



March 31, 2023

Via Electronic Mail ([rule-comments@sec.gov](mailto:rule-comments@sec.gov))

Ms. Vanessa Countryman, Secretary  
U.S. Securities and Exchange Commission  
100 F Street NE., Washington, DC 20549

Release #	Proposed Rules / Amendments	File No.	RIN
34-96493	<sup>1</sup> Disclosure of Order Execution Information [thereafter referred to as ①]	S7-29-22	34-96493
34-96494	<sup>2</sup> Minimum Pricing Increments ②, Access Fees ③, Transparency of Better Priced Orders ④	S7-30-22	34-96494
34-96495	<sup>3</sup> Order Competition Rule ⑤	S7-31-22	34-96495
34-96496	<sup>4</sup> Regulation Best Execution ⑥	S7-32-22	3235-AN24

Dear Ms. Countryman:

On behalf of Data Boiler Technologies, I am pleased to provide the U.S. Securities and Exchange Commission (SEC) with our comments on the above releases concerning the captioned proposals that intended to *“spur more vigorous competition among market participants to provide the best possible prices for investor orders and furtherance of the purposes of the Exchange Act”*. Following are highlights of our key concerns:

① contradicts the standard investor disclaimer – *“Past performance is NOT indicative of future results”* Giving away vast amounts of information to free riders (e.g., activists, MEME stock insurgents, and foreign adversaries) increases vulnerabilities because they may use market modeling for mischief and worsen the **veracity** outcomes. Instead of focusing on the 80% knowns, discovery of the 1% unknowns<sup>5</sup> with timely warning of irregularities would make the market safer.

②, making all trading venues (‘streamers’<sup>6</sup>) the same is a detriment to the **variety** factor of the 4Vs. It undermines the different roles the different constituents play and the frienemy dynamics they have in fabricating the fragmented market under Reg. NMS. Per our comment in [A1](#), the waiting line at “checkout counters” are indeed not equal due to the fact that Exchanges may continue to exploit their dominance in market data, connectivity, and/or in combine with access fee rebates to selectively provide perks to the elites.

③, access fee rebate, Payment for Order Flow (PFOF), and market data/ market structure issues are all intertwined. By boiling down the problems and what the industry’s long-standing issues are – we arrive at **‘who owns the data?’** Together with the expected cut in ‘606 payment’, it would mean trimming of incentives in total of \$3.6 billion to go around in the market. Where can the 3,498 broker-dealers squeeze their margin to cover an 8% loss + other heightened costs? Also, as mentioned in [B2](#), the proposals failed to account for the effects of cross-subsidization in market making or implications to thinly traded securities.

④, the SEC should **NOT** be taking the stand to protect the exchanges’ “agency market business model”. We argue that for-profit exchanges are indeed operating a “Jukebox model” to extract rent, hurting all, especially the smaller players.

<sup>1</sup> <https://www.sec.gov/rules/proposed/2022/34-96493.pdf>

<sup>2</sup> <https://www.sec.gov/rules/proposed/2022/34-96494.pdf>

<sup>3</sup> <https://www.sec.gov/rules/proposed/2022/34-96495.pdf>

<sup>4</sup> <https://www.sec.gov/rules/proposed/2022/34-96496.pdf>

<sup>5</sup> <https://www.pmi.org/learning/library/characterizing-unknown-unknowns-6077>

<sup>6</sup> <https://www.linkedin.com/pulse/trading-venue-perimeter-related-market-data-issue-kelvin-to/>



Page 193 acknowledged that *“the proposal could increase the demand to purchase depth of book data ... result in more market participants purchasing data from exchange depth of book proprietary data feeds than do currently.”* To end the endless pursuit of ever faster **velocity**, the SEC should mandate the use of time-lock encryption.<sup>7</sup>

⑤ contradicts with 79 FR 5592 footnote 711,<sup>8</sup> it said *“The Agencies are not adopting a ‘transaction-by-transaction’ approach because the Agencies are concerned that such an approach would be unduly burdensome or impractical and inconsistent ...”* The concept of using a discrete-time (periodic batch) auction<sup>9</sup> to replace continuous-time limit order books (CoB) to deemphasize speed as a key to trading success is NOT a novel idea. According to this 2014 CFA post,<sup>10</sup> it points out that *“pre-trade transparent constantly updating price in real-time, providing true price discovery, which complicate the auction process ... Budish agreeing that latency arbitrage could continue on parallel continuous market exchanges. In this case, the proposal is similar to IEX’s speed bump, which is designed to protect traders only on the IEX platform.”* No control over interaction with derivative trading that is under the CFTC’s jurisdiction is the fatal flaw. Also, the enforceability is doubtful. Benchmark reference price arbitrage would persist due to multiple-NBBOs. Auction only works in an “all or nothing” mode, i.e. mutually exclusive with CoB. A poorly functioned batch auction model at best would create yet another speed bump like the IEX. This is NOT what the industry or market needs.

Auctions may not have a price guarantee, and price improvement on auction may only occur briefly for few orders being filled. The frustration is analogy to deeply discounted items on ‘Black Friday Sales’. The 3 big exchange groups + MEMX, IEX, UBS ATS, SIGMA X2, and Intelligent Cross are the eight current incumbents meeting the 1% average daily volume to operate a qualified auction under ⑤. The Commission has acknowledged that there are additional complexity and connectivity costs to market participants arising from the introduction of qualified auctions. The additional market complexity, as well as the increased MEME events and other irrational exuberances mentioned earlier, would convolute the US market. All leading to it would not yield the SEC’s desired **volume** growth.

Also, as mentioned in [A4](#), the Commission failed to account for inevitable consequences where the market is constantly picking up signals. Failed auction is an analogy to the collapse of SVB after its failure to raise funds in the lit market. The cost and adverse consequences of mandating qualified auctions for marketable retail orders is quantified in this empirical research.<sup>11</sup> How share price would be “fair” depends on whom, under what circumstances and many contextual factors. What appears to be “fair” in the Commission’s eyes, in effect, can be hurting retail investors and other market participants as we illustrated in [E1](#) and [Appendix 2](#).

Technology advancements do NOT reduce “flickering” concerns (footnote 195 of ②) because tech in itself is neutral. In contrast to the Commission’s belief, the ‘phantom quotes’ phenomenon has been exacerbated ever since IEX goes all-in on Data Revenues, Quote Fade and (Virtual) Rebates.<sup>12</sup> Investors’ frustrations and complaints will rise. People will shift focus to passive strategies and/or derivatives trading. Asset maximizers (‘farmers’: fund industry, retirement, insurance sectors) will have a hard time achieving economy of scale without losing out to the ‘hunters’ amid the NMS tectonic shift, leading to the further consolidation of asset managers. Without sufficient diversity or **variety** of participants in the market, price discovery or **veracity** leaving up to the auction process may indeed intensify “gamification”.

<sup>7</sup> <https://www.linkedin.com/pulse/market-data-available-securely-synchronized-time-kelvin-to/>

<sup>8</sup> <https://www.federalregister.gov/documents/2014/01/31/2013-31511/prohibitions-and-restrictions-on-proprietary-trading-and-certain-interests-in-and-relationships-with#footnote-711-p5592>

<sup>9</sup> [https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/tac021014\\_budish.pdf](https://www.cftc.gov/sites/default/files/idc/groups/public/@newsroom/documents/file/tac021014_budish.pdf)

<sup>10</sup> <https://blogs.cfainstitute.org/marketintegrity/2014/11/10/are-frequent-batch-auctions-a-solution-to-hft-latency-arbitrage/>

<sup>11</sup> <https://directory.mendoza.nd.edu/media/1958/battalio-jennings-comment-letter-20230328.pdf>

<sup>12</sup> <https://www.nasdaq.com/articles/iex-is-all-in-on-data-revenues-quote-fade-and-virtual-rebates-2021-04-01>



A vicious cycle is created when the echo chamber generates more bifurcated behaviors. It will cannibalize the market.

⑥, MiFID-II calls for ‘sufficient steps’ to ensure the favorable execution of client orders, while the US requires ‘reasonable steps’ that is more bureaucratic and subjective. The ebb and flow would cause the US market to lose a competitive edge, further reducing overall trade **volume**. The conscience within the Commission has acknowledged on pages 190 and 335 that *“increased costs could be passed through to customers in the form of higher commissions or reduced services [and] could ... result in higher barriers to entry and potential exit of small broker-dealers.”* As mentioned in [B9](#), it is humanly impossible for the SEC examiners to objectively decipher if there may or may not be BestEx violation or conflicted transactions. The SocGen \$7.2 Billion loss<sup>13</sup> in 2008 should serve as a reminder for the uselessness of these policies and procedures. Per our comments in [A3](#), subjective judgements by a ruler’s taste lead to disputes and arguments detrimental to productivity of our industry and Nation. Officials craving for evermore powers may lead to unethical behaviors in exploiting the governed. The outside counsels (including paralegal) will ring in a total of \$267 million, and outside compliance services is going to get \$3 million. So lucrative and tempting for the SEC’s “revolving door”!<sup>14</sup>

[Appendix 1](#) is our detail response to selected comments by the SEC Commissioners.

See our value chain assessment in [Appendix 2](#) and this related article<sup>15</sup> and whitepaper.<sup>16</sup>

Please also see our related comment letter to the Financial Conduct Authority regarding Wholesale Data Market Study (market concentration) at: [https://www.databoiler.com/index\\_htm\\_files/DataBoiler\\_FCA\\_202303\\_Wholesale\\_Data.pdf](https://www.databoiler.com/index_htm_files/DataBoiler_FCA_202303_Wholesale_Data.pdf)

We encourage the Commission to think about what gives rise to arbitrage or pick offs on price. Anyone would have done it if they did not have to bear the corresponding cost in using others’ copyrighted materials. The noumenon of rebate incentives serves as royalty payments for the use of others’ copyrighted material. The focus of “Hu-Murphy Paper”<sup>17</sup> is off. Policy makers should consider MMs, ATs, SDPs, and SROs as different streaming platforms<sup>6</sup> in order to have the right focus, and we need mechanisms that reward “content” creators.

