporters must connect to the CAT using secure methods such as private lines or Virtual Private Network ("VPN") connections over public lines.[16] SIFMA members agree that accessing the CAT Systems must be done via secure methods and that the SROs should consider mandating the usage of private lines rather than encrypted internet connectivity. Further, to provide a higher level of security, the CAT Processor's systems should be air-gapped from the internet, thereby eliminating access to the internet and/or any internal non-CAT systems used by the CAT Processor.

Further, *all* CAT Data should be encrypted at rest and in transit regardless of its type or the manner in which it is hosted. The CAT Processor should employ strong, evolving encryption and decryption standards that are continuously updated to meet the most stringent data

[15] SIFMA's discussion regarding the security of the CAT Systems and the underlying data applies equally to all tools, applications, and/or systems that may be developed by the CAT Processor for CAT Reporter access, as the information communicated via such tools or systems may be sensitive.
[16] *See* CAT Plan Release, Appendix D - Section 4. 1. 1: Connectivity and Data Transfer.

encryption requirements possible. For instance, at minimum, the CAT Processor must support end-to-end data encryption, with data decrypted at the desktop level.

Robust access controls and data encryption standards offer little protection if the data centers hosting the systems are not secure. To address this, the Plan provides that the data centers housing the CAT systems must, at minimum, be SOC 2 certified by an independent third-party auditor.[17] This requirement should be further strengthened and clarified to require that the data centers be *AICPA* SOC 2 certified, with such certification annually attested to by a qualified third-party auditor that is not affiliated with any of the SROs or the CAT Processor. In addition, should the CAT Systems be deployed and operated via cloud infrastructure, the cloud provider must be rated for security via the Cloud Controls Matrix from the Cloud Security Alliance.

Appropriate policies and procedures should be in place for user access administration, including provisioning of administrators, user data management, password management and audit of user access management. A federated authentication from the CAT reporter/accessor entity's user identity should be leveraged (especially for accessors who have access to data they have not submitted); this will add to multi factor authentication and allow for automated deactivation of users that leave the CAT reporter or accessor entity. There should be automatic deactivation for users who do not access CAT for specified period of time (e.g., 6 months), or whose access is not re-confirmed by their entity for 30 days during periodic access review, or whose firm account has been deactivated. The email address for CAT users should be immutable and should allow for change via admin review workflow. Shared user IDs should not be allowed.

In the event that there is a system or data breach, the Plan provides little detail on response or mitigation measures. Rather, the Plan simply states that the CAT Processor must develop policies and procedures governing its response to systems or data breaches, including a formal cyber incident plan.[18] More troubling, the Plan further highlights items that the cyber incident plan may, but is not required, to include (e.g., guidance on crisis communications, customer notifications). At minimum, the cyber incident plan must include proper notification procedures to the Operating Committee within a specified period of time (e.g., 24 hours), affected broker-dealers, other market participants, and law enforcement (e.g., Department of Homeland Security, Federal Bureau of Investigation). Further, the CAT should follow the requisite procedures mandated in the ordinary course of individual state reporting laws. CAT should also be subject to other existing data security and privacy standards like Regulation P, FISMA and FedRamp.

Finally, it should be noted that the CAT is a market regulation system that (1) falls within the definition of "SCI system" under Regulation Systems, Compliance, and Integrity ("Reg. SCI"), and (2) will be a SCI system of each of the SROs, because it is a facility of each SCI SRO

[17] *See* CAT Plan Release, Appendix D - Section 4. 1. 3: Data Storage and Environment.
[18] *See* CAT Plan Release, Appendix D Section 4. 1. 5: Breach Management.

that is a member of the Proposed Plan.[19] Accordingly, in addition to the cyber incident plan recommendations outlined above, as well as those discussed in the Plan, all of obligations associated with Reg. SCI must be complied with by the SROs to ensure the security and integrity of the CAT.

In the event of a breach occurring due in no part to the fault of the broker dealers, the CAT Processor, SROs, and SEC must indemnify the broker dealers from any and all liability. The CAT Processor must obtain adequate insurance to prepare for a breach scenario, and indemnify the affected broker-dealers, reimbursing those firms for reasonable costs related to such a breach. Further, in the event of a breach which occurs due in no part to the fault of the broker dealers, the at-fault party, whether it be the CAT Processor, an SRO, or the SEC, must communicate the fact that there has been a breach to the broker-dealers, other regulators, and the affected customers. Broker-dealer customers should be made aware that their broker-dealer was not the cause of such a breach.

B. PII

The security and confidentiality of PII must be held to the most stringent standards, particularly those related to security, access, and usage of PII. This is particularly important due to the serious risks associated with the intentional and unintentional access to such data. We agree that PII must be segregated from other transactional data that will be stored by the CAT Processor. As stated above, data, including PII, should never be extracted, copied, or downloaded in any manner or form from the CAT Processor environment. Other than as outlined above, there is no reason or justification to warrant downloading or extracting PII data from the CAT Systems in any other manner. No PII data should be recorded in e-mail or other electronic communication; instead a CAT information management tool should be used.

With respect to access to PII data, the Plan lacks the necessary specificity detailing *who* will have access to PII and *how* access will be restricted. Rather, the Plan simply states that the SROs and the SEC must be provided access,[20] with the CAT Processor being required to provide an overview of how such access will be restricted.[21] As a general matter, access to PII data should be provided only in the rarest of instances (e.g., SEC investigations of securities law violations), as regulators and other authorized users should be able to perform the majority, if not all, of their regulatory responsibilities by utilizing non-PII data, such as the CAT Customer ID.

In those limited circumstances where access to PII is necessary, Role Based Access Control ("RBAC") with authorization subject to a "need-to-know" basis should be employed. The CAT Processor must have protocols established that govern the request for access and the approval process to gain such access. For instance, the protocols must require that it be clearly

[19] *See* Regulation Systems Compliance and Integrity, Exchange Act Release No. 73639 (Feb. 3, 2015); CAT Plan Release, at 89-90 n. 246.
[20] *See* CAT Plan Release, proposed Section 6.5(C)(1).
[21] *See* CAT Plan Release, Appendix D Section 4.1.4: Data Access.

documented in advance what specific information the user is requesting and why that information is necessary. Should access be granted, the information returned must then be masked to return only the minimum amount of information necessary to fulfill the user's request. For instance, a market participant's social security number should rarely, if ever, be exposed. Further, access to PII should incorporate a temporal standard that limits a user's authorization to the minimum amount of time necessary to perform such function. In order to minimize the risk of data leakage, access to PII data should not overlap with access to the other transactional data available in the CAT Systems. Lastly, it is critical that all access to PII be routinely reviewed to determine if there exists an ongoing need, with the presumption that access is forfeited unless demonstrated otherwise.

Prior to finalization, broker-dealers should be given an opportunity to review and comment on the data security policies and procedures including user management, data management and cyber security for all CAT access. The Chief Compliance Officer ("CCO") and Chief Information Security Officer ("CISO") should be made available to answer broker-dealers' reasonable questions with regards to CAT information security.

