



Re: CTA/CQ/UTP Plan Fee Amendments, Release No. 34-93625; File No. SR-CTA/CQ-2021-03

Dear Ms. Countryman:

Proof appreciates the opportunity to comment on the newly proposed fee amendments. Proof is a startup, agency-only broker dealer for US equities, founded in 2019. We currently consume SIP data for real-time use in our trading system. We do not currently purchase depth of book or auction information feeds from any exchanges. As a small, new entrant into the space, we are exactly the kind of firm that could greatly benefit from improvements to SIP data.

We have been following the evolution of plans for enhanced SIP data to be delivered by competing consolidators with a mix of excitement and wariness. We've been excited by the possibility of more data being available through the SIPs: odd-lot, auction, and depth-of-book data are all things we would like to explore. We've been wary that exchanges may use this moment to further entrench a high level of cost for market data that has no relation to their underlying expenses, is not subject to effective competitive forces, and serves as an unreasonable barrier to entry for newer firms like us. This current fee proposal is as bad as we have feared.

The stated purpose of the SIPs is to make information about quotations and transactions available to the public. Even the existing fees for basic transaction and top-of-book data are out of touch with this goal. Proof currently pays \$14,000 each month for our use of real-time SIP data, which is limited to our needs as an agency broker. We do not redistribute or display SIP data, so our cost is primarily incurred through non-display and access fees. As a small firm (currently 6 employees), we tightly control our costs, and we evaluate potential expenses based on whether we expect they will ultimately increase the value we can provide to our clients. Despite our small size, we have built our own institutional trading platform from scratch, as well as our own GUI and tools for interacting with it. Our current fees for real-time SIP data for use in agency trading represent 10 percent of our monthly total expenses at this point. This is a significant burden for us to shoulder as we attempt to develop and grow our business, and represents a high barrier to entry for new brokers. For context, our SIP fees are greater per month than our cloud computing costs in AWS, where our trading platform runs.

If we were to consume depth-of-book data and auction data under the new fees proposed here, the non-display fees for depth-of-book data for all three networks would cost us \$37,420 per month, access fees for depth-of-book would cost us \$29,550 per month, non-display fees for auction data would cost us \$3,744 per month, and access fees for auction data would cost us \$2,955 per month. This adds up to more than \$73,000 per month, and this doesn't represent our full cost, as we'd still need to consume last sale feeds at least separately from the expanded data. This would represent more than 50% of our current total monthly costs.

If SIP fees were roughly in line with the costs of collecting, processing, and distributing SIP data, then this would be an unfortunate but inevitable state of affairs. But there is no reason to believe that this is the case. In fact, there is strong evidence to the contrary. IEX has published a detailed cost study (available at: <https://iextrading.com/docs/The%20Cost%20of%20Exchange%20Services.pdf>) that estimates their

cost for providing and maintaining the infrastructure needed to deliver market data to subscribers is roughly \$1.8 million annually (see p. 18)¹. SIP revenues, in comparison, are typically near \$150 million per year per tape (revenue disclosures available at https://www.ctaplan.com/publicdocs/ctaplan/CTA_Quarterly_Revenue_Disclosure_2Q2021.pdf and https://utpplan.com/DOC/UTP_Revenue_Disclosure_Q22021.pdf)

One might say that the discrepancy is mostly explained by the fact that IEX is only a small percentage of the overall market. But this represents a fundamental misunderstanding of the nature of technological costs and how they scale. We'll dig into that a bit later in this letter.

But first we should note - this fee proposal admits that there was no attempt to relate the fees to costs. It says:

“The Commission has stated that one way to demonstrate that fees for consolidated market data are fair and reasonable is to show that they are reasonably related to costs. However, the Exchange Act does not require a showing of costs, and historically, the Plans have not demonstrated that their fees are fair and reasonable on the basis of cost data.