In our opinion, everybody is a trading venue, nobody is a trading venue; everybody is a market-maker, nobody is a market-maker that stands ready to buy or sell a stock at publicly quoted prices in both good and bad times. Healthy markets need both farmers (assets maximizers) and hunters (performance optimizers). **Variety** helps reach a wider audience and avert the continuous down trend in the number of FINRA registered firms.<sup>18</sup> Policy and market incentives should direct creative efforts by different market participants to decipher “outliers” (trade irregularities) and reduce unknowns<sup>5</sup> (98% → 99.9% incremental improvement is better than 85% → 90% because it is 95% error reductions vs just 33%).

The SEC should consider principle-based rules, like the Four-Part Test<sup>19</sup> that uplifts the “willing seller willing buyer standard” per 75 FR 3597.<sup>20</sup> Also, please see our counter suggestions in [Appendix 3](#) that describes how a consistent copyright licensing mechanism,<sup>21</sup> plus time-lock encryption<sup>7</sup> and other frameworks, would align different constituents, address the

<sup>13</sup> <https://www.telegraph.co.uk/finance/newsbysector/banksandfinance/5241263/Societe-Generale-chairman-Daniel-Bouton-to-step-down.html>

<sup>14</sup> [https://www0.gsb.columbia.edu/mygsb/faculty/research/pubfiles/13981/DKRR\\_july20\\_text.pdf](https://www0.gsb.columbia.edu/mygsb/faculty/research/pubfiles/13981/DKRR_july20_text.pdf)

<sup>15</sup> <https://www.linkedin.com/pulse/secs-attempt-detoxify-entangled-industry-value-chain-kelvin-to/>

<sup>16</sup> [https://www.databoiler.com/index\\_htm\\_files/DataBoiler\\_Noumenon\\_Equity\\_Market\\_Structure.pdf](https://www.databoiler.com/index_htm_files/DataBoiler_Noumenon_Equity_Market_Structure.pdf)

<sup>17</sup> [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4070056](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4070056)

<sup>18</sup> <https://www.finra.org/sites/default/files/2022-03/2022-industry-snapshot.pdf>

<sup>19</sup> <https://www.govinfo.gov/content/pkg/FR-2016-05-02/pdf/2016-09707.pdf>

<sup>20</sup> <https://www.govinfo.gov/content/pkg/FR-2010-01-21/pdf/2010-1045.pdf>

<sup>21</sup> [https://www.databoiler.com/index\\_htm\\_files/DataBoiler\\_Copyright\\_Licensing.pdf](https://www.databoiler.com/index_htm_files/DataBoiler_Copyright_Licensing.pdf)



economic viability to exploit their economy of scope/ scale or other misbehaviors, harmonize of different market centers, and achieve Pareto improvement<sup>22</sup> for market efficiency gain.

Feel free to contact us with any questions. Thank you and we look forward to engaging in any opportunities where our expertise might be required.

Sincerely,

**Kelvin To**

MSc Banking, MGMT, BSc  
Founder and President

**Data Boiler Technologies, LLC**

- CC: The Honorable Gary Gensler, Chairman  
 The Honorable Hester M. Peirce, Commissioner  
 The Honorable Caroline A. Crenshaw, Commissioner  
 The Honorable Mark T. Uyeda, Commissioner  
 The Honorable Jaime Lizárraga, Commissioner  
 Dr. Haoxiang Zhu, Director, Division of Trading and Markets

This letter is also available at:

[https://www.DataBoiler.com/index\\_htm\\_files/DataBoiler%20SEC%20Market%20Structure%20202303.pdf](https://www.DataBoiler.com/index_htm_files/DataBoiler%20SEC%20Market%20Structure%20202303.pdf)

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<sup>22</sup> <https://ecampusontario.pressbooks.pub/uvicmicroeconomics/chapter/5-1-externalities/>

## Appendix 1 – Selected comments by the SEC Commissioners and Our Response

### Chair Gensler

A1. *“... increase transparency for investors and facilitate their ability to compare brokers ... brings greater transparency to the access fees charged and related rebates paid by exchanges.”*

Heightened disclosure in the beautified name of “improve transparency” may indeed be bad policies for an uneven playing field. Malicious targeting or selective enforcement only benefits the middlemen, big law and consulting firms.

The SEC prescribed or endorsed statistics in ① are deemed overly complicated for the average investors to digest. It also is a contradiction with the standard investor disclaimer – *“Past performance is NOT indicative of future results”*. Moreover, ① essentially publicizes some Consolidated Audit Trail (CAT) data that would otherwise be confidential. Giving away vast amounts of information to free riders (e.g., activists, MEME stock insurgents, and foreign adversaries) increases vulnerabilities. These free riders have no skin in the game while they use market modeling for mischief. Increasing MEME events and other irrational exuberance is detrimental to rational price discovery (i.e. worsen the **veracity** outcomes). We argue that policy and market incentives should direct creative efforts to decipher “outliers” (such as the one the Commission denounced in footnote 236 of ①). Discovery of unknowns<sup>5</sup> and timely warning of irregularities make the market safer.

Investors do not need to better assess broker-dealers’ potential conflicts, the SEC does. The public relies on market regulators and SROs to assure them that they are not scammed in open market. If any constituents, including the regulators, want to have comprehensive metrics produced, let’s have the vendors compete for their business. ① + ⑥ basically require demonstration of ‘where’ an order should be routed but not ‘when’. Conflicts would persist, see our comment in [A3](#).

The so called “brings greater transparency to the access fees charged and related rebates paid by exchanges.” may actually be a form of linguistic camouflage, ② is not curbing Exchanges usage of tier rebates. The SEC should NOT be taking the stand to protect the exchanges’ *“agency market business model”*. We argue that for-profit exchanges are indeed operating a “Jukebox model” to extract rent. Policy makers should consider Market Makers (MM), Alternative Trading Systems (ATs), single dealer platforms (SDPs), and Self-Regulatory Organizations (SROs) as different streaming platforms<sup>6</sup> in order to have the right focus. Letting these streamers divide the cake by selectively paying rebates and other perks to the elites hurts the other “content” creators.

While the stated goal of increasing transparency may seem like a positive step, it is important to consider the actual impact of these policies.

A2. *“... would harmonize and adjust tick sizes to reflect today’s markets... would help level the playing field between and amongst the dark and lit markets.”*

Regarding the ‘Minimum Pricing Increments’ provisions in ②, what problem is it trying to solve?



The Commission is forcing almost all stocks to trade at least 4-8 ticks wide, while NASDAQ and other researches have indicated a stock has optimal trading with a 2-3 tick spread.<sup>23</sup> The SEC is attempting to close any minor differences between the different market centers' capabilities in sub-penny trading that may be used as tactics to disrupt the quote priority. Yet, this artificially altering the queue (equal waiting line at all checkout counters) may affect the "apparent", NOT the real supply and demand for securities.

Per our comment in [A1](#), the waiting line at "checkout counters" are indeed not equal due to the fact that Exchanges may continue to exploit their dominance in market data, connectivity, and/or in combination with access fee rebates to selectively provide perks to the elites. Think about what gives rise to arbitrage or pick offs on price. Anyone would have done it if they did not have to bear the corresponding cost in using others' copyrighted materials. Again, policy makers should consider MMs, ATs, SDPs, and SROs as different streaming platforms<sup>6</sup> in order to have the right focus. Making all 'streamers' the same is a detriment to the **variety** factor of the 4Vs because it undermines the different roles they play and the frienemy dynamics they have in fabricating the fragmented market under Reg. NMS.

In our opinion, everybody is a trading venue, nobody is a trading venue; everybody is a market-maker, nobody is a market-maker that stands ready to buy or sell a stock at publicly quoted prices in both good and bad times. Healthy markets need both farmers (assets maximizers) and hunters (performance optimizers). Do not shoot the messenger (principal trading firms).<sup>24</sup> Without a consistent copyright licensing mechanism<sup>21</sup> which aligns and addresses the economic viability of a constituent to exploit its economy of scope and/or economy of scale, there is NO harmonization of different market centers. Rather than attempt to price control or inadvertently calibrate the wrong prescriptions, the SEC should consider principle-based rules, like the Four-Part Test<sup>19</sup> that uplifts the "willing seller willing buyer standard" per 75 FR 3597.<sup>20</sup>

Fair market value is not the same as market value or appraised value. Instead, it's the value a security would have if a willing buyer wanted to purchase it at a particular moment from a willing seller. A few conditions apply, namely:

- Neither the buyer nor the seller are pressured to go through with the purchase
- All parties involved are acting in their own interests
- Both buyer and seller know all the facts about the securities
- It is operating as an arms-length transaction between unfamiliar people

(The other three of the Four-Part Test are: same parties test, statutory license ["effective competition"] test, and same rights test).

**Variety** helps reach a wider audience and avert the continuous down trend in the number of FINRA registered firms.<sup>18</sup> Again, policy and market incentives should direct creative efforts by different market participants to decipher "outliers" and reduce unknowns<sup>5</sup> (98% → 99.9% incremental improvement is better than 85% → 90% because it is 95% error reductions vs just 33%). Our counter suggestions in [Appendix 3](#) would achieve Pareto

<sup>23</sup> <https://www.nasdaq.com/articles/stock-splits-save-investors-and-issuers> ; <https://microstructure.exchange/papers/mao.pdf> ; [https://www.amf-france.org/sites/institutionnel/files/contenu\\_simple/lettre\\_ou\\_cahier/risques\\_tendances/MiFID%20II%20Impact%20of%20the%20New%20Tick%20Size%20Regime.pdf](https://www.amf-france.org/sites/institutionnel/files/contenu_simple/lettre_ou_cahier/risques_tendances/MiFID%20II%20Impact%20of%20the%20New%20Tick%20Size%20Regime.pdf)

<sup>24</sup> <https://www.economist.com/finance-and-economics/2003/02/27/dont-shoot-the-messenger>

improvement (someone better off without anybody worst off or win-win for all)<sup>22</sup> for market efficiency gain, but the SEC's 1,656 pages of complicated proposals would not (see [E1](#) and our value chain assessment in [Appendix 2](#)).