IV. Implementation Schedule

As noted above, SIFMA believes CAT should be designed in the first instance to include information necessary to permit prompt elimination of redundant systems. However, SIFMA agrees with other commenters, such as the Financial Information Forum ("FIF"), that there should be additional time to reassess and more carefully tailor the accompanying schedules and milestones that are included in the Plan to make the roll-out of the CAT as efficient as possible. Notably, the Plan calls for CAT reporting obligations by smaller broker-dealers that have previously been exempt from OATS and other reporting. Implementation of CAT should include sufficient lead time to enable these firms to establish the internal structure, technical expertise, systems, and contractual arrangements necessary for such reporting. Otherwise, as noted in the estimates accompanying the CAT plan, duplicative reporting to both CAT and other regulatory systems is expected to last for between two and three and half years (depending on whether a firm is a small member as defined in the plan). Given that such costs are expected to approach $1.7 billion per year based on current reporting costs, special care should be taken to try to avoid long periods of redundancy. By taking care in building a methodical approach to implementation, CAT implementation will reduce such a possibility and benefit the SEC, SROs, and broker-dealers alike.

Additionally, reasonable time frames for implementation and compliance can only be evaluated and established once the CAT Reporter technical specifications have been published in connection with the selection of a CAT Processor. Currently, the Plan does not include critical information, such as interface details and other key technical specifications, noting that such decisions will be made by the selected CAT Processor. It is essential that broker-dealers understand the specifications as to functionality and interfaces that the CAT Processor intends to provide in order to establish a reasonable implementation schedule. At present, timeframes for various milestones, such as customer information reporting, are speculative at best given that

they are not tied to any concrete set of expectations. We endorse the observations offered by FIF in connection with the timelines set forth in the Plan. Given the scope and breadth of CAT, SIFMA strongly urges promulgation of the final technical specification before the establishment of timelines.

The implementation schedule should be designed to provide iterative interactions between broker-dealers and the CAT Processor in terms of developing and executing system specifications, particularly as those specifications relate to listed options transactions and customer information. Given that CAT will encompass new interfaces, new asset classes, and data fields of information that are new to regulatory reporting, we believe plans must allow iterative reviews of technical specifications and their execution – all with the goal of optimizing the efficiency and the quality of the results moving toward production. Additionally, SIFMA believes that a technical committee could be usefully established to work with the CAT Processor on refining the specifications and making necessary adjustments or accommodations as the specifications are developed and implemented.

Built into any timeline for implementation as well should be a robust testing period – ideally one that replaces a duplicative reporting period. As currently proposed, the Plan does not allow sufficient time for thorough testing – not only for broker-dealers, but other third-party service providers. We endorse the view that the schedule be adapted to accommodate the availability of a testing environment earlier in any implementation cycle and to provide for trial period to permit industry-wide testing of CAT readiness to ensure that the CAT Processor is capable of meeting reporting and linkage requirements outlined in the plan. Such CAT testing requires publication of the specifications well in advance. A robust testing period and an iterative process for development of the specifications will together provide the SEC and SROs greater confidence in the quality of data coming from the CAT from the beginning of its operations. This also will facilitate earlier retirement of systems such as OATS, especially if the development process includes navigating implementation of fields from OATS so that they are included in the initial CAT specifications.

V. Governance

SIFMA believes that effective governance is critical to developing and maintaining the CAT in a manner that achieves the SEC's objectives for the Plan. Specifically, the CAT should be governed in a transparent manner that delivers collaboration between the SROs and their members. To achieve this, SRO member firms must be integrally involved in the governance of the CAT with full voting rights. The current proposed governance structure, which provides for the CAT to be governed exclusively by the SROs, will undermine the likelihood that the CAT will successfully meet the SEC's objectives.

SIFMA has repeatedly requested that the SROs engage in meaningful consideration of broker-dealer voting participation in the CAT governance, but the SROs have declined to take any of our input. We are disappointed that the SROs instead have moved forward with a proposal to repeat the flawed governance structure currently used in other NMS Plans, despite

repeated reasonable requests for increased broker-dealer participation. The existing governance structure for other NMS Plans, which is being imported into the Plan, is ineffective and will provide broker-dealers with no meaningful participation in the development or operation of the CAT. That structure will prevent the CAT from operating in a manner that is workable for market participants.

A. Operating Committee

The CAT Operating Committee should include broker-dealer representation, and those broker-dealer SRO representatives should have full voting power on the Operating Committee.[22] The right to vote is an essential element of industry involvement in the governance of the CAT. Because the CAT will be a uniquely complex facility, the expertise and insight of broker-dealers will complement that of the SROs and bring necessary perspectives of the entities that will be providing the lion's share of the reported data to the CAT. Broker-dealer participation in CAT governance will be critical to ensure that the burden of systems and operational changes are properly balanced between the SROs and broker-dealers. Furthermore, the SROs expect the broker-dealers to help fund the costs of the CAT, and they have proposed a funding model under which the vast majority of the CAT building and operating costs would be imposed on the broker-dealer firms.[23] In light of the substantive need to include broker-dealers' expertise, plus the SROs desire to assess broker-dealers for the vast majority of CAT funding, it is beyond question that broker-dealers should have a direct voting role in the governance of the CAT.

To be clear, in advocating for a voting position within the CAT governance structure, SIFMA does not expect (or request) that broker-dealer representatives would have access to the surveillance patterns and other regulatory means by which the SROs will use the data collected by the CAT. The CAT will be a technical utility and the SROs' regulatory decisions will be made outside of the governance and operation of the CAT itself. Accordingly, there is no policy, regulatory, or other reason that the governance of CAT should not include representation outside the SROs themselves. Moreover, there is nothing in the Exchange Act, in Rule 613 of Regulation NMS, or in any other applicable rule under the Exchange Act, that would prohibit broker-dealers from fully participating in the governance of the CAT, with rights equivalent to the SROs in the administration of its affairs.[24] In fact, the Exchange Act requires broker-dealer voting representation on the board of the SROs themselves, both exchanges and FINRA. In light of the complexity and importance of the CAT, replicating this requirement to include broker-dealer

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[22] *See* SIFMA Comment Letter on Priorities for the Development Advisory Group (March 27, 2014); SIMFA Comment Letter on Proposed National Market System Plan Governing the Process of Selecting a Plan Processor (December 23, 2013); SIFMA Comment Letter on Selected Draft Plan Topics (June 11, 2013); SIFMA Comment Letter on Proposed CAT RFP Concepts Document (January 22, 2013); SIFMA Comment Letter on Consolidated Audit Trail (August 17, 2010).

[23] The SROs provided more detail to the DAG about the significant percentage of CAT costs that they want to push to broker-dealers. However, the SROs have not made that information public and have directed us to keep the information confidential. Accordingly, we are not providing the specific percentages provided to the DAG.

[24] Specifically, Rule 613 does not require that the governing board of the Plan be made up only of SRO representatives, and it does not preclude the SROs from including independent board members.

voting representation on the Operating Committee is logical and supported by the SEC's stated goals.

