TOWER RESEARCH CAPITAL

May 12, 2021

Via E-mail to rule-comments@sec.gov

Ms. Vanessa Countryman
Secretary
U.S. Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-0609

Re: Notice of Filing of Amendment to the National Market System Plan Governing the Consolidated Audit Trail (File No. 4-698)[1]

Dear Ms. Countryman:

Tower Research Capital LLC[2] ("Tower") appreciates the opportunity to comment on the above referenced proposed amendment to the National Market System Plan Governing the Consolidated Audit Trail ("CAT NMS Plan") to implement a revised funding model ("Proposed Funding Model") for the consolidated audit trail ("CAT") (the "Proposal").

The Proposal has been submitted by the Plan Participants (national securities exchanges and FINRA) (the "Participants"), who also form the CAT Operating Committee. The Proposal seeks to amend the CAT NMS Plan in order to reallocate the historical costs ("Historical Costs") and seeks to establish a model for allocating future operating costs ("Operating Costs") associated with the CAT.

The Participants recommend that they should be responsible for 25% of both Historical Costs and Operating Costs, while "Industry Members" (i.e. broker-dealers) should be responsible for the remaining 75%. The Proposal further recommends to allocate the Industry Members' share of the costs to each Industry Member according to its "message count" -- which is defined by the raw number of events that each Industry Member is required to report to the CAT.

Tower has several concerns about the Proposal, including:

- The lack of transparency and analysis provided with the Proposal;
- The costs are much too high and far beyond the original estimates;
- The Participants' inherent conflict of interest in making any such proposal is not addressed or safeguarded; and
- The allocation methods suggested may create adverse effects on Industry Members and the marketplace, and no reasonable analysis addressing such adverse effects is provided.

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[1] SEC Rel. No. 34-91555; File No. 4-698 (April 14, 2021), available at www.sec.gov/rules/sro/nms.htm#4-698

[2] Tower Research Capital LLC is a proprietary trading firm that owns two SEC registered broker-dealers, Latour Trading LLC ("Latour") and TRC Markets LLC ("TRCM"). Tower through its affiliates is a major liquidity provider for domestic and foreign equities, futures, fixed income securities and currencies. Latour is one of the largest U.S. ETF market makers. Tower employs more than 900 people worldwide. For more information, please visit www.tower-research.com.

We explain these points in further detail below.

I. The lack of transparency and analysis provided with the Proposal

The Proposal lacks sufficient data for Industry Members and the Commission to judge the adequacy and fairness of the Proposed Funding Model. In particular, the Proposal fails to provide the following:

- *An operating budget for CAT that describes expenses associated with the CAT*

The Proposal fails to provide an operating budget or any other explanation of the very large operating costs that are alluded to in its Exhibit B. Exhibit B indicates an estimated cost for 2021 of $133 million, which is several multiples of even the highest estimates provided in the 2014 CAT NMS Plan.[3] No further budget details are provided.

The scale of CAT processing is not explained including the numbers of transactions reported; the size of the data stored; and the amount of processing performed. At face value, the costs mentioned are significantly higher than industry firms pay for reasonably comparable endeavors. We are unable to put into proper perspective the costs and allocations suggested without more information.

The Proposal asserts that "message count" is a fair metric for the allocations to Industry Members, but without an operating budget, it is impossible to determine what portion of the costs of CAT is variable based on message traffic, and what portion is composed of fixed costs unrelated to message traffic. Should CAT fixed costs not be allocated on the basis of some fixed metric? If not, why not?

Without an operating budget, Industry Members are unable to evaluate the fairness of the Proposed Funding Model, because they are unable to determine if the CAT is operating efficiently. Significantly, this lack of transparency also creates a moral hazard as the Participants and CAT LLC can fail to manage costs efficiently and pass along the majority of the costs to Industry Members.

- *An explanation for high Historical Costs that are now being charged back to Industry Members*

The Proposal does not provide any significant insight into the very large Historical Costs that it seeks to allocate. Although the Proposal does not clearly explain the total amount of Historical Costs, such costs through December 2020 is over $242 million (see Exhibit 1 attached hereto). This is an extremely high and unexpected number and one which, despite the lengthy evolution of the CAT, has not been disclosed previously. This amount is also several multiples of even the highest estimates provided in the 2014 CAT NMS Plan, but no explanation is provided for the increase.