- A3. *“Such conflicts can benefit high-volume traders over smaller market participants and everyday investors ... would enhance investor protection by providing for additional enforcement capabilities ... would reinforce and bolster the SROs’ own enforcement efforts... this broker the investor hired remains on the hook, rather than “outsourcing” this obligation to the executing broker.”*

Payment for Order Flow (PFOF) is not necessarily a payment per se; it can take the form of a discount or other privileges. As cited by the Financial News, *“Some of those brokers might do things like internalize orders, which can involve matching up customer bids and offers and earning the spread between them... Brokers can also make money by sending orders to exchanges that pay rebates... Ultimately, brokers’ revenue has to come from somewhere, even if free trading is some kind of loss leader to other revenue streams. Brokers might start passing along more regulatory fees or charging new fees for heavy users or seek to earn more on customers’ cash by paying minimal interest.”*<sup>25</sup> This academic research piece suggests *“no evidence that PFOF harms price execution”*.<sup>26</sup>

The SEC’s proposed definition or characterization of “conflicted transactions” is inappropriate because there are additional factors beyond the 3 subjective conditions on page 100 of ⑥ to affirm the ‘suspicious activities’ are indeed in ‘conflict’ or not. “Selective timing” to get in-and-out of market, or if firms may classify a trade as dealing with “clients” versus “counter-parties”, somehow banks outsource trading to execution service vendors, and these vendors have another set of third parties to review order routing and execution quality. God knows if rubber stamping on BestEx reports is any good as compared to thorough assessment of market makers’ risk profile and market timing.

Subjective judgements by a ruler’s taste lead to disputes and arguments detrimental to productivity of our industry and Nation. Alleged violations would not reach definitive conclusions. More cases end up in settlement favoring the ‘Too Big to Fail’ (TBTF) rather than seeing justice prevail. Victims may not be identified in many of these cases and settlement fines are usually divided among regulators. Officials craving for evermore powers may lead to unethical behaviors in exploiting the governed.

In our opinion, the wholesaling space has competition, yet the barrier of entry is too high. That exacerbates the gap between the ‘haves’ and ‘have-not’. We are not sure the reliance on “fire and replace the execution vendor” approach to hold market makers’ feet to the fire as being effective. We do not buy the argument by the boss of a large executing broker of alluding to the problem as a principal agent issue. Public confidence has been eroded by a series of episodes related to the order routing enigma and blindsided of risks.<sup>27</sup> That being said, access fee rebate, PFOF, and market data/ market structure issues are all intertwined. By boiling down the problems and what the industry’s long-standing issues are – we arrive at **‘who owns the data?’**

<sup>25</sup> <https://www.fn london.com/articles/why-banning-payment-for-order-flow-is-easier-said-than-done-20220610>

<sup>26</sup> [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4189239](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4189239)

<sup>27</sup> <https://www.thetrade news.com/baml-fined-42-million-masking-electronic-order-routing/> ;

<https://www.merkley.senate.gov/imo/media/doc/Letter%20to%20Financial%20Regulators%20Credit%20Suisse.pdf>



See this for an elaborated discussion.<sup>21</sup> The SEC failed to grasp the correct context of the market problem. We think smaller market participants and everyday investors would be harmed severely if the proposals are adopted, please see this article for an elaborated discussion.<sup>15</sup>

Also, according to a comment posted on the Zoom Chat by Tim Quast during this webinar<sup>28</sup> and we concur, *“It appears the SEC wants everything to trade the same way in the same increments at the same spreads; which is great for money tracking benchmarks, lousy for differentiation – which is the entire point of [Investor-Relations] IR. In fact, all these proposals seem antithetical to issuer interests. They further shrink horizons and promote tiny prices, bigger volumes, more [higher] dependency on incentives. The market further loses its capacity to serve as a barometer for rational thought.”*

A4. *“...would bring more quotes into the NBBO ... this important measuring stick, the NBBO, leading investors potentially to benefit from better pricing. Together, these changes related to round lots and odd-lots would make share prices more fair ...”*

The SEC using “price improvement” almost interchangeably with the “willing seller willing buyer standard” required by 75 FR 3597<sup>20</sup> is inappropriate because it over emphasis on the “most favorable price” which undermines different aspects of the 4Vs – i.e., Volume, Velocity, Veracity, and Variety. “Bring more quotes into the NBBO” simply means display quotes within bid ask spread on lit venue, this information in itself is neutral. We concur with this comment in the Bloomberg Intelligence research, *“Broker disclosure provides more information on likely adverse-selection costs and increases the benefit of segmentation, while omitting the identity creates more uncertainty for responders on the toxicity of the order, but may be preferred to limit information... If the auction fails, the specified limit is the price (or better) the wholesaler can trade against, but it’s not a backstop guarantee because the wholesaler can choose not to internalize. There’s no guidance on how the limit must be priced in respect to the NBBO, but order protection rules apply, meaning the top of the market center’s continuous book will trade ahead of the auction winner if it’s resting at a better price.”*<sup>29</sup>

The Commission failed to account for inevitable consequences where the market is constantly picking up signals. Failed auction is analogy to the collapse of Silicon Valley Bank (SVB) after its failure to raise funds in the lit market. Per our discussion about Four-Part Test,<sup>19</sup> “willing seller willing buyer standard”, and Fair market value in [A2](#), how share price would be “fair” depends on whom, under what circumstances and many contextual factors. What appears to be “fair” in the Commission’s eyes, in effect, can be hurting retail investors and other market participants as we illustrated in [E1](#) and [Appendix 2](#).

Besides, compilation of protected quotes is complicated. New proposed rule 600(b) under ④ requires identifying of the best odd-lot orders. An odd-lot NBBO creates ambiguity. The SEC would get lambasted, while free riding speculators ask for evermore “indicators” that they amplify herd behaviors by using the echo chamber to disrupt the US market. The proposed accelerated implementation of odd-lots/ round-lot (603(b) of Market Data Infrastructure Rule [MDIR]) under ④ is problematic. Ingesting a lot of data raises the concern about bandwidth connectivity. What you see may not be what you get. Lacking depth-of-book data undermines the usefulness of Odd Lot data. The SEC’s economic analysis (page 193) acknowledged that *“the proposal could increase the demand to purchase depth of book data ... result in more market participants purchasing data from exchange depth of book*

<sup>28</sup> <https://www.nasdaq.com/videos/nasdaq-review-of-sec-market-structure-proposals-webinar>

<sup>29</sup> [https://assets.bbhub.io/promo/sites/16/2198215\\_BIUS\\_SEC2023NewEquityProposals.pdf](https://assets.bbhub.io/promo/sites/16/2198215_BIUS_SEC2023NewEquityProposals.pdf)



*proprietary data feeds than do currently.*” The SEC let NYSE launched 100G colocation service since April 2020 when MDIR is based on 10G connectivity, is another example of how the Commission exacerbates the gap between the ‘haves’ and ‘have-not’. Policy makers should consider the fair, reasonable and non-discriminatory (FRAND) principle and refrain from developing rules against one particular group of industry encumbrance.

- A5. *“... these retail orders are attractive to wholesalers because, compared with other types of order flow, they have lower adverse selection risks... these retail orders are attractive to wholesalers... The competitive shortfall could be worth about \$1.5 billion annually, compared with current practice — money that could go back into retail investors’ pockets or portfolios.”*

The markets already have solutions to deal with adverse selection risks, such as IntelligentCross ATS – ASPEN.<sup>30</sup> Why is the Commission trying to reinvent the wheel?! The SEC is a regulator, NOT a market designer. Market design would be best left to the professionals in the industry, so that the Commission may preserve its independence in rulemaking and enforcement. The SEC estimate of \$1.12-\$2.35 billion a year in additional price improvement, or the Chairman suggested *“competitive shortfall of \$1.5 billion annually”* is NOT correct. If the amount reflects a market opportunity, then it should be left to the industry to innovate and compete for it, rather than the Commission setting over prescriptive rules in designing specific market mechanisms, hence it is NOT relevant to the SEC rulemaking process. If the amount reflects a phenomenon that the SEC is attempting to address specific market problems, then the proposals lack clarity of what problem(s) the Commission is trying to solve and/or the amount is not properly substantiated.

The SEC use of Difference-In-Differences (DID) regression model for their analysis is slick. This World Bank blog<sup>31</sup> pointed out that *“Equality of pre-treatment trends may lend confidence but this cannot directly test the identifying assumption ... DID implicitly involves other assumptions instead of Parallel Paths, which may influence the estimate of the treatment effect ... These assumptions concern the dynamics of the outcome of interest, both before and after the introduction of treatment, and the implications of the particular dynamic specification for the Parallel Paths assumption.”* Again, as we mentioned in [A3](#), access fee rebate, PFOF, and market data/ market structure issues are all intertwined. By boiling down the problems and what the industry’s long-standing issues are – we arrive at **‘who owns the data?’** The SEC failed to grasp the correct context of the market problem, which causes bias with the Commission’s analysis on how the treatment group is chosen or omitted. Although DID is intended to mitigate the effects of extraneous factors and selection bias, the premises of the Commission’s DID is built on the basis of “zero-sum”, while empirical evidence by Schwab proved otherwise, citing *“Order routing revenue and price improvement are NOT ‘zero-sum’. Conversely, we have seen progressive improvements to execution quality while payment rates remained relatively stable.”*<sup>32</sup>

The SEC is attempting to close any minor differences between the different market centers’ capabilities in sub-penny trading that may be used as tactics to disrupt the quote priority. Yet, artificially altering the queue (equal waiting line at all checkout counters, except leaving much room for the

<sup>30</sup> <https://www.globenewswire.com/news-release/2019/10/02/1924282/0/en/IntelligentCross-ATS-Announces-Plans-to-Offer-IntelligentCross-ASPEN-3-to-Significantly-Reduce-the-Cost-of-Liquidity-for-Investors-at-Every-Stage-of-their-Trade.html>

<sup>31</sup> <https://blogs.worldbank.org/impactevaluations/often-unspoken-assumptions-behind-difference-difference-estimator-practice>

<sup>32</sup> <https://content.schwab.com/web/retail/public/about-schwab/Schwab-2022-order-routing-whitepaper.pdf>

Exchanges to selectively use tier rebates and other perks to divide the cake with the elites in hurting the other “content” creators) may affect the “apparent”, NOT the real supply and demand for securities.

The conscience within the Commission warned about the adverse effects or consequences throughout all four proposal packages, yet the final proposals downplayed the negative effects. Repeating the word “*However*” 561 times and using circular references to self-articulated sections or declining to provide estimates on many occasions would not turn linguistic camouflage into truths. Although the Commission views the wholesalers (MMs internalizers) as the middleman, intermediary costs in reality encompass: connections with more trade venues (including auction markets), increase market data subscription fees, demonstrating BestEx, the inelastic demand of Transaction Cost Analyzer (TCA), the reliance on liquidity sourcing, execution services and other ‘tools’, for example, the use of split, cancel, derivatives and other means to adjust to the more convoluted market environment.