B. Advisory Committee

While SIFMA firmly believes that the governance structure for the Plan should include full voting representation for broker-dealers, we also offer comments in the alternative on the SROs' proposed Advisory Committee structure. SIFMA does not support the use of an Advisory Committee as a substitute for direct broker-dealer representation in CAT governance.

The SROs frequently remind SIFMA that indirect broker-dealer participation in the Plan governance will be available through Advisory Committee membership, as it is with the Advisory Committees to the other NMS Plans. However, the Advisory Committee structure has been wholly unsuccessful. Advisory Committee members are given no substantive voice in the operation of the NMS Plans, their role is without authority, and there is no mechanism for them to elicit or report feedback from the broad constituencies that depend on the utilities operated by NMS Plans. In addition, the SROs have a long history of conducting all meaningful NMS Plan business in executive session, from which Advisory Committee members are excluded. The SEC's Equity Market Structure Advisory Committee has considered this issue as well and issued recommendations consistent with the ones we provide below.

Several of SIFMA's member firms have representatives on the existing Advisory Committees of the NMS Plans. In their experience, the coordination between the Operating Committee has not worked. For example:

- The plans invite the Advisory Committee members only to so-called "official" meetings and then meet independently in "subcommittees." With the NMS Plans governing the SIPs, we have seen this translated into the Advisory Committee being included in a small portion of the overall meetings held.
- The SIP Operating Committees have provided limited time for Advisory Committee members to submit agenda items for meetings, and have refused to consider agenda items that are even one day late. In addition, the SROs require that each agenda item requested by the Advisory Committee be "sponsored" by one of the SROs.
- While the plans that have Advisory Committees clearly state that Advisory Committee members are entitled to see all documents, the Operating Committees have refused to share even routine documents. For example, when the Unlisted Trading Privleges ("UTP") Plan Operating Committee was preparing a new LLC agreement to replace the current plan, the Operating Committee refused to share any versions of the new plan with the Advisory Committee members, even after the new plan was filed with the SEC.

1. Selection of Advisory Committee Members

The members of the Advisory Committee must be selected in a manner that is independent from the SROs so that the committee may act as a representative voice of broker-dealers in the governance of the CAT. In this regard, members of the Advisory Committee should be selected by broker-dealer representatives, not by the SROs. This is particularly important in light of the conflict of interest that the SROs face. The SROs are sponsors and overseers of the Plan, while at the same time, the Plan will impose obligations on the same SROs. The Advisory Committee must therefore become and remain an integrated part of the CAT governance, rather than a peripheral body external to the actual decision making.

The purpose of the Advisory Committee should be to represent the interests of the industry and bring to bear the wide expertise of broker-dealers. As such, the makeup of the Advisory Committee should include participants with an appropriate representation of firm sizes and business models, such as: inter-dealer brokers, agency brokers, retail brokers, institutional brokers, proprietary trading firms, smaller broker-dealers, firms with a floor presence, and trade associations. Regardless of the business models represented, it is critical that the Advisory Committee be structured so that committee members are permitted to share information from the meetings with their colleagues and with other industry participants. In addition, an Advisory Committee member should be allowed to make other firm personnel available if the Advisory Committee is tasked with evaluating issues outside the members' subject matter expertise.

SIFMA also believes that efficient broker-dealer representation can be achieved by having one or more industry trade groups, such as SIFMA, provide a representative to the Advisory Committee. The experience with the DAG has demonstrated that trade group representation improves the Advisory Committee-type process by allowing for better coordination, marshaling of collective resources, and broader insight beyond the few directly represented firms.

2. Role and Function of Advisory Committee

Any discussion of the role of the Advisory Committee has to start with the proposition that the Advisory Committee should be involved in every aspect of the CAT. In this regard, the Advisory Committee should be included in every discussion and every meeting of the Operating Committee. For example, the Advisory Committee should be involved in every key issue, such as budgets, increases in fees and costs, new requirements that could place significant burdens on member firms, or determining when public comment should be solicited on critical issues before certain actions are taken. In particular, as noted above, this substantive participation will be critical to ensure that the burden of systems and operational changes are properly balanced between the SROs and broker-dealers.

It is critical that the Plan include key procedural safeguards in place in order to guarantee that the Advisory Committee is permitted to perform effectively. SIFMA notes, that in other contexts, such as under the CTA Plan and the Nasdaq UTP Plan, advisory committees that were originally intended to have an integrated role have instead been relegated to passivity and effectively excluded from the deliberation process. SIFMA believes that safeguards and

procedural protections must be implemented to create an advisory committee that will be able to be legitimately involved in the governance of CAT.

First, to prevent abuse of executive sessions, the SROs must be required to maintain specific written criteria that limit executive sessions only to situations where there will be a specific discussion of confidential regulatory information. SRO representatives voting to enter into an executive session must be required to submit a written explanation for why the executive session is required. These written records should be maintained for inspection by the SEC and Advisory Committee members to ensure that the purpose of the executive session is not abused.

Similarly, in order to ensure that the SROs fully consider the views of the Advisory Committee, the SROs should be required to document and provide the Advisory Committee with a written statement explaining the reasons for any SRO rejection of a written recommendation submitted by the Advisory Committee. These records should similarly be maintained for inspection by the SEC and Advisory Committee members. Without such a safeguard, the SROs would be free to ignore the Advisory Committee's suggestions without adequate consideration and analysis. The Advisory Committee could easily become a meaningless body that the SROs routinely disregard. If the Advisory Committee recommendations were to go unheeded without explanation, it would undermine the SEC's vision of and expectations for the CAT governance.

Further, to facilitate meaningful Advisory Committee participation and input, Advisory Committee members must have sufficient time to analyze information and formulate views before meetings. The SROs should therefore prepare agendas for meetings and provide documentation to be discussed at a meeting in advance. Without sufficient preparation time to address substantive issues, the value of the input from the Advisory Committee will be severely limited.

Finally, all information concerning the operation of the central repository should be made available to members of the Advisory Committee, except limited information that is specifically determined to be of a confidential regulatory nature. The SROs should be required to maintain a written record, for inspection by the SEC and the Advisory Committee members, explaining and documenting the basis for any material determination that is of a confidential regulatory nature and therefore excluded from the Advisory Committee. SIFMA disagrees with the proposal to require Advisory Committee members to adhere to strict confidentiality standards with respect to Advisory Committee matters. SIFMA firmly believes that any information shared with the Advisory Committee should be available to share with the firm represented on the Committee and other member firms. Advisory Committee members will represent particular categories of broker-dealers or other groups. In many cases, in order to best perform its advisory function and to provide substantive input in the decision making process, a committee member may deem it necessary to seek the views of others within his or her firm, or similar firms, that may have greater expertise regarding a particular matter. This sort of collaboration should be encouraged, not prohibited. This sharing of information is thus critical to the effective functioning of the Advisory Committee, and must be permitted.

These procedural safeguards are necessary to be sure that if the Advisory Committee does not have a substantive voting right, it is still able to remain an active part of the governance process, providing the benefits of overall industry insight that the SEC envisioned. SIFMA believes the broker-dealers' active participation in the ongoing governance of the CAT will help ensure the CAT workable for market participants.