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[3] Please see pages 171 and following in the September 2014 CAT NMS Plan, which gave these estimates:

- A range of **build** costs from $30mm to $92mm, with an average of $53mm.
- A range of 5-year **operating** costs from $135mm to $465mm, average $255mm, or $51mm annually.

https://www.catnmsplan.com/sites/default/files/2020-02/p600989.pdf

The $242 million Historical Cost includes a $90 million loss during the era when Thesys CAT LLC was the plan processor.[4] In this Proposal, the Participants suggest that they should be solely responsible for $48 million of these losses, with a reference to the Thesys CAT era; this leaves Industry Members to bear 75% of the remaining $42 million cost. (Please see Exhibit 1, note 1 attached hereto). It seems that charging Industry Members for failed decisions related to the CAT, and over which Industry Members had no control, is an inequitable allocation of fees.

In addition, charging Industry Members the costs of legal and consulting fees incurred by the Participants prior to the approval of the CAT NMS Plan is not equitable. Industry Members had no ability to voice any concerns over, or weigh in regarding, the incurrence of these expenses, and no insight into what benefit was provided by them.

- *Information required for Industry Members to calculate their estimated CAT Fees*

Exhibit B in the Proposal purports to give an estimate of the fees allocated to each Industry Member, but it lacks several critical pieces of information that are required to analyze the fairness and accuracy of the Proposed Funding Model.[5]

The data is given in percentages of the industry total with no absolute number of messages. The Proposal also neglects to share the industry total number of messages making it impossible for Industry Members to do their own calculations.

The distribution of fees proposed is extremely skewed. 75 of the 1237 brokers in Exhibit B are allocated 99% of the CAT fees in the Industry Members' share. The Proposal's suggestion that this is "fair" is not supported with any facts.

The Proposal also omits other critical elements of the calculations. There is no information regarding how many CAT transactions are tagged as "Market Maker" -- no absolute number, nor any percentage is given. There is no indication how such Market Maker transactions are discounted from the total number of transactions in accordance with the proposed trade-to-quote discount. It is impossible to assess the real effect of the proposed Market Maker discount without this information.

Ultimately, the Proposal should present a full analysis of the expected effects of its recommendations and demonstrate that the outcomes meet the stated goals. It makes no attempt to do so and Industry Members are unable, and cannot be expected, to do so with the information provided in the Proposal.

II. **The costs are too high and far beyond original estimates.**

As stated above, in Exhibit B of the Proposal, the Participants use an illustrative example of an annual operating budget for the CAT of approximately $133 million. This is much higher than even the highest estimates provided in the 2014 CAT NMS Plan, and many times more than the

[4] According to the 2019 audited financial statements of CAT LLC, there is an "impairment" of 100% of the $75 million spent during the time that Thesys CAT was the plan processor. There is a further $10 million charge for "transition" to the new plan processor, and a charge of over $5 million for a legal settlement paid to Thesys. These audited financial statements are not posted publicly, but are available on request from the CAT Operating Committee

[5] Some of this data was provided in a comment letter, dated May 5, 2021, submitted to the Commission by the CAT Operating Committee. This was seven days prior to the end of the comment period and did not provide sufficient time to analyze the data. At the very least, this data should be incorporated into the Proposal and the Proposal should be resubmitted and open for public comment.

$9 million that FINRA reports as the cost of operating OATS.[6] The Proposal, however, provides no explanation for the increase in costs and without a detailed operating budget, Industry Members are unable to evaluate if such costs are appropriate or fair.[7] Data storage is relatively cheap,[8] so the number of events or size of the database is hardly a complete explanation.