The SEC foresees firms would reduce using Payment for Order Flow (PFOF) agreements for both NMS stocks and listed options. If annualized the ‘606 payment’ and cutting it by half, it is approximate \$1.7 to 1.8 billion, plus the SEC’s expected a reduction in access fee rebates under ③ of \$1.857 billion (80.3%), it would mean trimming of incentives in total of \$3.6 billion to go around in the market, that is equivalent to 8% loss in aggregated net income for the 3,498 broker-dealers that had a valid FOCUS Report. Where to find the money to cover such losses, plus pay for the superficially low estimate of ‘total combined initial and annual internal and external cost’\* that is near \$1 billion? How bureaucratic rules became a cottage industry, how lucrative and tempting for the SEC’s “revolving door”!<sup>14</sup>

Trade strategies and risk models all need to be upgraded. All players would need significant changes to their trade reports. The SEC underestimated the costs to comply with the various proposal packages by a wide margin. Plus, there is the rising market data, connectivity, and intermediary costs. Where to find the SEC claimed \$2 billion of cost savings for retail (or \$1.5 billion per the Chairman, or Bloomberg lower the estimate to \$800 million each year<sup>33</sup>) when all 4Vs pointed negative? We argue the social burden is at least 10 times greater. Please see this article for an elaborated discussion.<sup>15</sup>

	<b>Total combined initial and annual internal and external cost</b>	<b>Initial Internal Burden</b>	<b>Ongoing Internal Burden</b>	<b>Initial external Cost</b>	<b>Annual Outside Costs</b>
① Disclosure of Order Execution information	\$56,131,194	\$22,366,394	\$33,747,936	\$16,864	
② Minimum Pricing Increments	\$56,394,000	\$56,349,000	\$45,000		
③ Access Fees	\$855,000	\$855,000			
④ Transparency of Better Priced Orders	\$6,833,594	\$2,873,658	\$2,887,486	\$825,000	\$247,450
⑤ Order Competition Rule	\$100,706,631	\$92,013,403	\$4,140,308	\$4,552,920	
⑥ Regulation Best Execution	\$657,023,412	\$216,891,707	\$169,926,677	\$177,978,688	\$92,226,340
<b>Total</b>	<b>\$877,943,831</b>	<b>\$391,349,162</b>	<b>\$210,747,407</b>	<b>\$183,373,472</b>	<b>\$92,473,790</b>

\* We use the SEC provided numbers hidden in various footnotes to crunch out the above figures. See breakdowns on next pages:

<sup>33</sup> <https://tabbforum.com/opinions/market-structure-expert-larry-tabb-dissects-secs-revamp-of-trading-rules/>



Details	Initial Internal Burden	Ongoing Internal Burden	Initial external Cost	Annual Outside Costs	# of Respondents
① Systems updates to ensure that data responsive to the	\$4,368,360				236 Current Reporters
① Current Respondents - collect the necessary data and to		\$8,847,168			236 Current Reporters
① New Respondents - collect the necessary data and to		\$4,611,024			123 New
① Producing Rule 605 Reports	\$8,978,906	\$13,458,192			123 New
① Amend the NMS Plan to account for the new reporting fields and reporting parties	\$40,222				17 SROs
① preparing and filing an amendment to the NMS Plan			\$16,864		17 SROs
① Compliance - Expanding Scope of Reporting Entities	\$3,146,700	\$3,190,560			85 Broker-Dealers
	\$370,200	\$375,360			10 SDPs
	\$296,160	\$300,288			8 Qualified Auctions
① Compliance - Modifications to Information Required	\$2,621,016	\$1,107,312			236 Current Reporters
	\$740,400	\$750,720			20 centers trading fractional shares
	\$57,086				17 SROs
① Compliance - Summary Execution Quality Reports	\$1,747,344	\$1,107,312			236 Current Reporters
② Tick Size 612	\$40,040,000				All 286 Trading Venues
	\$95,000	\$45,000			5 Primary listing exchanges
	\$13,112,000				1,192 Order Entry Systems
	\$3,102,000				282 Smart Order Routers
③ Access Fee 610 - Exchanges	\$855,000				15 Exchanges
④ Odd/Round-lot 603(b), 600 - Exchanges	\$64,000	\$112,800			16 Exchanges
④ Odd/Round-lot 603(b), 600 - SIPs	\$1,134,000	\$340,000			2 SIPs
④ PRA - modify systems to collect, calculate, consolidate and disseminate odd-lot information and to disseminate the round-lot and minimum pricing increment indicators	\$309,160				2 SIPs
④ PRA - initial external costs			\$825,000		2 SIPs
④ PRA - annual external costs to operate and maintain its systems to collect, calculate, and disseminate odd-lot information and to disseminate the round-lot and minimum pricing increment indicators				\$247,450	2 SIPs
④ PRA - ongoing annual incur 132 hours - Footnote 732		\$92,748			2 SIPs
④ PRA - Revisions to Current Market Data Infra Rules	\$1,204,705	\$2,177,088			17 SROs
④ PRA - 5% to account for the provision of data necessary to generate odd-lot information to the exclusive SIPs	\$66,793	\$119,850			17 SROs
④ PRA - account for the calculation of the applicable minimum pricing increment and the provision of this information to competing consolidators, self-aggregators, and the exclusive SIPs.	\$95,000	\$45,000			5 Primary listing exchanges



Details	Initial Internal Burden	Ongoing Internal Burden	Initial external Cost	Annual Outside Costs	# of Respondents
⑤ Providing Auction Messages In Consolidated Market Data	\$785,800	\$1,185,600			10
⑤ Policies & Procedures to Identify Segmented Orders			\$778,720		157
⑤ Establish and Maintain P&P to Identify Segmented Orders	\$4,521,600	\$702,732			157
⑤ Identify Segmented Orders - Modify - In-house	\$4,964,960				52
⑤ Identify Segmented Orders - Connection - In-house	\$1,930,425				105
⑤ Identify Segmented Orders - Outside Costs for Third-party			\$3,675,000		105
⑤ System Modification Costs to Mark Segmented Orders	\$30,940,000				182
⑤ Ongoing Burden to Mark Segmented Orders		\$163,416			182
⑤ Establish P&P reasonably designed to assure that the Originating Broker of a Segmented Order will not be Disclosed			\$99,200		20
⑤ Establish & Maintain P&P - assure that the Originating Broker of a Segmented Order will not be Disclosed	\$576,000	\$89,520			20
⑤ Establish & Maintain P&P to Exclude Subscribers based on Financial Responsibility or Operational Capability Standards	\$9,318	\$8,040			3
⑤ PRA - Administer & regulate auctions - Rule 615(c)(1)	\$790,000	\$1,190,000			10
⑤ PRA - P&P - Identification of segmented order - Rule 615(e)(1), (e)(2)	\$5,301,000	\$703,000			157
⑤ PRA - Marketing segmented orders: In-house - Rule 615(e)(2)	\$4,970,000				52
⑤ PRA - Marketing segmented orders: 3rd party - Rule 615(e)(2)	\$5,600,000				105
⑤ PRA - One-time technology project costs to add "segmented order" and certification marks to existing marking systems - Rule 615(e)(2), (f)(1)	\$30,940,000				182
⑤ PRA - Certification that BD identity will not be disclosed - Rule 615(c)(1)(iii), (e)(3)	\$675,000	\$90,000			20
⑤ PRA - ATS's excluding subscribers - Rule 615(d)(1)	\$9,300	\$8,000			3
⑥ 1101 BestEx - Updated P&P	\$21,150,126 \$12,532,725		\$105,521,520 \$1,785,600		3,273 BDs excl conflicted retail 225 Conflicted brokers
⑥ 1101 BestEx - Annual review & update of P&P		\$7,050,042 \$1,444,725		\$28,802,400	3,273 BDs excl conflicted retail 225 Conflicted brokers
⑥ 1101 BestEx - Conduct & document review of EQ		\$25,012,266 \$4,689,000		\$19,899,840	3,273 BDs excl conflicted retail 225 Conflicted brokers
⑥ 1101 BestEx - update procedures for reviewing P&P	\$5,875,035 \$2,014,200		\$16,234,080 \$334,800		3,273 BDs excl conflicted retail 225 Conflicted brokers
⑥ 1101 BestEx - conduct and document regular reviews		\$13,294,926 \$2,762,550		\$25,922,169	3,273 BDs excl conflicted retail 225 Conflicted brokers
⑥ 1101 BestEx - periodically change routing practices to reflect changes observe in data analysis @ \$9,000 per change		\$2,025,000			225 Conflicted brokers



Details	Initial Internal Burden	Ongoing Internal Burden	Initial external Cost	Annual Outside Costs	# of Respondents
⑥ 1101 BestEx PRA	\$118,873,384		\$21,720,832 \$24,534,640		2,737 large BDs 761 small BDs
⑥ 1101 BestEx PRA - review and update existing P&P		\$23,239,867		\$4,152,016	2,737 large BDs 761 small BDs
⑥ 1101 BestEx PRA - conduct and document reviews of execution quality pursuant to proposed Rule 1101(c)		\$63,334,180		\$2,607,567	2,737 large BDs 761 small BDs
⑥ 1101 BestEx PRA - Regular Review and Documentation				\$4,741,030	761 small BDs
⑥ 1101 BestEx PRA - review & approve the updated P&P		\$1,639,194			761 small BDs
⑥ 1101 BestEx PRA - conduct & document reviews of EQ & document efforts to obtain BestEx for conflicted txns & PFOF		\$3,629,970			761 small BDs
⑥ 1101 BestEx PRA - review the EQ reviews & documentation of efforts to obtain BestEx for conflicted transactions & PFOF		\$2,185,592			761 small BDs
⑥ 1101 PRA - Proposed Rule 17a-4(b)(17)		\$4,912,915 \$819,597			2,737 large BDs 761 small BDs
⑥ 1102 PRA - update its existing compliance procedures for reviewing and assessing the design and overall effectiveness of its BestEx P&P	\$24,501,624 \$1,892,353		\$4,072,656 \$3,774,560		2,737 large BDs 761 small BDs
⑥ 1102 PRA - conduct and document its annual reviews and assessments	\$30,052,260	\$9,218,216			2,737 large BDs
⑥ 1102 PRA - outside counsel - conduct and document its annual reviews and assessments				\$1,887,280	761 small BDs
⑥ 1102 PRA - outside compliance services - conduct and document its annual reviews and assessments				\$2,370,515	761 small BDs
⑥ 1102 PRA - prepare the annual report		\$0			2,737 large BDs
- outside counsel				\$1,132,368	761 small BDs
- outside compliance services				\$711,155	761 small BDs
⑥ 1102 PRA - conduct and document its annual reviews and		\$2,544,784			761 small BDs
⑥ 1102 PRA - review and approve the annual report		\$546,398			761 small BDs
⑥ 1102 PRA - Proposed Rule 17a-4(b)(17)		\$1,384,922 \$192,533			2,737 large BDs 761 small BDs