C. Coordination Among SROs for Notices and Rule Filings

SIFMA believes the CAT should be administered by a single centralized body from a legal, administrative, supervisory, and enforcement perspective, rather than by nineteen separate SROs. We have made this point to the SROs repeatedly over the last four years, but the Plan only contains permissive language in this regard. There is nothing in the Plan to require coordinated compliance with CAT recording and reporting requirements. The Plan should require explicitly that the SROs must enter into agreements to provide that a single SRO will be responsible for enforcing broker-dealer compliance with Rule 613 and the Plan, whether this is accomplished through 17d-2 agreements, Regulatory Services Agreements, or some combination.

Without this coordination, the different SROs may interpret the CAT's requirements differently, impose different compliance requirements, and subject firms to duplicative enforcement. Such a situation would, of course, be inefficient and unworkable for firms that are members of several of the SROs. Coordinating these functions within one SRO (whether or not it is the CAT Processor) will create efficiencies and avoid regulatory duplication, potential inconsistent interpretations and interpretive guidance, and unnecessary compliance costs. Similarly, SIFMA believes that the centralized body should have authority and responsibility to enforce CAT reporting obligations.

D. Transparency of Operations

As a regulatory undertaking and industry utility, the CAT should be operated at-cost. Importantly, the CAT's costs and financing must be fully transparent, with publicly disclosed annual reports, audited financial statements, and executive compensation disclosure. The governance structure also should include an audit committee charged with oversight of how the CAT's revenue sources are used for regulatory purposes.

VI. Data Use and Ownership

The issue of data usage is a key element of analysis for the SEC in considering the Plan. SIFMA's comments on data use and ownership fall into two main categories. First, we discuss issues about ownership of and access to data. Second, we discuss issues about regulatory usage of data and provide an Appendix that includes an analysis of the use cases identified in the Plan.

In this regard, our comments generally cover two defined types of data described in the Plan, "Raw Data" and "CAT Data."

- "Raw Data" is defined as data submitted to the CAT by broker-dealers and SROs, but that "has not been through any validation or otherwise checked by the CAT System."[25]

- "CAT Data" is defined as data derived from data provided by broker-dealers, SROs, the Securities Information Processors ("SIPs"), "and such other data as the Operating Committee may designate as "CAT Data" from time to time."[26]

A. Ownership and Access by Broker-Dealers

SIFMA believes that broker-dealers reporting to the CAT should retain ownership and access rights in all Raw Data they submit to the CAT. This concept is not specified in the proposed Plan, and we request that the Plan be amended so that it is clear that broker-dealers retain ownership and access to their own Raw Data.

In addition, it has been SIFMA's basic expectation that the initial staging of the CAT should allow broker-dealers to access their own Raw Data and CAT Data. Each firm should be permitted to access and use its own CAT Data for any purpose consistent with the requirements of Rule 613. Allowing broker-dealers to access their own data will be beneficial for surveillance and internal compliance programs and may incentivize firms to make other internal improvements including, among other things, reducing potential reporting errors. It is axiomatic that broker-dealers should not be subject to additional fees to simply retrieve the data they already submitted to the CAT, especially since CAT is the only broker-dealer regulatory reporting service for which the SROs have proposed to impose system-specific fees on broker-dealers. If there is a user fee for broker-dealers to access their own CAT data, then it must be reasonable, equitable, auditable, and by the same logic there should also be a user fee for the SROs.

In this regard, broker-dealers should have access to all of their respective CAT Data in a format that can be utilized by firms for error correction, oversight and regulatory controls. This would include the entire transaction history of an order and lifecycle (including the error correction process) within the CAT Processor (including any changes and/or error corrections) so that a firm can retrieve the most current version of the order history. In addition, broker-dealers should have the ability to view all of the data elements in their CAT Data that the regulators view (excluding data they are not privy to or any PII not related to the broker-dealer). Other than PII (such as the name of the customer on the other side of a trade), we do not know of any information in an order audit trail that would not be otherwise available to a broker-dealer; in fact, the SEC recently proposed a rule that would require broker-dealers to provide this very type of information to customers.[27]).

B. Ownership and Access by SROs and the CAT Processor

[25] CAT Plan Release, at Exhibit A 9.
[26] *Id.* at Exhibit A 3.
[27] Disclosure of Order Handling Information, Exchange Act Release No. 78309 (July 13, 2016)..

The Plan should be amended to state specifically when the SROs may – and more importantly *may not* – use Raw Data or CAT Data for commercial purposes. As proposed, the Plan is inconsistent on the SROs commercial use of data. Section 6.5(f)(i)(A)(2) of the Plan states that each SRO may use its own CAT Data for "commercial or other purposes as permitted by applicable law, rule, or regulation."[28] Under Section 6.5(h) of the Plan, SROs are permitted to use their own Raw Data for "commercial or other purposes as otherwise not prohibited by applicable law, rule or regulation."[29] However, the SROs should not be allowed to commercialize any of the CAT Data and the Plan should make that clear.

Similarly, the CAT Processor should be prohibited from using, transferring, or selling any Raw Data or CAT Data for commercial purposes – directly or indirectly. The current CAT bidders include companies well-known for sophisticated data mining abilities. Accordingly, the Plan should be very clear that the CAT Processor is not permitted to use its access to Raw Data or CAT Data for any commercial purpose, nor is it permitted to facilitate others to do so, except for access and use of Raw Data or CAT Data by broker-dealers that own such data

In addition, SIFMA objects to the broad grant of access to CAT Data that would be given to all of the SROs. Section 6.5(c) of the Plan provides that the SEC and the SROs would have access to all CAT Data stored in the Central Repository. Instead of an open-ended protocol, the Plan should specify the levels of access that each SRO may have to CAT Data. Of course, the SEC should have access to all CAT Data because it regulates the entire securities industry. The FINRA should have access to all CAT Data for off-exchange trading and for exchange trading as necessary to perform cross-market surveillance under regulatory services agreements ("RSAs"). However, the SROs' access to CAT Data should be narrowly granted. More specifically, each SRO should have access to CAT Data only for trading activity conducted on that exchange, unless the exchange can demonstrate and document a specific need for that additional information. In addition, the Plan should be much more specific and prescriptive than currently drafted about limiting exchange access to the CAT to specifically identified regulatory staff.

C. Regulatory Usage of Data

The Regulator Use Cases[30] section in the adopted Rule 613 includes a non-exhaustive list of "use cases" and accompanying questions that were meant to assist the SROs' understanding regarding the type of information and level of detail the Plan could include, which will help SEC in its evaluation. Per the Rule,

> "use cases" describe the various ways in which, and purposes for which, regulators would likely use, access, and analyze consolidated audit trail data. By describing how regulators would use the consolidated audit trail data, the "use cases" and the related questions are meant to elicit a level of detail about the considerations that should help the SROs prepare an NMS plan that better

[28] CAT Plan Release, at Exhibit A 53.
[29] *Id.* at Exhibit A 55.
[30] Adopted Rule 613 – Section III. C. 2. B (Pages 288-299)

> addresses the requirements of the adopted Rule. They should also aid the Commission and the public in gauging how well the NMS plan will address the need for a consolidated audit trail. In particular, the "use cases" will assist in gauging how well the NMS plan will specifically address the needs outlined in this Rule, by describing the features, functions, costs, benefits, and implementation times of the plan.[31]

There is significant effort involved in implementing the access for regulators and building the reporting functionality. How these regulatory use cases are supported have direct implications for broker-dealers:

- Any aspect that the Plan does not provide details for could potentially delay the implementation.