Industry firms such as Tower can offer a reasonable cost comparison and a basis for questioning the high CAT costs. Tower captures real time market data feeds from over 100 venues around the world, in a variety of different products. These feeds are most often published in unique proprietary formats, which we decode and normalize. We then optimize the data and store it in such a way that it can be used for research and back-testing. We store over 15 petabytes of data, all accessible through custom-built APIs. Our traders use this data to perform massive queries and studies on a daily basis. We use tens of millions of CPU hours monthly in these processes. We use a combination of advanced, on-site hardware and cloud-based solutions, in order to achieve processing- and cost-efficiency. The processing of this historical market data might reasonably be compared to the kind of processing that the CAT is expected to do – both in ingestion and quality checking, and also in surveillance. While we do not claim that this is a perfect comparison, we do posit that the cost to build and maintain the CAT should be reasonably comparable. Yet, Tower's annual cost for this platform is approximately *ten times less* than what is alluded to in the Proposal.

In order to analyze whether the Proposal provides for the equitable allocation of reasonable fees and other charges, it has to provide a better explanation of the sources of the costs associated with the CAT and why they are much higher than anyone anticipated and why the increase in costs were never disclosed.

III. The Participants' inherent conflict of interest in making any such proposal is not addressed or safeguarded.

The Proposal barely attempts to justify the 75-25% split between the Participants and Industry Members. It omits any data or discussion of how much data is submitted, on which types of transactions, on which products, or by which CAT Reporters -- in particular here, there is no mention of how much data is reported by the Participants compared to Industry Members. According to the original estimates, approximately half of CAT records captured would consist of transaction and quote data reported by the Participants.[9] No new statistics have been published and the Proposal does not tie the 75-25% cost split to the CAT transaction counts, usage, benefit, or associated costs. The Proposal's main argument for this proposed split seems to be an estimate of revenues based on some of the Industry Members' FOCUS reports; we do not agree that this is particularly relevant.

Although the Proposal suggests that the Participants have incurred all of the Historical Costs to date, it fails to take into account the very large costs that Industry Members incurred and continue to incur in building out their CAT reporting platforms. Nor does it account for the

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[6] See FINRA filing dated October 14, 2020; Release No. 34-90176; File No. SR-FINRA-220-032; including discussion of FINRA's operating costs. Page 36 and forward. www.sec.gov/rules/sro/finra/2020/34-90176.pdf

[7] The CAT Operating Committee's aforementioned May 5th comment letter responds to FIF's request for a budget by providing only the top-line estimated cost for 2021, with no further explanation, and no actual costs.

[8] Amazon Web Services advertises data storage at $.023 per Gigabyte per month. https://aws.amazon.com/storagegateway/pricing/

[9] CAT Request For Proposal, version 3.0, dated March 3, 2014, pp 22-23

thousands of man-hours that Industry Members have contributed to refining the proposed reporting specifications.

The Proposal also does not address or explain whether regulatory fines, regulatory fees, membership fees and other fees paid to the Participants by Industry Members could be used to offset the cost of the CAT.

Moreover, as FINRA is funded by Industry Members, one can argue that any CAT fee imposed upon FINRA is in fact imposed on Industry Members. This is another item not addressed in the Proposal.

This lack of analysis and transparency highlights the inherent conflict of interest in allowing the Participants to propose such a split. To permit for-profit exchanges to allocate 75% of the costs of the CAT to Industry Members furthers the Participants' commercial interests at the expense of the Industry Members, who have no choice but to pay such fees or else be subject to regulatory actions by the Participants. In order to counteract this conflict of interest, the Commission should require the Participants to resubmit the Proposal with a complete and transparent analysis. We also believe that Industry Members should have adequate representation on the CAT Operating Committee as this Proposal is one example of how the Committee's actions can have a significant impact on Industry Members' businesses.

IV. The allocation methods suggested may create adverse effects on industry members and the marketplace, and no reasonable analysis is provided.

- *The Proposal fails to analyze any impact the CAT Fee may have on liquidity in the markets*

The Proposal indicates a desire to not harm the markets by discouraging the provision of liquidity – which is a good intent. Yet the Proposal only addresses this issue by providing exchange-registered market makers with a 95% (equities) or 99% (options) discount on their billable CAT events. The Proposal does not address how the Proposed Funding Model will impact behavior of other market participants whose trading provides significant liquidity to the markets; nor does it address the competitive pricing advantage the market maker discount provides to market makers at the expense of other market participants. Moreover, there is no discussion of why the trade-to-quote ratio is the right metric to use in determining any such discount or what other metrics might have been considered and discarded. Finally, there is no acknowledgement that the discount creates an incentive for market makers to quote more without necessarily trading more and no provision in the Proposal to adjust the calculation of this discount if the trade-to-quote ratio significantly increases or decreases in the future.