Moreover, under the decentralized Competing Consolidator model, the Operating Committee has no knowledge of any of the costs associated with consolidated market data. Under the current exclusive SIP model, the Operating Committee (1) specifies the technology that each Participant must use to provide the SIPs with data, and (2) contracts directly with a SIP to collect, consolidate, and disseminate consolidated market data, and therefore has knowledge of a subset of costs associated with collecting and consolidating market data. By contrast, under the decentralized Competing Consolidator model, the Plans no longer have a role in either specifying the technology associated with exchanges providing data or contracting with a SIP. Rather, as specified in amended Rule 603(b), each national securities exchange will be responsible for determining the methods of access to and format of data necessary to generate consolidated market data. Moreover, Competing Consolidators will be responsible for connecting to the exchanges to obtain data directly from each exchange, without any involvement of the Operating Committee. Nor does the Operating Committee have access to information about how each exchange would generate the data that they each would be required to disseminate under amended Rule 603(b). Accordingly, under the decentralized Competing Consolidator model, the Operating Committee does not have access to any information about the cost of providing consolidated market data.”

The proposal uses this argument to justify setting fees based on averaging over implicit parameters present in the current fee structures for data products offered by individual exchanges. This structure is based on a view that fees should be related to the “value to subscribers” of the data, and a presumption that current fees for individual exchange data products are a reasonable gauge of this value.

Let's examine that perspective in light of the goals of the SIPs, which are intended to provide a public service. Relating fees solely to the “value to subscribers” is the same framework that drives a profit-maximizing private business. If we accept the premise that SIP fees should be justified solely on value to subscribers, then there is only a quantitative parameter separating this utility from a profit-maximizing private business. If SIPs extract only 50% of the possible value in revenues are they behaving as a utility? If they extract 95% are they behaving as a (nearly) profit-maximizing business? At what parameter then do the SIPs really represent a fundamentally different option than the private data products offered by exchanges? And how is that parameter really going to be controlled, when the entities proposing the fees have a strong profit incentive to push it as close to 100% as they get away with?

¹ Disclosure: the current employees of Proof are all former employees of IEX, though Proof is an independent entity with no relationship to IEX other than exchange membership.

There are certain services that we generally agree it's important to provide without full or nearly full value extraction. Electricity and water, for example, may be services that many value at a greater amount than we currently pay for it, but that doesn't mean we can all afford to pay more, and we've decided collectively that such core services should be affordable to a wider range of people than value extraction would dictate. If it is the SEC's intention that the SIPs provide a service that is meant to be more affordable and accessible than the currently available data products offered by individual exchanges, then "value to subscribers" should not be a sole determinant of SIP fees.

There are a few additional elements of the proposal's justification related to this point that warrant further scrutiny. It is written that: "The Participants believe that the value of depth of book data and auction information is well-established, as this content has been available to market participants directly from the exchanges for years, and in some cases, decades, at prices constrained by direct and platform competition. Exchanges have filed fees for this data pursuant to the standards specified in Section 6(b)(5) of the Act." First, it is questionable how much competition can really constrain the prices of data products offered by individual exchanges, when the exchanges hold monopolies on data emanating from their own platforms and charge redistribution fees to any vendors who distribute this data downstream in real-time. Second, there is a not-so-subtle implication here that fees that have been previously blessed by the SEC must be an acceptable foundation for new fees, else the SEC can be accused of being inconsistent or essentially reversing itself. We would like to point out that the guiding purpose of the SIPs (to provide a public service!) clearly distinguishes it from private data products that are provided by for-profit companies, so we do not feel that this justification applies.

In fact, were the SEC to accept these fees with these justifications, it would do serious damage to the ability of the competing consolidators to achieve their intended purposes as part of an expanded and improved SIP landscape to better serve the public interest. In particular, these high fees serve as a floor for the cost of real-time data feeds for SIP subscribers, and this will prevent competition between consolidators from sufficiently controlling costs. Especially egregious is the proposal to apply redistribution fees to competing consolidators themselves, when the whole point of competing consolidators is to take over the work of consolidating and distributing SIP data! Do the SIPs now charge *themselves* a redistribution fee for performing this task? It is also worth noting that applying a redistribution fee per consolidator could have the perverse effect of incentivizing consolidation of competing consolidators to minimize the payment of these fees. Such incentives could dampen the benefits of competition between consolidators.² To be fair, this is true of any fee that is charged as a fixed fee to each competing consolidator. Keeping the total amount of such fees under control is thus an important component of enabling healthy competition between consolidators.