- If the SEC and SROs are unable to utilize the CAT system in an effective manner it could result in these regulators continuing to rely on existing reports that are meant to be retired, defeating the very purpose of CAT.

This will result in additional burden for broker dealers over a prolonged period in excess of the transition period envisaged (which is currently expected to be 2.5 years after broker-dealers start reporting to CAT as discussed at the SEC Open Meeting on April 27, 2016).

The Plan falls short of providing any details on how the regulators will be able to perform their day-to-day analysis using CAT data, which is one of the main objectives of CAT. Ideally, the CAT Repository should be able to facilitate some of the typical but very complex analyses of the CAT Data. For example:

- Market reconstruction to analyze a particular market event: On a certain day when there is unexpectedly high volatility in the market, the regulators may want to recreate the order books in order to understand the movement of every order, quotes and stock.

- Surveillance: Regulators may want to understand if there are any patterns or trends in the trading activity which can be done by analyzing the data in bulk form.

- Analysis related to back testing proposed rules or rule changes (e.g. Limit Up/Limit Down, Tick Pilot).

- Calculations to inform rulemaking: Statistics on order flows, rates of cancellations, short-term volatility.

[31] Exchange Act Release No. 67457 at 288 (Jul. 18, 2012).

All of the above are traditional big data analysis scenarios. However, the plan neither goes into any specific analysis nor does it provide any requirements on any specific analytical needs for SROs and SEC. Rather, the Plan treats these issues generically by saying that the Repository needs to have an open application program interface ("API") and must support JDBC.

As currently written, the Plan gives the impression that the CAT Repository is just a database from which regulators will extract data and that there is no analysis that can be performed in the same environment the CAT data is hosted on. This means that all of the analyses that regulators would like to do, must be done outside of the CAT Repository and within the regulators' own infrastructure. This suggests a very high probability of multiple copies of CAT data that will be extracted and stored by the SROs and the SEC. The Plan does not contemplate some of the negative consequences of allowing bulk extraction - security concerns and cost of storing multiple copies of CAT Data with various SROs. Furthermore, the Plan does not describe the systems, tools and technologies needed in the regulators' infrastructure to store and consume such massive amounts of data on a regular basis. The Plan assumes that the SROs and the SEC understand and know the necessary technology enhancements they need to make and the associated licensing costs in order to extract and use the CAT Data for monitoring, surveillance and market reconstruction purposes. In general, for the analytical tools and standard statistical packages to work efficiently, they need to be installed and operated in close proximity to the data, ideally in the same environment. The Plan does not contemplate whether it is technically feasible to have the analytical tools installed in regulators' environments to access the CAT Repository via the open API and perform the analyses. Such issues should be discussed as part of the Plan because they will have significant consequences for the SEC, SROs, and Processor alike.

Attached as Exhibit A is an analysis of each use case identified in the Plan, specifying the areas in the Plan that require additional clarity. In summary, SIFMA makes the following three recommendations:

- In its technical appendix, the Plan does specify some detailed requirements on search and extraction of data but the Plan does not provide details on the analytical capabilities that the CAT Repository should possess. The Plan should clearly specify what the analytical capability requirements are, as this will inform the SROs about the level and limits of the CAT Repository's analytical capabilities.
- The Plan should precisely describe the technology enhancements the SROs and the SEC need in order to effectively and efficiently use the CAT Data.
- The ability to meet the Regulator Use Cases should be a key criteria in the Bidder selection process so that the CAT Bidders are required to prove that their solution is capable of facilitating regulators' need to extract and analyze the data.

VII. Operational Issues

A. Clock Synchronization

1. Management

Because Rule 613 requires clock synchronization to be in effect by four months after the Effective Date, SIFMA believes that the Plan should detail the regulatory requirements necessary for managing clock synchronization as soon as possible. Such details are essential to facilitate the creation of uniform processes and procedures across the industry as well as reasonable, effective compliance-related oversight.

2. Single Standard

SIFMA agrees with other industry commenters who believe that a single clock synchronization standard should be adopted by FINRA and the Plan for purposes of regulatory reporting. Broker-dealers and regulators alike would benefit if the time stamp considerations, including offset tolerances and synchronization management, were managed similarly for CAT and other FINRA reporting purposes. To manage multiple clock synchronization structures across report types would present unnecessary difficulties for broker-dealers and unnecessary reconciliation issues for the SEC and SROs.

3. Managing Modifications

SIFMA further agrees with the FIF observation that clock synchronization should be reviewed annually. In addition, new requirements should be extended for sufficient periods of time (e.g., three years) due to the costliness and disruption associated with changes in clock synchronization.

Sufficient lead time is required if changes in clock offsets and time stamps are being contemplated or when CAT reporting is required on new CAT events that would expand the scope of clock synchronization across the enterprise (e.g., introduction of a new asset classes for CAT reporting). SIFMA agrees with the observation that at least one year of lead time would be required to meet a 50 millisecond clock offset for new applications/servers not covered by the current Plan and that for clock offsets below 50 milliseconds, two years lead time is necessary due to the required infrastructure upgrades. We note in this regard the FIF Clock Offset Survey and its documentation of changes required to achieve 50 millisecond and below clock offsets and the prohibitive expenses with few benefits as clock offset moves below 50 milliseconds.

4. Clock Offsets

SIFMA supports maintaining the current Plan requirement for millisecond level time stamps and 50 millisecond clock offsets for electronic order events. SIFMA recommends that clock offsets for (i) order/trade-related electronic events managed by the broker-dealer and service bureau community should be 50 milliseconds; and (ii) manual orders should be one second. Events that are not time critical (e.g., post trade events) and include a combination of

manual and electronic management should be treated as manual orders for purposes of clock synchronization requirements, allowing for a one-second clock offset.

Although it may be technically feasible for systems capturing manually processed orders to record time stamps at a precision level beyond one second, the practical reality is that these records would be inherently imprecise due to the nature of manual intervention, which can take over a second. Manual order taking necessarily involves several steps, each of which impacts timestamp capture. These include taking of an order via phone, fax, email and then manually capturing the order into an electronic order management system. As a result, it is not logical to require time stamps at a greater level of specificity than one second. Doing so would present the impression of greater precision than is realistic to capture with any reliability and create a false sense of accuracy. As a consequence, any presumed benefits of requiring this additional level of specificity simply do not justify the substantial costs that would be required across the industry to implement such a requirement. SIFMA agrees with its colleagues at FIF in stating that there is no regulatory benefit to a more precise time stamp for manual orders which are based on a process which, by definition, is not precise.