The Proposal should provide an analysis on potential impacts on liquidity and changes in market participant behavior. It should give reasonable assurance that these costs and allocation methods will not have a significant negative impact on liquidity or competition. Without this analysis, it is impossible to determine whether the Proposal meets the Securities Exchange Act of 1934 ("Exchange Act") requirements to ensure the equitable allocation of fees and to determine that it is not designed to permit unfair discrimination between market participants.

- *The proposed market maker discount creates an extreme shift of costs from options market makers to equities non-market makers*

The CAT Operating Committee's comment letter dated, May 5, 2021 (the "Comment Letter"), uncovers an extreme shift of costs from one group of Industry Members to an unrelated group of Industry Members; yet neither the Proposal, nor the Comment Letter, provide any analysis or justification for this shift of costs.

The Comment Letter shows that 89% of all Industry Member CAT reportable events originate from *options market makers.* Yet, due to the 99% reduction of billable events proposed for options market makers, 94% of Industry Members' share is allocated to equities activity in non-market maker accounts (see Exhibit 2 herein). The Participants should explain in the Proposal why this cost shift is justified so that the Commission and market participants can be sure that the Proposal meets Exchange Act requirements. We do not believe that on its face it is equitable to shift such a large portion of these costs to market participants engaging in unrelated activity.

- *The proposed per-broker cap of 8% is not fully justified, and creates an unfair advantage for very large brokers*

The Proposal suggests an 8% cap on the fees charged to each broker. Similar to the proposed Market Maker discount, this means that the data reported by such large brokers, over their fee cap, must be paid for by other Industry Members -- including their direct competitors. This creates a doubly-unfair situation: first, large brokers' marginal cost (in CAT fees) for increasing their activity is near-zero; and second, large brokers can actually cause competing firms to have to pay more by reallocating the excess fees to those firms. This cap is not tied to any consideration to the *benefit* of such excess activity.

- *The Proposal makes no attempt to project its potential effects on various lines of business across the industry, nor a conclusion that those effects are congruent with its stated goals*

As illustrated in Exhibit B of the Proposal, some Industry Members would be asked to pay as much as $8-10 million annually. Such a high cost will certainly cause some firms to question the viability of certain business lines. Firms should be able to fully evaluate this and have an opportunity to advise the Commission of the potential impact on trading and liquidity. Unfortunately, as noted above, firms are unable to do so based on the Proposal, and have had little time to do so after the Comment Letter.

The Proposal provides no comment regarding the effect on ATS venues (which are newly proposed to be charged as Industry Members rather than being grouped with the exchanges). ATS activity is not considered "market maker" activity and therefore the cost to any large ATS in this Proposal could be extremely high.

Likewise, the Proposal gives no insight as to the potential effects on institutional brokerage. Institutional brokers often use automated algorithms to slice large orders and may generate many child order messages as they seek to identify liquidity from many sources.

While CAT surely has all of this data, the Proposal is silent on the possible negative effects on these or other businesses. The Commission should compel the CAT Operating Committee to provide a reasonable analysis of the effects on important industry venues and participants.

V. Conclusion

First, and foremost, the Commission should reject this Proposal due to the flaws explained above.

Second, the Commission should require the CAT Operating Committee to present a new cost allocation plan that incorporates robust input from Industry Members.[10] The new proposal should provide all of the additional data set forth above (*e.g.*, operating budgets, explanation of historical and on-going costs, impact on liquidity and participants, rationale for the cost model) and fully and openly address the inherent conflict of interest on the part of the Participants who must propose it.

A proper proposal should require a full accounting of the historical spend and justification for charging such costs to anyone other than the Participants. The Commission should seek to avoid the moral hazard of a "blank check" scenario: the evolution of CAT has carried on for nine years, with no disclosures of, and no apparent accountability for, the exploding costs.