A6. *“These policies and procedures also would have to address specified price and non-price considerations relevant to determining the best markets for customer orders... would lead to better execution for retail and institutional investors.”*

① + ⑥ basically require demonstration of ‘where’ an order should be routed but not ‘when’. The SEC’s proposed definition or characterization of “conflicted transactions” is inappropriate because there are additional factors beyond the 3 subjective conditions on page 100 of ⑥ to affirm the ‘suspicious activities’ are indeed in ‘conflict’ or not. Please be reminded of Jérôme Kerviel whom bought into Daniel Bouton’s lip service about Société Générale’s (SocGen) internal control strengths with a \$7.2 billion loss<sup>13</sup> in 2008. Heighten disclosure in the beautified name of “investor protection” may indeed be bad regulatory rules for an uneven playing field. Malicious targeting or selective enforcement only benefits the middlemen, big law and consulting firms.



### Commissioner Peirce

B1. *“The reforms embodied in these four proposals are complex and will likely have significant, overlapping, and unpredictable effects on the way our markets operate... struggle to conduct a thorough analysis of each of these voluminous and complicated proposals individually. An even more daunting task will be understanding and analyzing them as what they clearly are: a package of comprehensive reforms that will interact both with the existing ruleset and each other in complex and likely unpredictable ways ... the proposal does not lay out the Commission’s view as to how this rule will interact with the other rules the Commission is considering ... Complex undertakings like the one proposed here always have unpredictable effects, and unintended consequences often arise at inconvenient times... may not be able to anticipate how it will affect liquidity in more volatile market conditions ...”*

We are in agreement with Commissioner Peirce that the SEC’s 1,656 pages of complicated proposals interact with the existing ruleset, pending proposals, and each other. We assess their implications through the lens of 4Vs – i.e., Volume, Velocity, Veracity, and Variety. The result is an upside-down smile curve<sup>34</sup> shifting downward, largely resembling the existing shape (i.e., remain status quo)<sup>35</sup> of a “frown”. The Commission’s prescription is the wrong medicine to untangle the industry value chain. Please see this article for our testimonials.<sup>15</sup>

B2. *“The mandatory rewiring of the retail equity markets raises several concerns ... not omniscient and omnipresent... issuing decrees about how each order should be routed is outside of that role ... the so-called ‘competitive shortfall,’ ignores the fact that the current market is not static ... the order-by-order nature of these auctions will allow them to be much more selective about the stocks they want to trade... Although the release points to the objective of ‘minimiz[ing] the transaction costs incurred by individual investors when they use marketable orders’ and anticipates annual cost savings of \$1.12 billion to \$2.35 billion, it instead may increase their costs.”*

Regarding the proposal for ‘Order Competition Rule 615’ under ⑤, the concept of using a discrete-time (periodic batch) auction<sup>9</sup> to replace continuous-time limit order books (CoB) to deemphasize speed as a key to trading success is NOT a novel idea. Professor Eric Budish had been one of the biggest proponents of Auctions. However, according to this 2014 CFA post,<sup>10</sup> it points out that *“pre-trade transparent constantly updating price in real-time, providing true price discovery, which complicate the auction process ... Budish agreeing that latency arbitrage could continue on parallel continuous market exchanges. In this case, the proposal is similar to IEX’s speed bump, which is designed to protect traders only on the IEX platform.”*

The long list of cumbersome parameters in ⑤ that the SEC attempts to prohibit gaming or latency arbitrage on parallel continuous market seems ineffective. No control over interaction with derivative trading that is under the CFTC’s jurisdiction is the fatal flaw. Also, their enforceability is doubtful. Benchmark reference price arbitrage would persist due to multiple-NBBOs. Auction only works in an “all or nothing” mode, i.e. mutually exclusive with CoB. A poorly functioned batch auction model at best would create yet another speed bump like the IEX. This is NOT what the industry or market needs. Nevertheless, reference to 79 FR 5592 footnote 711,<sup>8</sup> it said *“The Agencies are not adopting a ‘transaction-by-transaction’ approach because the*

<sup>34</sup> <https://www.linkedin.com/pulse/smile-curve-changes-securities-value-chain-evolves-kelvin-to/>

<sup>35</sup> [https://fnce.wharton.upenn.edu/wp-content/uploads/2019/04/Budish\\_paperStock-Exchange-Competition.pdf](https://fnce.wharton.upenn.edu/wp-content/uploads/2019/04/Budish_paperStock-Exchange-Competition.pdf)



Agencies are concerned that such an approach would be unduly burdensome or impractical and inconsistent ...” ⑤ seems to be in conflict, and the SEC’s policy direction is confusing.

Auctions may not have a price guarantee, and price improvement on auction may only occur briefly for few orders being filled. The frustration is analogy to deeply discounted items on ‘Black Friday Sales’. The 3 big exchange groups + MEMX, IEX, UBS ATS, SIGMA X2, and Intelligent Cross are the eight current incumbents meeting the 1% average daily volume to operate a qualified auction under ⑤. The Commission has acknowledged that there are additional complexity and connectivity costs to market participants arising from the introduction of qualified auctions.

As we mentioned in A5, the SEC is a regulator, NOT a market designer. The danger of the Commission pretending to be omniscient and omnipresent only hurts the creditability of the SEC. The four proposal packages use four inconsistent rates for Attorney and Compliance Manager (see table on the right); what an irony that the SEC is asking for BestEx across many different trading venues! Market design would best leave it to the professionals in the industry, so that the Commission may preserve its independence in rulemaking and enforcement.

Practically, can every broker-dealer have dynamic price shopping capabilities like “Booking.com” or “Ticketmaster” – it is economically not viable. Even if given the sophisticated algorithms to determine “where” and “when” in indicating “most favorable price”, it is humanly impossible for the SEC examiners to objectively decipher if there may or may not be BestEx violation or conflicted transactions (see our comments in A3). Literally there are thousands of trade messages within the 50± millisecond timestamp tolerance for the Consolidated Audit Trail (CAT). Attempting to try use CAT for enforcement is like finding a needle in a haystack. Please see our May 2021 comment letter for our counter suggestions to overhaul the outdated design of CAT.<sup>36</sup>

Issuing decrees about how each order should be routed is naïve. Also, there could be misconception or incomplete understanding of the market, such as page 228 of ③,

Role	Hourly Rate	Reference
General Counsel	\$693	⑥ BestEx 1101 Pg. 338 Table 23
Assistant General Counsel	\$518	① Disclosure 605 Pg.184 Footnote 495
Assistant General Counsel	\$449	③ Access Fees 610 Pg. 249
Chief Compliance Officer (CCO)	\$616	⑥ BestEx 1101 Pg. 338 Table 23
Director of Compliance	\$542	① Disclosure 605 Pg.178 Footnote 488
Director of Compliance	\$470	③ Access Fees 610 Pg. 249
Compliance Attorney (compliance counsel)	\$424	⑥ BestEx 1101 Pg. 338 Table 23
Compliance Attorney	\$406	⑤ Disclosure 605 Pg.178 Footnote 489
Compliance Attorney	\$352	③ Access Fees 610 Pg. 249
Compliance Manager	\$359	⑥ BestEx 1101 Pg. 338 Table 23
Compliance Manager	\$344	⑤ Disclosure 605 Pg.178 Footnote 488
Compliance Manager	\$310	④ 603(b) Pg, 327 Footnote 736
Compliance Manager	\$298	② Tick Size 612 Pg. 246 Footnote 624
Senior Compliance Examiner	\$264	⑥ BestEx 1101 Pg. 397 Footnote 650
Paralegal	\$253	⑥ BestEx 1101 Pg. 338 Table 23
Outside Counsel Services	\$496	⑥ BestEx 1101 Pg. 392 Footnote 637
Attorney (legal counsel)	\$483	⑥ BestEx 1101 Pg. 338 Table 23
Attorney	\$462	⑤ Disclosure 605 Pg.184 Footnote 495
Attorney	\$417	④ 603(b) Pg, 327 Footnote 736
Attorney	\$401	③ Access Fees 610 Pg. 249
Sr. Programmer	\$368	④ Disclosure 605 Pg.178 Footnote 488
Senior Business Analyst	\$265	② Tick Size 612 Pg. 246 Footnote 624
Programmer Analyst	\$232	② Tick Size 612 Pg. 246 Footnote 624
Sr. System Analyst	\$316	⑤ Disclosure 605 Pg.178 Footnote 488
Sr. System Analyst	\$285	④ 603(b) Pg, 327 Footnote 737
Operational Specialist (business-line personnel)	\$159	⑥ BestEx 1101 Pg. 338 Table 23
Operations Specialist	\$152	④ 603(b) Pg. 328 Footnote 740
Operations Specialist	\$137	④ 603(b) Pg, 327 Footnote 736

<sup>36</sup> <https://www.databoiler.com/index.htm/files/DataBoiler%20SEC%20CAT%2020210503.pdf>





where it said *“This reduction in liquidity provision may not be harmful to trading quality for these stocks, under the reasoning that the reduction in rebates would alleviate currently existing distortions that lead to an oversupply of liquidity relative to the demand of liquidity, and would better allow the forces of supply and demand to determine market prices and lower overall transaction costs for liquidity demanders.”* The proposals failed to account for the effects of cross-subsidization in market making or implications to thinly traded securities.

We foresee the widening of spreads (likewise, per NASDAQ)<sup>37</sup>. The proposed fees and rebates determinable at the Time of Execution (ToE) under ③ may push trading venues to be more defensive, or MMs retaliating against the skewed structure. Block trading activities would be reduced if the NBBO is narrowly defined or there are insufficient incentives to go around. The additional market complexity, as well as the increased MEME events and other irrational exuberances would convolute the US market. All leading to it would not yield the SEC’s desired **volume** growth.