SIFMA believes that a CAT Reporter should not be required to include more granular time stamps on a CAT Report even when the Reporter captures that level of detail in its normal practice. Such reporting would require changes to all layers of servers, software and databases between point of time stamp capture to the final CAT reporting layer. This process is unnecessarily expensive – and would be imposed only on those that choose to track this level of time stamp for business purposes. This result would be inequitable and would not serve a regulatory purpose. Notably, the SEC has indicated previously that delays under one millisecond are to be considered *de minimis*.[32] Requiring certain broker-dealers to incur substantial costs to report such *de minimis* differences is unwarranted.

B. Time Stamp on Allocations

SIFMA believes that time stamps should not be required in the Plan for allocations, as allocations are a post-trade process and not time-critical. Time stamps related to allocations were not established as a regulatory requirement under Rule 613, and the introduction of a requirement for time stamping such allocations would represent a potentially costly and misleading reporting requirement divorced from the goals of CAT. However, if the Plan is adopted with time stamp required on allocations, SIFMA believes that a timestamp granularity and clock-offset tolerance similar to manual order handling would be deemed acceptable.

C. Open / Close Indicator on Equities

The Open/Close Indicator on Equities is not captured today. To include this data element would require significant process changes and involve parties other than CAT Reporters, such as buy-side clients, OMS/EMS vendors, and others. If the SROs and the SEC believe there is value

[32] *See* SEC Staff Guidance on Automated Quotations under Regulation NMS (June 17, 2016); *available at* https://www.sec.gov/divisions/marketreg/automated-quotations-under-regulation-nms.htm.

in obtaining this data for surveillance purposes, a rule proposal covering this request, which includes a thorough cost-benefit analysis, should be filed for public comment. SIFMA agrees with its colleagues at FIF that this is an important issue to be addressed.

D. Primary Markets

To ensure a clear understanding of the requirements under consideration, SIFMA first seeks clarification about what is meant by primary market transaction "allocations." SIFMA believes Rule 613(a)(1)(vi) references the final step in the allocation process, i.e., when securities purchased in a primary market transactions are placed into a customer's account, and does not include the preliminary internal allocations made during the book-building process. SIFMA advocates that if reporting obligations are extended to include primary market transactions, this obligation should apply only to the final allocation point.[33]

That being said, SIFMA advocates that consideration of including primary market transactions to the CAT reporting obligations should be delayed until OATS and other regulatory reporting systems have been retired. Furthermore, primary market transactions should not be added to the CAT until regulatory and surveillance requirements have been defined. While some firms may achieve some cost savings once redundant systems are retired, there is a general industry concern about mounting regulatory expenses. As a result, SIFMA cautions against the premature inclusion of primary market transactions.

Finally, SIFMA does not agree with the SEC's assessment that top account allocation should be a required data element for CAT. At the SROs' request, the DAG, with SIFMA's input, presented information to the SROs that included a cost study, available at: http://www.catnmsplan.com/industryfeedback/p602480.pdf. The DAG recommended that if primary market transactions are included in the CAT, then only the sub account allocation should be included – not the top account allocation. The DAG determined that sub allocation submissions are most feasible from an operational perspective. As a result, SIFMA does not support the submission of top account information.

E. Legal Entity Identifier ("LEI")

SIFMA has been a strong supporter of the benefits of the LEI since the earliest days of the initiative to create a global standard entity identifier and has called for regulators to mandate its use in regulatory requirements on numerous occasions. For CAT, SIFMA agrees that the system should provide for the capture and reporting of LEIs for customer identification, but we believe that it would be more appropriate to provide a transitional approach to the actual collection of the LEIs. SIFMA members support an approach in which broker-dealers would provide the LEI to the CAT in each instance where the LEI is already known and collected.

[33] We understand that this position also is supported by FIF, the SROs, and DAG.

Recognizing that the use of LEIs will grow significantly over time as regulations mandate LEIs for all participants in the financial markets, SIFMA believes it is important that the CAT system be established in a way that captures this important identifier as part of the initial implementation of the system, rather than having to adapt the system at a future date. Then, over time, as customers naturally obtain an LEI, it can be provided to the broker-dealers and into the CAT system.

Using the global standard will allow for the unambiguous identification of the entities submitting information to the CAT system. This will ensure good quality of the entity information, reporting, risk management within the CAT system and for the SEC and should create efficiency from an operational perspective. Using the LEI will allow the SEC to be clear about the identity of entities it is monitoring and to the extent there needs to dialogue about a company with other regulators, use of the LEI will facilitate that conversation. Furthermore, as the LEI system starts to collect and populate the data on parent and subsidiary information within the LEI system, the CAT will be able to avail itself of that knowledge to better understand the relationship between entities that it is monitoring. In sum, use of the LEI is important for both risk management as well as operational efficiency. Further, by using the LEI wherever possible, customers will be better protected from possible misidentification of identity than might be the case when using naming conventions and addresses for such identification.

VIII. Conclusion

Thank you for your consideration of our views in connection with the National Market System Plan governing the CAT. SIFMA would be pleased to discuss these comments in greater detail with the SEC and the Staff. If you have any questions, please contact T.R. Lazo at [redacted] or [redacted], or Ellen Greene at [redacted] or [redacted].

Sincerely,

Theodore R. Lazo
Managing Director and
Associate General Counsel

Ellen Greene
Managing Director
Financial Services Operations

cc: Mary Jo White, Chair
Kara M. Stein, Commissioner
Michael S. Piwowar, Commissioner

Stephen Luparello, Director, Division of Trading and Markets
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Gary Goldsholle, Deputy Director, Division of Trading and Markets
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Exhibit A

1. Use Case: Analyses Related to Investigations and Examinations

This category focuses on the ability of the SEC and SROs to efficiently conduct targeted investigations and examinations, by conducting several types of queries on large amounts of data and extract targeted segments of such data in addition to bulk extracts on a daily basis. The SEC expects the functionality to support both off-line analysis[34], and Dynamic Search and Extraction[35].

In response to the question "What *technical or procedural mechanisms will regulators be required to use to request data extractions?"* the Plan requires that the SROs should have access to processed CAT Data through two different methods, an online-targeted query tool and user-defined direct queries and bulk extracts (Refer Appendix D-Section 8 of the Plan). The Plan itself does not provide details of the technical or procedural mechanisms (e.g. steps required to access the tool, infrastructure to support access) on how the regulators will access either the online-targeted query tool or submit user defined direct queries. However, the Plan requires the CAT Processor to provide the draft details six months before the SROs are expected to start reporting with the finalization of the document a month before the reporting starts (Refer Appendix C.10.d of the Plan).

There is a potential risk that six months may not be enough for the 19 SROs to identify, implement and test the changes required to access CAT. To mitigate the risk of SROs not being able to identify and implement changes at their end within the timeline described in Rule 613(c)(i), it is recommended that: (a) the Plan provide additional clarity on the type and magnitude of changes that each SRO would need to implement to perform queries and extract data from CAT; and (b) as part of the Bidder Selection process, the Bidders should be explicitly evaluated based on how their proposed solution would impact the readiness of the SROs to support the functionality.