The proposal should provide a full explanation of the proposed operating costs and should make an appropriately detailed public disclosure of the operating budget. The industry should have confidence that the ongoing costs are right-sized, efficient and appropriate for the benefits to be achieved. Again, technical expertise from the industry should be involved to ensure that the CAT is built and operated as a best-of-breed solution. Industry Members should also have adequate representation on the CAT Operating Committee to ensure that its decisions are reasonable and fair to all market participants and to mitigate the Participants' inherent conflict of interest.

We appreciate the opportunity to analyze and comment on the proposed amendment and will continue to support the CAT initiative to the best of our ability.

Sincerely,

Kevin Donohue
General Counsel, Tower Research Capital LLC

cc: Gary Gensler, Chair
Hester M. Peirce, Commissioner
Elad L. Roisman, Commissioner
Allison Herren Lee, Commissioner
Caroline A. Crenshaw, Commissioner

Christian R. Sabella, Acting Director, Division of Trading and Markets

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[10] The CAT Operating Committee promised to do this. On the CAT LLC website, in their "Guiding Principles" (https://www.catnmsplan.com/about-cat), the CAT Operating Committee proactively stated, "Industry input is a critical component in the creation of the CAT. The SROs will consider industry feedback before decisions are made with respect to reporting requirements and cost allocation models." Unfortunately, we do not believe any significant industry input was sought or obtained with regard to this proposal.

Exhibit 1: Summary of the Historical Costs reported in the Proposal

Tower believes this to be an accurate summary of the various Historical Costs described in the Proposal.

Dates	Description	Cost total	Costs to be paid by IMs	IM share	Costs to be borne by Participants
2012 - 11/20/2016	Development of the National Market System Plan Governing the Process of Selecting a Plan Processor and Developing a Plan for the Consolidated Audit Trail	$13,842,881	$10,382,161	75.00%	$3,460,720
11/21/2016 - 4/5/2017	Costs incurred after the formation of the CAT NMS Plan and prior to the selection of Thesys CAT LLC	$2,933,869	$2,200,402	75.00%	$733,467
4/6/2017 - 3/28/2019	*Costs incurred during the period in which Thesys CAT LLC was the Plan Processor*	*$106,256,258*			
	The Participants, however, have determined to exclude from the Historical CAT Assessment Costs all costs incurred from November 15, 2017 through November 15, 2018 ("Excluded Costs") due to the delay in the reporting to the CAT (See note 1)	$48,874,937	$0	0.00%	$48,874,937
	Accordingly, the total costs to be allocated for this period are:	$57,381,321	$43,035,991	75.00%	$14,345,330
3/29/2019 - 6/21/2020	CAT Costs from the date of FINRA CAT's selection as the Plan Processor	$79,110,525	$59,332,894	75.00%	$19,777,631
6/22/2020 - 12/31/2020	Period 1 plus Period 2 of the Financial Accountability Milestones	$40,004,745	$30,003,559	75.00%	$10,001,186
	Total of Historical Costs (see note 2)	**$242,148,278**			**$97,193,271**
	Total of Historical Costs minus Thesys-related costs excluded (re: note 1)	$193,273,341	**$144,955,007**		

Notes

1. Does not account for $90 million in losses during Thesys era, as reported in 2019 audited financials. This includes a $75 million Impairment (100% of the investment recorded). a settlement of over $5 million paid to Thesys and a $10 million "transition cost".
2. This full total of the Historical Costs is never mentioned in the filing.

Exhibit 2: Cost shift due to the proposed Market Maker discount

Total quarterly message counts, as disclosed in the May 5, 2021 comment letter; the last two columns are Tower's calculations:

	Message Count	Trade-to-Quote Ratio	Message Count (with Market Maker Discounts)	% of CAT total (raw)	% of CAT total (MM discounted)
Total Equities Non-Market Maker Industry Member Messages	662,875,905,973	n/a	662,875,905,973	7.43%	93.77%
Total Options Non-Market Maker Industry Member Messages	30,938,353,392	n/a	30,938,353,392	0.35%	4.38%
Total Equity Market Maker Industry Member Messages	258,630,443,272	4.77%	12,340,575,921.25	2.90%	1.75%
Total Options Market Maker Industry Member Messages	7,972,355,507,469	0.0094%	750,366,738.47	89.33%	0.11%
Total Industry Member Messages	8,924,800,210,106	n/a	706,905,202,024.72	100.00%	100.00%