Please see our comments in [A5](#) about ‘competitive shortfall’ and this article for an elaborated discussion.<sup>15</sup> Subjective judgements by a ruler’s taste lead to disputes and arguments detrimental to productivity of our industry and Nation. Officials craving for evermore powers may lead to unethical behaviors in exploiting the governed.

*B3. Given the uncertainties and the lack of a clearly identified problem*

- *Who will use these data? Are the required data elements relevant to these users?*
- *Does it make sense to make certain broker-dealers report these data, and has the Commission identified the appropriate set of broker-dealers to subject to these requirements?*
- *Are the monthly summary reports going to be informative to individual investors in a way that the more detailed data required under Rule 605 will not be, even if that data will be synthesized and made available by third-party providers?*
- *Will the monthly summary reports create a different impression of order execution practices and quality than would be provided by the more detailed order execution information required under the rule?*

Again, per our comments in [A1](#), the SEC prescribed or endorsed the statistics in ① are deemed overly complicated for the average investors to digest. It also contradicts the standard investor disclaimer – *“Past performance is NOT indicative of future results”*. Moreover, ① essentially publicizes some Consolidated Audit Trail (CAT) data that would otherwise be confidential. Giving away vast amounts of information to free riders (e.g., activists, MEME stock insurgents, and foreign adversaries) increases vulnerabilities. These free riders have no skin in the game while they use market modeling for mischief. Increasing MEME events and other irrational exuberance is detrimental to rational price discovery (i.e. worsen the **veracity** outcomes). We argue that policy and market incentives should direct creative efforts to decipher “outliers” (such as the one the Commission denounced in footnote 236 of ①). Discovery of unknowns<sup>5</sup> and timely warning of irregularities make the market safer.

<sup>37</sup> <https://www.nasdaq.com/articles/a-data-driven-summary-of-the-secs-new-proposals>



It does not make sense to make certain broker-dealers report these data. If any constituents, including the regulators, want to have comprehensive metrics produce, let's have the vendors compete for their business. The monthly summary reports may demonstrate 'where' an order should be routed, but not 'when'.

As mentioned in our comments in [A2](#), PFOF is not necessarily a payment per se; it can take the form of a discount or other privileges. Then, per our comments in [A3](#), access fee rebate, PFOF, and market data/ market structure issues are all intertwined. By boiling down the problems and what the industry's long-standing issues are – we arrive at **'who owns the data?'** The SEC failed to grasp the correct context of the market problem.

Not all broker-dealers' execution quality are equal, an analogy of it is – not all ETFs are created equal.<sup>38</sup> We argue that both the summary report and the more detailed order execution information required under ① create false sense of comfort about order execution practices and quality.

*B4. "Whether the proposal gets the new, variable tick sizes correct is a question ... would prefer that the Commission get out of the rate-setting business altogether ... causes me concern is the proposal to mandate uniform trading increments across the market for NMS stocks... the release does not really explain why variety in the offerings of different types of market centers is a bad thing... The release shows little concern for how this provision may deter further innovation going forward... heavily favor exchanges and certain ATs over other firms providing trade execution services."*

The Commission is forcing almost all stocks to trade at least 4-8 ticks wide, while NASDAQ and other researches have indicated a stock has optimal trading with a 2-3 tick spread.<sup>23</sup> The SEC is attempting to close any minor differences between the different market centers' capabilities in sub-penny trading that may be used as tactics to disrupt the quote priority. Yet, artificially altering the queue (equal waiting line at all checkout counters, except leaving much room for the Exchanges to selectively use tier rebates and other perks to divide the cake with the elites in hurting the other "content" creators) may affect the "apparent", NOT the real supply and demand for securities. Making all 'streamers'<sup>6</sup> (MMs, ATs, SDPs, and SROs) the same is a detriment to the **variety** factor of the 4Vs because it undermines the different roles they play and the frienemy dynamics they have in fabricating the fragmented market under Reg. NMS.

The long list of cumbersome parameters that the SEC attempts to prohibit gaming or latency arbitrage seems ineffective and deter innovation. No control over interaction with derivative trading that is under the CFTC's jurisdiction is the fatal flaw. Also, their enforceability is doubtful. Benchmark reference price arbitrage would persist due to multiple-NBBOs. Auction only works in an "all or nothing" mode, i.e. mutually exclusive with continuous-time limit order books (CoB). A poorly functioned batch auction model at best would create yet another speed bump like the IEX. This is NOT what the industry or market needs.

We are in agreement with Commissioner Peirce that the Commission should get out of the rate-setting business altogether. Rather than attempt to price control or inadvertently calibrate the wrong prescriptions, the SEC should consider principle-based rules, like the Four-Part Test<sup>19</sup> that uplifts the "willing seller willing buyer standard" per 75 FR 3597.<sup>20</sup>

<sup>38</sup> <https://www.institutionalinvestor.com/article/b150zsjt646v0h/not-all-etfs-are-created-equal>



B5. *“The Commission’s recent loss in the litigation over the related governance order seems likely to cause considerable delay in implementing the [Market Data Infrastructure] rule. In light of the delay, is accelerating these requirements reasonable?”*

It is sad that the industry has no say over market data (contents) that they provided, or arguably “owned”, given the court struck down the CT-Plan.<sup>39</sup> The proposed accelerated implementation of odd-lots/ round-lot under ④ is problematic. Ingesting a lot of data raises the concern about bandwidth connectivity. What you see may not be what you get. Lacking depth-of-book data undermines the usefulness of Odd Lot data. The SEC’s economic analysis (page 193) acknowledged that *“the proposal could increase the demand to purchase depth of book data ... result in more market participants purchasing data from exchange depth of book proprietary data feeds than do currently.”*

Think about what gives rise to arbitrage or pick offs on price. Anyone would have done it if they did not have to bear the corresponding cost in using others’ copyrighted materials. The SEC should NOT be taking the stand to protect the exchanges’ *“agency market business model”*. We argue that for-profit exchanges are indeed operating a “Jukebox model” to extract rent. Letting these streamers divide the cake by selectively paying rebates and other perks to the elites hurts the other “content” creators. The situation is worse in the futures market as CME and ICE hold duopoly power.

Regardless of wireless connections or ports for different proprietary feeds, or SIPs, they should all use time-lock encryption (TLE)<sup>7</sup> to make sure there is no premature decryption of data. Forsaking a synchronized start-line is indeed unreasonable and against public interests. *“Same manner and methods”* is merely a standard price list offered by Exchanges. It is not the equivalent to Latency Equalization, nor can it achieve the same results as Market data available Securely in Synchronized time. “Same format” hurts average investors and gives High Frequency Trading firms (HFTs) a permanent advantage where one can only attempt to match faster connectivity by altering data format and compression methods.

The endless pursuit of ever faster **velocity** is an economic wastage for all, including HFT rivalries. It only benefits the telecom infrastructure companies. We advocate for ending the unnecessary arms race for speed with TLE. Rest assured that TLE is not another speed bump.

B6. *“The proposal fails to grapple seriously with the possibility that retail customers will pay higher commissions than they do now... could result in inferior outcomes for retail investors, harm venue competition, and discourage further innovation, given the rigidity inherent in a mandated structure... may be a ‘winner’s curse’ problem in order-by-order auctions that could reduce retail investor welfare... Are the risks of a negative outcome worth disrupting a current regime... the discussion hints that a broker-dealer, to meet its requirements under the rule, should convert PFOF into price improvement, why is withholding price improvement from the customer worse than charging the customer a (likely higher) commission?”*

Reference to 79 FR 5592 footnote 711,<sup>8</sup> it said *“The Agencies are not adopting a ‘transaction-by-transaction’ approach because the Agencies are concerned that such an approach would be unduly burdensome or impractical and inconsistent ...”* ⑤ seems to be in conflict, and the SEC’s policy direction is confusing.

<sup>39</sup> <https://www.linkedin.com/pulse/market-data-reform-without-ct-plan-kelvin-to/>



This research suggests that *“order-by-order auctions have a winner’s curse problem that reduces retail investor welfare, particularly at times of limited liquidity.”* Its findings are supported by an empirical analysis of Retail Liquidity Programs (RLP) currently offered by exchanges (which RLP function is similar to order-by-order auctions).<sup>40</sup> We would not equate the existing regime to *“withholding price improvement from the customer”*, while we think that if the proposals are adopted, retail investors may get inferior outcomes, including charges over today’s zero commission. As mentioned in [A3](#), access fee rebate, PFOF, and market data/ market structure issues are all intertwined. By boiling down the problems and what the industry’s long-standing issues are – we arrive at **‘who owns the data?’** Per our comments in [A5](#), the SEC failed to grasp the correct context of the market problem, which introduces bias with the Commission’s analysis on how the treatment group is chosen or omitted. The Commission’s premises of DID is built on the basis of “zero-sum”, while empirical evidence by Schwab proved otherwise, citing *“Order routing revenue and price improvement are NOT ‘zero-sum’.* *Conversely, we have seen progressive improvements to execution quality while payment rates remained relatively stable.”*<sup>32</sup>

The conscience within the Commission warned about the adverse effects or consequences throughout all four proposal packages, yet the final proposals downplayed the negative effects. Repeating the word *“However”* 561 times and using circular references to self-articulated sections or declining to provide estimates on many occasions would not turn linguistic camouflage into truths. Where to find the money to cover the \$3.6 billion loss in net income for the 3,498 broker-dealers mentioned earlier; pay for the superficially low estimate of ‘total combined initial and annual internal and external cost’<sup>31</sup> that is near \$1 billion; plus the rising market data, connectivity, and intermediary costs? Where to find the SEC’s claimed \$1.12-\$2.35 billion of cost savings for retail (or Bloomberg lower the estimate to \$800 million each year<sup>33</sup>) when all 4Vs pointed negative? We argue the social burden is at least 10 times greater.

The result of our value chain assessment shown an upside-down smile curve<sup>34</sup> shifting downward, largely resembling the existing shape (i.e., remain status quo)<sup>35</sup> of a “frown”. The Commission’s prescription is the wrong medicine to untangle the industry value chain. Please see this article for our testimonials.<sup>15</sup> Why reform the NMS amid the impending financial turmoil, unless it is about a better way to delineate rights & obligations (who owns the data). The risks of the Commission’s proposals having a negative outcome are NOT worth disrupting a current regime.