In response to the set of questions regarding the response times and scaling of response times with amount of data requested [36] for the Online Targeted Query tool, the Plan provides details of the minimum response time requirements based on a combination of the multiple dimensions: simple vs complex queries, the date range for which information is required, security type (equities or options), CAT Reporters for which data required, specific event vs multiple events, whether NBBO information required, specific security vs list of securities, etc.)

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[34] The SEC defined "off-line" analysis as "any analysis performed by a regulator based on data that is extracted from the [CAT] database, but that uses the regulator's own analytical tools, software, and hardware." Adopting Release at 45798 n.853.
[35] Adopted Rule 613 – Section III. C. 2. b. 1 (Page 291).
[36] Adopted Rule 613 – Section III. C. 2. b. 1. ii (Page 290).

as defined in Appendix D of Section 8.1.2 of the Plan.

The Plan needs to capture a mutually exclusive and collectively exhaustive list of combinations for which minimum response times are required. In addition, the Plan should provide specificity to the definition of what constitutes a complex query.

In response to the set of questions related to the Dynamic Search and Extraction[37] the Plan requires that the CAT Processor provide the ability to process user-defined direct queries and extract bulk data. The dynamic search criteria can be specified through programmatic interfaces to create, save and run a query. In order to manage volumes, the CAT Processor may define a limited set of basic required fields that are to be used in direct dynamic queries. The Plan requires a minimum of 3000 queries on a daily basis should be supported with ability to support approximately 1800 queries concurrently of which 300 queries can be supported without any performance degradation.

However, the Plan does not define a baseline performance for dynamic search and extraction against which the performance degradation could be compared. The Plan may benefit from providing response time expectations for dynamic search queries given the specific set of basic required fields that the CAT Processor is expected to define. It is recommended that the technical architecture of the various Bidders is reviewed for performance implications with respect to dynamic search by a technical panel of experts with representation from broker-dealers as part of the Bidder Selection process.

2. Use Case: Analyses Related to Monitoring, Surveillance and Reconstruction

This category focuses on regulators ability to perform analysis on CAT data in bulk form in order to comply with the surveillance requirements.

For the question, '*What, if any, SRO surveillance data could be replaced by the consolidated audit trail while still improving SROs' ability to surveil?*', Appendix C – Section C. 9 of the Plan merely describes the timeline by which the SROs will review potential duplicative systems and merely commit to completing this review between 12 and 18 months after large broker-dealers are required to begin reporting data to CAT. Finalizing the duplicative systems and reports after the Plan is approved increases the risk of inability and/or delays in retiring potentially duplicative systems. It is recommended that the Plan incorporate discussion of a plan to eliminate existing duplicative rules and systems into the Plan itself. For further details please refer to section regarding "*Elimination of Duplicative Systems*" above.

In response to the set of questions on regulators' ability to extract data and perform analyses

[37] Adopted Rule 613 – Section III. C. 2. b. 1 – Dynamic Search and Extraction (Page 291).

using APIs and bulk extraction tool,[38] Appendix C – Section A.2. (b) & (c)[39] and Appendix D – Section 8.2[40] of the Plan describe that the SROs are agnostic as to how bulk extracts are implemented as long as the solution provides an open API that allows regulators to use analytic tools and can use ODBC/JDBC drivers to access the data. The Plan further requires that the controls similar to the online query tools are implemented. While the Plan has not mentioned any requirements on the number of systems that need to be connected to the database, the Plan does require the CAT Processor to process up to 300 simultaneous query requests with no performance degradation. For User-Driven Direct Query, the Plan requires the CAT Processor to include workload balancer to allow prioritization and processing of queries and delivery of results. Although not explicitly stated, it can be inferred that the Bulk Extract tool must also have the same requirement.

The Plan also requires that for bulk extracts of an entire day of data, the minimum acceptable transfer time of equity and options data is four hours (assuming there are no limitations in the individual regulator's network). It could be inferred that regulators could extract data on an end of day basis for the entire day's activity by scheduling queries. The Plan further requires that the information provided to regulators replace the current Intermarket Surveillance Group ("ISG") Enterprise Compromise Assessment Tool ("ECAT") and COATS compliance data files with additional data fields that CAT may be able to provide.

However, the Plan does not provide any specifics on the types of technologies or systems that would be required for regulators to download the data or connect to the API to be made available by the CAT Processor. It would be beneficial if the SROs incorporate their individual implementation plans with intermediate milestones for identifying and implementing internal changes for meeting the surveillance requirements as part of the Plan.

Unless more detailed technical requirements related to data extraction and API connectivity are included in the Plan, a determination of whether or not a proposed Bidder's solution would in fact meet the needs of the SROs (and of CAT more generally) would have to be done at the time of the final bidding process. It will be important at that time that the technical architecture proposed by the Bidder is reviewed and assessed by a technically-qualified panel. It is recommended that the Plan also specify that the selection of the Bidder is contingent on passing specific volume testing requirements as decided by the expert panel.

With respect to the set of questions on regulators' access to plan-hosted applications or interfaces,[41] it could be inferred that the Plan does not mandate the CAT Processor to implement plan-hosted analytical tools. This is a functionality some of the Bidders may provide. Without further detailed requirements in the Plan, as part of the Bidder Selection process the Bidders should be evaluated on if/how their proposed solution will provide any hosted analytical tools that will

[38] Adopted Rule 613 – Section III. C. 2. b. 2. iv and v (Page 293).
[39] Appendix C – Section A.2. (b) : Method by which Data will be Available to Regulators
Appendix C – Section A.2. (c): Report Building – Analysis Related to Usage of Data by Regulators.
[40] Appendix D – Section 8.2: User-Defined Direct Queries and Bulk Extraction of Data.
[41] Adopted Rule 613 – Section III. C. 2. b. 2. iii (Page 292).

reduce the burden on the SROs. It is also recommended that the evaluation is conducted by a technically-qualified panel.

3. Use Case: Order Tracking and Time Sequencing

This category focuses on the method and approach that will be undertaken for order tracking and time sequencing as well as the implications on CAT Reporters (SROs and Broker-Dealers) to meet the necessary requirements.

In response to the set of questions on the approach required to minimize inaccuracies, either due to inter system timing or inability of members to provide timestamp at the required level of granularity,[42] Appendix C – Section A.3.(c)[43] of the Plan requires the CAT Processor to develop a way to accurately track the sequence of events without relying entirely on timestamps. However, the Plan does not provide specifics on the approach required to minimize such inter-system timing issues despite the inclusion of the millisecond time stamp requirement. It is recommended that the Plan provide granular requirements on the approach and mechanism that is expected of the CAT Processor so that the CAT Processor does not rely solely on time stamp for sequencing. This is extremely important as the requirement may impose an additional burden on broker dealers to modify their systems in order to support such a proposed approach.

In response to the set of questions on the magnitude of changes on the regulators to receive CAT data[44], the Plan does not provide specifics on the changes required by each of the regulators. It is understood that implementation of CAT is a complex change and regulators would require time to identify the specific changes required in their systems. It would be beneficial if the regulators incorporate their individual implementation plans with intermediate milestones to meet the overall timeline as specified in the Rule 613 (a).3.iii.