If the fees in this proposal were adopted, it would ensure that market data costs continue to serve as a formidable barrier to entry for new brokers like Proof, and it would further weaken any distinctions between the SIPs and profit-maximizing data products. We would like to add our strong dissent to those of the non-joining exchanges and the Advisory Committee, who do not bless this fee proposal as detailed

² We do enjoy the brazenness of the argument in the proposal that not charging a redistribution fee would be unfair to vendors who are not competing consolidators, as it says: "Consequently, the Participants believe that it would be unreasonably discriminatory and impose a burden on competition to not charge Competing Consolidators the Redistribution Fee." This argument fails to account for the fact that supposedly harmed vendors have the option to become competing consolidators themselves, and also fails to contemplate the alternative solution of getting rid of redistribution fees altogether.

in the footnote on p. 6: “FINRA, IEX, LTSE, MIAX, and MEMX have not joined in the decision to approve the filing of the proposed amendment, and Nasdaq BX is also withholding its vote at this time. Additionally, the Advisory Committee requested that the following statement be inserted into the filing: The Advisory Committee has actively participated in the rate setting process with the SROs and has provided the SROs with opinion and guidance on rate setting appropriate to the interests of consumers throughout the process. The Advisors collectively believe that SIP data content fees should be universally lower to align with the un-coupling of SIP data content from the SIP exclusive processor, a function to be performed by Competing Consolidators. The Advisors believe that while their input was important in the process, the core principle of fees being fair and reasonable was not achieved.”

In terms of a call to action, our request is simple: we would like to see the SEC reject these fees as proposed, and more generally reject the argument that “value to subscribers” alone is a sufficient framework for the determining of fees for the new SIPs.

Just for fun though (we have a weird definition of fun!), let’s revisit the proposal’s assertion that cost information is unknowable, and hence can play no part in the setting of fees. In the remainder of this letter, we’d like to provide a constructive discussion of how cost might play a role in fee setting, even without prescribing the details of how exactly exchanges will provide data to competing consolidators.

A basic model of market data costs

Estimating the precise costs of collecting and disseminating market data can be a daunting task due to the many different kinds of costs that are involved, as well as typical overlap between the service and other services provided by the same corporate entity. However, with a general understanding of the different categories of costs and how they tend to scale, we can nonetheless infer basic behaviors of the cost function that we would expect to hold for any reasonable implementation of the service with modern technology.

Providing a service like real-time market data requires a mix of several different kinds of resources. This includes physical resources like servers, networking equipment, and power supply, as well as human resources like software developers and operations staff. There is an upfront cost to getting the service off the ground: establishing physical connectivity, setting up servers, developing the software to ingest, process, and distribute the data, etc. From that point on, recurring and scaling costs for things like power and staff will be incurred. But different categories of cost experience different economies of scale. Long term data storage costs, for example, should scale with the total amount of data being accumulated, but is not really affected by the number of direct real-time data recipients. Costs for sales or other personnel that interface with direct recipients may scale with the number of such recipients, but is likely unaffected by the size of the underlying data. Equipment for real-time data processing and networking may scale with the product of the daily data size times the number of direct real-time recipients, as this represents the total capacity that the system must support for outputting data on a daily basis. Software development costs should remain relatively fixed or scale at a very slow rate, as well-designed software should scale to handle more data for more customers without requiring analogous bloat on the personnel side.

So even without knowing the details of how a particular market data business is run, we can make a reasonable guess for the general shape of the cost function in terms of the number of direct data recipients and the size of the underlying data. If R represents the number of recipient firms who get the data from its source and D represents the number of bytes of data (on average per day, let’s say), then the cost to the source provider should be approximately:

$$Cost(R, D) = c_{fixed} + c_R R + c_D D + c_{RD} RD$$

In this equation, c_{fixed} represents all fixed costs, c_R represents the multiplier for costs that scale mostly based on the number of direct recipients, c_D represents the multiplier for costs that scale mostly based on the size of the data per day, and c_{RD} represents the multiplier for costs that scale as a function of the total data directly transmitted across all real-time recipients per day.

The IEX cost study also gives us a relevant example of what the balance between these different cost terms might look like. In particular, the breakdown on p. 18 indicates that more than half of the total cost is for personnel. Personnel like software developers are probably most accurately reflected in the fixed term, c_{fixed} , while personnel like sales may be most accurately reflected in the term c_R . Even personnel who work directly on networking infrastructure are likely able to manage a reasonable scale, so it would be implausible to expect too much of the personnel costs to be best captured by the c_{RD} term.