B7. *“The proposing release expressly excludes pertinent costs by noting that ‘realized spreads ... do not account for other costs ... such as fixed costs for setting up their trading infrastructure and costs for connecting to trading venues and receiving market data.’ ... incorrect premise ... circular reasoning: the proposing release argues that the higher economic profits—which have not been demonstrated—are caused by the isolation of orders from order-by-order competition, and therefore order-by-order competition is needed to eliminate the economic profits that have not been demonstrated... exchanges and wholesale market makers are in fundamentally different businesses and their cost structures are not the same...”*

Our testimonials affirm Commissioner Pierce’s cited issues.<sup>15</sup>

For example, the linguistic camouflage, such as page 408-409 of ⑥ that stated the *“initial aggregate cost of \$54.12 million and total ongoing aggregate cost of \$17.33 million per year”*. The amounts merely reflect a small portion of the outside/ external costs for Paperwork Reduction Act (PRA).

<sup>40</sup> [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4300505](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4300505)

After crunching the numbers hidden in various footnotes, the dollar cost burden for ⑥ turns out to be: \$216.89 million for the initial internal implementation burden; \$169.93 million in annual internal burden; \$177.98 million for the initial external cost burden; \$92.23 million for the annual external cost burden. The outside counsels (incl. paralegal) will ring in a total of \$267 million, and outside compliance services is going to get \$3 million in ⑥. The four proposal packages use four [inconsistent rates](#) for Attorney and Compliance Manager; what an irony that the SEC is asking for BestEx across many different trading venues! In addition, can legal and compliance teams work in a silo without involving any business-line personnel or technical staff under ① and ③? Again, the SEC's four proposals downplayed the negative effects, used circular references to self-articulated sections or declined to provide estimates on many occasions. Linguistic camouflage only hurts the creditability of the SEC.

We agree with Commissioner Pierce that *“exchanges and wholesale market makers are in fundamentally different businesses”*, whilst policy makers should consider MMs, ATs, SDPs, and SROs as different streaming platforms<sup>6</sup>. Using Disney+ as an analogy for an established Bulge Bracket that also owns an ATS; they have their own Disney, Pixar, Marvel, Star Wars, and National Geographic contents for interactive streaming. Using Showtime as another analogy, they are a competitive interactive streaming platform. Their crafted niche is different compared to Disney+. Equity securities that are not NMS stocks, corporate bonds, or municipal securities may just need specialized streaming platform(s) like Showtime.

For a third analogy, there are the “non-interactive” platforms such as online radios or cable TVs, which we refer to them as the “Exchanges”. In contrast to Disney+ and Showtime which are interactive, they serve the broadest audience while not having a “catalog”. They may pay a substantial portion of all royalties, yet they represent the biggest liquidity pool in all markets. Participants would not see “cyberpunk” or any “obscene, indecent and profane” content given these non-interactive platforms are intensely regulated. Their contents include “timeless classics” rather than new first run blockbusters; they continue to be profitable.

Viacom CBS does have MTV, Comedy Central, Paramount Network and other interactive platforms under their group. This crossover of “non-interactive” with interactive” approach, or the earlier mentioned analogies have illustrated that existing vested interests, other encumbrances, and where new entrants can all flourish under our recommended scheme. Viewers (investors) get more choices and better contents. **Variety** helps reach a wider audience, reduces the unknowns<sup>5</sup>, and supports the sustainable development of the US market.

Gains in market efficiency will only be achieved by Pareto improvement (someone better off without anybody worst off or win-win for all).<sup>22</sup> The number of FINRA registered firms continues to drop year over year.<sup>18</sup> Healthy markets need both farmers and hunters. Do not shoot the messenger (principal trading firms).<sup>24</sup> By putting in place a copyright licensing mechanism,<sup>21</sup> the playing field will be leveled, incentives will be aligned, and the economic viability of a constituent to exploit its economy of scope and/or economy of scale will be addressed.

*B8. “The proposed solution could create even bigger problems. It will reroute existing pipes through which retail orders are executed, impose new costs on any firm that handles retail trades, and add new steps to the execution of retail orders... the proposed mandate would come with its own fee caps—another instance of government price setting, the inevitable consequence of routing mandates...”*



The concept of using a discrete-time (periodic batch) auction<sup>9</sup> to replace continuous-time limit order books (CoB) to deemphasize speed as a key to trading success is NOT a novel idea. Professor Eric Budish had been one of the biggest proponents of Auctions. However, according to this 2014 CFA post,<sup>10</sup> it points out that *“pre-trade transparent constantly updating price in real-time, providing true price discovery, which complicate the auction process ... Budish agreeing that latency arbitrage could continue on parallel continuous market exchanges. In this case, the proposal is similar to IEX’s speed bump, which is designed to protect traders only on the IEX platform.”*

As mentioned in [A4](#), we concur with this comment in the Bloomberg Intelligence research, *“If the auction fails, the specified limit is the price (or better) the wholesaler can trade against, but it’s not a backstop guarantee because the wholesaler can choose not to internalize. There’s no guidance on how the limit must be priced in respect to the NBBO, but order protection rules apply, meaning the top of the market center’s continuous book will trade ahead of the auction winner if it’s resting at a better price.”*<sup>29</sup>

Auctions may not have a price guarantee, and price improvement on auction may only occur briefly for a few orders being filled. The frustration is analogy to deeply discounted items on ‘Black Friday Sales’. The 3 big exchange groups + MEMX, IEX, UBS ATS, SIGMA X2, and Intelligent Cross are the eight current incumbents meeting the 1% average daily volume to operate a qualified auction under [⑤](#). The Commission has acknowledged that there are additional complexities and connectivity costs to market participants arising from the introduction of qualified auctions.

If the SEC insists on having periodic auctions as the preferred market design, then they may consider joining forces with the CFTC to set, for example at 11:X a.m. Eastern Time to host an auction and halt the continuous order book trading. It is like the opening auction and the Exchange does not need to reinvent the wheel. Whether this applies to segmented orders or extending it to apply to all securities by phase is to be decided. Instead of the 1% average daily volume ‘entrance hurdle’, why not run a hackathon to solicit the best auction design(s) and then let trading venues to bid for 2 to 4 licenses to implement and operate qualified auctions for more concentrated liquidity?

Our suggested alternative has a higher chance of success to fill meaningful volume of orders than the 8 qualified auctions per the SEC’s estimation. However, un-filled orders by auctions would be inexplicable regardless of the type and number of auctions. Auction market is usually crowded with Specialists and Professional players. Are retails the “Dim Sum” for many predators that is not suitable for them to swim in the first place? In the eyes of those who wanted immediate liquidity from the continuous order book, the policy favoring auction markets is unfair, because it is a compromise for them to wait until the auction is over.

Although the Commission views the wholesalers (MMs internalizers) as the middleman, the inevitable consequence of routing mandates and intermediary costs in reality encompass: connections with more trade venues (including auction markets), increase market data subscription fees, demonstrating BestEx, the inelastic demand of Transaction Cost Analyzer (TCA), the reliance on liquidity sourcing, execution services and other ‘tools’, for example, the use of split, cancel, derivatives and other means to adjust to the more convoluted market environment.

Technology advancements do NOT reduce “flickering” concerns (footnote 195 of [②](#)) because tech in itself is neutral. In contrast to the Commission’s belief, the ‘phantom quotes’ phenomenon has been exacerbated ever since IEX goes all-in on Data Revenues, Quote Fade and (Virtual) Rebates.<sup>12</sup>



Investors' frustrations and complaints will rise. People will shift their focus to passive strategies and/or derivatives trading. Asset maximizers ('farmers': fund industry, retirement, insurance sectors) will have a hard time achieving economy of scale without losing out to the 'hunters' amid the NMS tectonic shift, leading to further consolidation of asset managers. Without sufficient diversity or **variety** of participants in the market, price discovery or **veracity** leaving up to the auction process may indeed intensify "gamification".

A vicious cycle is created when the echo chamber generates more bifurcated behaviors. It will cannibalize the market.

B9. *"The daunting task these broker-dealers will face is the requirement that they evaluate a broader range of markets beyond those identified as 'material potential liquidity sources' ... conflicted retail brokers would have to 'evaluate a broader range of markets, beyond those identified as material potential liquidity sources, that might provide the most favorable price for customer orders, including a broader range of order exposure opportunities and markets that may be smaller or less accessible than those identified as material potential liquidity sources' (emphasis added). Requiring firms to look for immaterial liquidity sources is neither sensible nor protective of retail customers... the so-called 'conflicted transactions,' the proposal requires acquisition of information 'beyond' that required normally but does not detail what that means. How much information properly constitutes 'beyond'?"*

⑥ will impose disproportional burdens on small players. Under proposed Rule 1100 or ⑥, *"the term 'market'... encompass the wide range of mechanisms ... this description of 'market' is expansive ..."* We believe the Commission may be having the Proposed Investor Protections in Communication Protocol Systems (CPSs) and ATs and Amendments to Exchange Act Rule 3b-16 Regarding the Definition of "Exchange" in mind. Per our 2022 comment letters to the SEC, ESMA, and FCA, the regime difference pertains to the characteristics or principles in determining when a "subject" or "object" meeting certain condition(s) would be considered "what".<sup>41</sup> Both the US and EU's changes are between a rock and a hard place.<sup>42</sup>

What constitutes as "best execution" has stirred much controversy. From a market design perspective, we would like to see NMS fostering diversified trading venues, working in harmony as one. Specifically, retail investors should not receive inferior prices to those available to institutional traders. Also, according to this academic study, an odd lot order bettered the protected quote 37% of the time in its trading sample. More important, the market ought to function effectively to uphold market integrity standards (fairness of access, free from manipulations or any other disruptions), but this is hard! Markets are so convoluted and corresponding technologies are expensive. Everything has a cost to it – subscribing to proprietary feeds, connecting to more trading venues, demonstrating best execution compliance, use of transaction cost analyzers, etc.