In response to the set of question related to the technical form and the ability of the broker-dealer to generate order identifiers[45], Appendix C – Section A.1. (b) [46] of the Plan requires a daisy chain approach where a series of unique order identifiers assigned by CAT Reporters to individual order events are linked together by the CAT. The order identifiers are assigned a single CAT-generated CAT-Order-ID that is associated with each individual order event and used to create the complete lifecycle of an order. Within this approach, each CAT Reporter generates its own unique order ID but can pass a different identifier as the order is routed to another CAT Reporter. The CAT will link related order events from all CAT Reporters involved in the life of the order. While the Plan does not provide details on the extent of the change required by broker-dealers, it is expected that the daisy chain approach will reduce the impact on the broker-dealer systems. The technical specifications on how the Order ID should

[42] Adopted Rule 613 – Section III. C. 2. b. 3. viii and ix (Page 296).
[43] Appendix C – Section A.3.(c): Sequencing Orders and Clock Synchronization (Appendix C - 25).
[44] Adopted Rule 613 – Section III. C. 2. b. 3. v (Page 295).
[45] Adopted Rule 613 – Section III. C. 2. b. 3. ii (Page 295).
[46] Appendix C - Section A.1.(b): The Manner in which the Central Repository will Receive, Extract, Transform, Load, and Retain Data (Appendix C - 10).

be reported are pending publication of the Technical Specifications document because of the CAT Processor must be identified prior to publication.

For the question, "*If multiple methods for collecting and aggregating are contemplated by the NMS plan, what are the pros and cons of each method*?", Appendix C - Section A.1. (b) describes two approaches; the first approach is to use existing industry messaging protocols (e.g. FIX) and the second approach is to use a defined or specified format, such as an augmented version of OATS. The SROs are not mandating the data ingestion format for the CAT as a cost study did not reveal a strong cost preference for either approach. In terms of the linkage and aggregation, SROs reviewed the proposed solutions of the CAT bidders and, after discussions with broker-dealers, concluded that daisy chain approach will be used. This will reduce the

burden of new data on the broker-dealers.

It is recommended that comments are received from the broker-dealers after the publication of the technical specifications (taking into account the time required by broker-dealers to conduct analysis of impact on their respective systems). This will inform the amount of time that would be required by broker-dealers to implement changes to support CAT requirements after the Technical Specifications are finalized.

4. Use Case: Database Security, Contingency Planning, and Prospects for Growth

This category focuses on the ability of the CAT Processor to manage authorized access and confidentiality of data, scale capacity to handle volume growth, and robustness of contingency and business continuity plans.

For the question on, '*How will the plan ensure the security of the database in a way that provides for flexible access by permitted users at multiple regulators (i.e., the Commission and the SROs), but denies access to all other non-permitted users?*', Appendix C – Section A.4[47], Appendix D – Section 4[48] and Appendix D – Section 8.1.3[49] of the Plan requires the following at a minimum for ensuring security of the database:

(a) CAT systems must have encrypted connectivity and usage of secure methods such as private lines to access the database.

(b) RBAC model must be used to access different areas of the CAT system providing ability to define, assign and monitor entitlements that could be granted to authorized users down to the data attribute level.

(c) CAT Processor must develop and maintain a mechanism to confirm the identity of all persons permitted to access the data, with roles being documented and periodic reports provided to the Regulators.

(d) Remote access to authorized users must use multi-factor authentication with industry standard password rules, storage and recovery mechanisms.

(e) PII data should be separated and treated differently in terms of access (separate roles and passwords), storage (stored separately from transactional data) and access (not accessible from public internet connectivity).

However, the Plan does not provide further details on how PII data will be specifically treated and confidentiality maintained. It is recommended that the Plan provide more details on how the PII data confidentiality will be protected during the extraction and transmission of such data. As part of the Bidder Selection process, the Bidders should be evaluated on how their proposed solution will meet the confidentiality requirements, by a technical panel of experts with representation from broker-dealers.

In response to the set of questions related to contingency plans,[50] the Plan provides the requirements in Appendix D – Section 5. The Plan requires the CAT Processor to implement an architecture where there is no single point of failure of critical aspects of the CAT system. The Plan requires a secondary site that can fully take over in the event of primary site outage.

However, the Plan does not describe how the primary and the secondary sites will remain synchronized at all times in order to provide a seamless transition from primary site to secondary site in the event of a failure. The Plan would benefit if additional details are specified regarding the expected elapsed time for the secondary site to become live if the primary site goes down due to a technical failure or a disaster.

The requirement for Disaster Recovery plans do not describe specifically whether regulators will have uninterrupted access to the CAT data, although it can be inferred that the secondary site should provide all the functionalities of the primary site in the event of primary site outage. While it is generally mentioned that the goal should be to achieve next day recovery after a disaster event, it is recommended that the Plan provide a list of various scenarios and the expectation of the recovery times for each scenario.

In response to the set of questions related to volume increase[51], the Plan has laid out the general principles regarding accommodation of the growth in volume. It is critical that the technical architecture proposed by the Bidder is reviewed and assessed by an expert panel chosen by broker-dealers. It is recommended that the Plan also specify that the selection of the Bidder is contingent on providing a specific volume testing requirements as decided by the expert panel.

In various sections, the Plan specifies the need for the CAT Processor be compliant with the Regulation SCI requirements. Accordingly, it is recommended that compliance with Regulation SCI requirements is an explicit evaluation criterion as part of the selection process for the CAT Processor.

5. Use Case: Database Access

This category focuses on storage, archival and retrieval of historical data.

For the question, "*How will data be archived if it is no longer stored on-line? How will regulators access and search data that has been archived?*" Appendix C Section A.1.(b)[52] and Appendix D Section 1.4[53] of the Plan specify that CAT data will be stored 'on-line' for period of

[47] Appendix C – Section A.4: The Security and Confidentiality of the Information Reported to the Central. Repository (SEC Rule 613(a)(1)(iv)).
[48] Appendix D – Section 4: Data Security.
[49] Appendix D – Section 8.1.3: Online Targeted Query Tool Access and Administration.
[50] Adopted Rule 613 – Section III. C. 2. b. 4.iii (Page 297).
[51] Adopted Rule 613 – Section III. C. 2. b. 4.iv (Page 297).
[52] Appendix C Section A.1.(b) - The Manner in which the Central Repository will Receive, Extract, Transform, Load, and Retain Data.
[53] Appendix D Section 1.4 – Data Retention Requirements.

up to six years. The Plan requires that the CAT Processor have in place a record hold program for 'specific CAT data' for as long as necessary.
The Plan should provide specific requirements on how CAT data should be archived after on-line storage period is completed and the specific minimum duration for which archived data needs to be stored.

For the question, '*Will third parties have access to historical data? How will this access differ from the regulatory access?*' the Plan needs to explicitly specify if access will be provided to parties beyond the SEC and SROs. It is recommended that access be provided to broker-dealers for their own internal analysis. The Plan should also specify requirements on how the access will be obtained and how broker-dealers will or will not be able access each other's data.