Looking at this cost structure, we can begin to extrapolate what we might expect when comparing costs for market data services handling different numbers of direct recipients and/or different underlying data sizes. For one thing, we don't expect that multiplying the data size by a factor of X will lead to an X-times increase in cost. This is because the size of the data only effects some of the terms, not all of them, and there is reason to believe that the unaffected terms represent a meaningful portion of costs. So we should expect, for example, that providing twice as much data should correspond to considerably less than twice the cost.

Also, as the number of direct recipients increases, we would expect the cost per recipient to decrease. This is another basic economy of scale effect: the burden of the fixed costs can be split over more and more recipients, and in the limit, the cost per additional recipient becomes the incremental cost of an additional physical connection, additional server capacity, etc.

It is worth noting what is absent from this cost model. When a direct recipient redistributes data downstream from the original provider, there is no cost incurred to the original data provider, who does not need to do anything as part of this process. Furthermore, there is no cost incurred to the original data provider as a function of how many employees internally view or interact with the data using infrastructure that is wholly owned and operated within a recipient firm.

We might ask: if SIP fees *were* designed to be reasonably related to costs, should that mean that the fee structure reflects the cost structure, or should it only mean that the magnitude of the total fees collected should not drift too drastically out of line with the total cost incurred for providing the service? The fee structure for the SIPs today is certainly not in sync with the cost structure model above, even if we set the magnitude of the fees aside. Currently, several types of fees are charged on a firm level basis even for firms well downstream of the original data source, and display fees are charged per user per firm. (It is worth noting that there may be some benefits of this, as moving the cost burden away from fixed fees per consolidating firm and onto end users can help ease the barrier to entry for new competing consolidators, but this is a tradeoff that should be made mindfully of the effects on competition between brokers and for other layers of the trading ecosystem as well. Another thing that would greatly ease these burdens would be keeping the magnitude of total fees closer to the magnitude of total costs!)

As a thought experiment, let's see what might happen instead if we applied the cost template above to the case of exchanges generating newly expanded data and distributing it to competing SIP consolidators. In this case, the set of direct data recipients is just the set of competing consolidators. Hence the value of R is not likely to be very big, but is hopefully considerably larger than 1 as a reflection of healthy competition. The cost of providing the newly expanded core data in this model would be greater than the cost of providing the current top-of-book and last sale data, but it would be less expensive than what

would result from simply multiplying by the factor that expresses the ratio between the data sizes. A fee structure that was analogous to this cost structure would not include fees to further downstream recipients, or display fees per user once those users are served by infrastructure beyond the exchanges. The fixed cost term would have to be recouped through fees to competing consolidators, so we would expect their individual fees to be higher than the incremental cost of additional physical connections, pro-rated additional staff, etc.

In terms of the overall magnitude of fees, we would not expect fees that were reasonably related to costs to land anywhere near as high as they are in this proposal. We believe this based on the large gap between the costs presented by the IEX study and these proposed fees, and the fact that this gap seems unlikely to be explained by something like our formulation for $Cost(R, D)$ above.

Naturally, as a firm that pays for our consumption of market data, we would like to see lower overall fees, and we have a direct commercial interest in such. This should obviously be taken into account when considering our arguments. And it would be easy to dismiss our arguments on the basis of: “of course brokers want lower SIP fees, and of course exchanges want higher SIP fees. Oh well, what can you do. We’ve got to go with something.” But we feel it would be a sad mistake to come this far into the process of modernizing and improving the SIPs and lose sight of what the goal is. The goal shouldn’t be just to make something slightly more tolerable than the status quo: a SIP product that functions as a for-profit extension of the exchanges and is comparable though marginally cheaper (if that!) than the sum of current depth-of-book feeds. That’s not an improved public service. It’s a cheap bribe. If such a thing is enshrined as “progress” and blessed as the new state of the art for many years to come, then the markets generally will be in an even worse position than we were before we embarked on the recent quest for SIP “improvements.” We will have squandered several years of effort and momentum towards reform, only to land in a profoundly disappointing place.

Sincerely,

Allison Bishop

President of Proof Services, LLC