Brokers must examine key characteristics (nature of the market – volatility, communication availability, price, and relative liquidity; the number of markets examined; transaction type and size; and how easily a quote can be obtained) and prove that they utilized "reasonable diligence" in choosing how to route the order for execution. MiFID-II calls for 'sufficient steps' to ensure favorable execution of client orders, while the US under ⑥ requires

<sup>41</sup> [https://www.databoiler.com/index\\_htm\\_files/DataBoiler SEC ATS 20220418.pdf](https://www.databoiler.com/index_htm_files/DataBoiler SEC ATS 20220418.pdf) ;

[https://www.databoiler.com/index\\_htm\\_files/DataBoiler%20ESMA%20Trading%20Venues%20202204.pdf](https://www.databoiler.com/index_htm_files/DataBoiler%20ESMA%20Trading%20Venues%20202204.pdf) ; [https://www.databoiler.com/index\\_htm\\_files/DataBoiler FCA Trading Venues 202211.pdf](https://www.databoiler.com/index_htm_files/DataBoiler FCA Trading Venues 202211.pdf)

<sup>42</sup> <https://www.linkedin.com/pulse/trading-venue-perimeter-between-rock-hard-place-kelvin-to/>



'reasonable steps' that is more bureaucratic and subjective, amid footnote 132 on page 71 in ⑥ said *"would not establish minimum data elements needed to comply with the proposed best execution standard"*. Ebb and flow would cause the US market to lose a competitive edge, further reducing overall trade volume. Please be reminded of Jérôme Kerviel whom bought into Daniel Bouton's lip service about Société Générale's (SocGen) internal control strengths with a \$7.2 billion loss<sup>13</sup> in 2008. Heightened disclosure in the beautified name of "improve transparency" may indeed be bad policies for an uneven playing field. Malicious targeting or selective enforcement only benefits the middlemen, big law and consulting firms.

The four proposal packages use four [inconsistent rates](#) for Attorney and Compliance Manager; what an irony that the SEC is asking for BestEx across many different trading venues! ⑥ is essentially passing the buck of BestEx to ask broker-dealers to perform the daunting or near impossible task, which the SEC itself struggled to accomplish. As we mentioned in [B2](#), it is economically not viable to ask every broker-dealer to have dynamic price shopping capabilities like "Booking.com" or "Ticketmaster". Despite the SEC burning billions a year in budget and wasting time finding a needle in a haystack through CAT, it is humanly impossible for the SEC examiners to objectively decipher if there may or may not be BestEx violation or conflicted transactions (even if given the sophisticated algorithms to determine "where" and "when" in indicating "most favorable price").

There are thousands of trade messages within the 50± millisecond timestamp tolerance for CAT. It is not how a broker-dealer "claims" the trades were dealing with a customer or counter-party. Rather, as the trade data would reveal, with consistency, whether the firm was "in effect" acting in the best interest of the customer rather than treating the party as a counter-party (i.e. without fiduciary responsibility). Therefore, an automated system is needed to conduct the "regular and rigorous review" for "best execution" compliance if regulators want to discourage the "flipping-a-switch" between clients versus non-clients behavior. The automated checking would need to access if a market-maker's risk profile may suddenly change and under what market conditions. Any "out-of-proportion" or "unreasonable" trade activities should be curbed because the result of many small incremental exploitation or hedges and/or commitments can accumulate into out-sized bets or bubbles. Please see our May 2021 comment letter for our counter suggestions to overhaul the outdated design of CAT.<sup>36</sup>

*B10. The proposed rule provides a handy checklist for SEC examiners and enforcement attorneys, but it does not foster brokers' exercise of judgment to achieve what is best for customers ... Institutional investors may have other important objectives, such as speed and minimizing the effect on price. The rule makes it hard for institutional brokers to tailor best execution to a customer's objectives ... retail firms may not have a real choice between continuing to accept payment for order flow or changing their business model. It is not clear how a retail broker-dealer would go about complying with the heightened policies and procedures requirements that apply when there is a conflict.*

Allow us to cut to the chase, the outside counsels (including paralegal) will ring in a total of \$267 million, and outside compliance services will get \$3 million in ⑥. So lucrative! We agree with Commissioner Uyeda's comment about *"the rule may well result in broker-dealers feeling compelled to purchase more market data than they otherwise might from the exchanges and alternative trading systems, because of uncertainty in satisfying their best execution obligations."* Firms' compliance best bet may be through hiring from the SEC's "revolving door".<sup>14</sup> The larger firms may have wider "shoulders" to bear the burden through big law or consulting firms which smaller players cannot afford, yet this does not mean smaller firms have higher risk than their larger counterparts.





Heightened disclosures in the beautified name of “improve transparency” may indeed be bad policies for an uneven playing field hurting the smaller players. The conscience within the Commission has acknowledged on pages 190 and 335 in ⑥ that *“increased costs could be passed through to customers in the form of higher commissions or reduced services [and] could ... result in higher barriers to entry and potential exit of small broker-dealers.”* These match the findings in our smile curve value chain analysis.

As mentioned in [B9](#), it is humanly impossible for the SEC examiners to objectively decipher if there may or may not be BestEx violation or conflicted transactions. The SocGen \$7.2 Billion loss<sup>13</sup> in 2008 should serve as a reminder for the uselessness of these policies and procedures. Per our comments in [A3](#), subjective judgements by a ruler’s taste lead to disputes and arguments detrimental to productivity of our industry and Nation. Alleged violations would not reach definitive conclusions. More cases end up in settlement favoring the ‘Too Big to Fail’ (TBTF) rather than seeing justice prevail. Victims may not be identified in many of these cases and settlement fines are usually divided among regulators. Officials craving for evermore powers may lead to unethical behaviors in exploiting the governed.

### Commissioner Crenshaw

*C1. “Fulfill its three-part mission to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation.”*

We want to achieve these 3 policy goals. Unfortunately, the Commission’s prescription is the wrong medicine to untangle the industry value chain. The 4 proposals majored in the minors and have adverse consequences detriment to all 4Vs of sustainable markets – i.e., Volume, Velocity, Veracity, and Variety. 75 FR 3597<sup>20</sup> requires “willing seller willing buyer standard”. “Price improvement” is one of the aspects (see our comments in [A2](#)), whilst the proposals overemphasized on the “*most favorable price*” did NOT strike the appropriate balance. Please refer to the [beginning of this comment letter](#) for highlights of our key concerns.

*C2. “Whether the approach we are proposing today is the optimal one to achieve those goals, and whether there are changes to the approach, or other approaches ... whether the updates we are proposing to make are the right ones, or if there are things we should do differently ... let us know whether this approach is the best one to achieve our aims. For example, there are a number of alternatives discussed in the release. Could one of those achieve the aims of the rule with fewer costs or less complexity? Are there drawbacks to the proposed approach that are not addressed in the release?”*

The SEC’s proposed approach is definitely NOT the optimal one to achieve the three-part mission to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation, but the opposite. Our value chain assessment showed all 4Vs would turn negative and the current upside down smile curve would further shift downward rather than returning to a healthy U-shape if the proposals are adopted. The SEC exacerbates the gap between the ‘haves’ and ‘have-not’ by not curbing the Exchanges’ tier rebate in ③, letting NYSE launched 100G colocation service since April 2020 when MDIR is based on 10G connectivity, and imposing disproportional burdens on small players, such as the proposed ‘Regulation Best Execution’ (thereafter referred to as ⑥). The premises for ④ - auction is fundamentally flawed. Latency arbitrage could continue on parallel CoB. At best it would create yet another speed bump like the IEX, that the industry or market does not need.

We did try to consider if the SEC and CFTC may consider joining forces to set, for example at 11:X am Eastern Time to host an auction and halt the CoB trading. It is like the opening auction and the Exchange does not need to reinvent the wheel. Whether this applies to segmented orders or extending it to apply to all securities by phase is to be decided. Instead of the 1% average daily volume ‘entrance hurdle’, why not run a hackathon to solicit the best auction design(s) and then let trading venues to bid for 2 to 4 licenses to implement and operate qualified auctions for more concentrated liquidity?

Our suggested alternative has a higher chance of success to fill meaningful volume of orders than the 8 qualified auctions per the SEC’s estimation. However, un-filled orders by auctions would be inexplicable regardless of the type and number of auctions. Auction market is usually crowded with Specialists and Professional players. Are retails the “Dim Sum” for many predators that is not suitable for them to swim in the first place? In the eyes of those who wanted immediate liquidity from CoB, the policy favoring auction markets is unfair, because it is a compromise for them to wait until the auction is over.

With all due respect, the Commission’s proposals collectively trying to calibrate in great precisions of the “minors”, such as ③ setting to tenth of a penny and other corresponding provisions in hope to finesse the way queue priority is operated and/or prohibit “gaming” or “step in front of” of the



queues. Unfortunately, it has gone off-track in the “majors”, there is no turning back of a decentralized industry value chain since Reg. NMS and the market dynamics where access fee rebate, PFOF, and market data/ market structure issues are all intertwined. The SEC failed to grasp the correct context of the market problem – i.e., **‘who owns the data’**. The Commission’s analysis is biased on how the treatment group is chosen or omitted. Blindly taking the stand to protect the exchanges’ “agency market business model” is wrong. We argue that for-profit exchanges are indeed operating a “Jukebox model” to extract rent. Letting these streamers<sup>6</sup> divide the cake by selectively paying rebates and other perks to the elites hurts the smaller players and other “content” creators that serving niche segments such as thinly traded securities.

As mentioned in [A5](#), although DID regression model is intended to mitigate the effects of extraneous factors and selection bias, the premises of the Commission’s DID is built on the basis of “zero-sum”, while empirical evidence by Schwab proved otherwise, citing *“Order routing revenue and price improvement are NOT ‘zero-sum’*. *Conversely, we have seen progressive improvements to execution quality while payment rates remained relatively stable.*”<sup>32</sup> Gains in market efficiency will only be achieved by Pareto improvement.<sup>22</sup> The number of FINRA registered firms continues to drop year over year.<sup>18</sup> Healthy markets need both farmers (assets maximizers) and hunters (performance optimizers).

Without a consistent copyright licensing mechanism<sup>21</sup> to align and address the economic viability of a constituent to exploit its economy of scope and/or economy of scale, there is NO harmonization of different market centers. Rather than attempt to price control or inadvertently calibrate the wrong prescriptions, the SEC should consider principle-based rules, like the Four-Part Test<sup>19</sup> that uplifts the “willing seller willing buyer standard” per 75 FR 3597.<sup>20</sup>

Think about what gives rise to arbitrage or pick offs on price. Anyone would have done it if they did not have to bear the corresponding cost in using others’ copyrighted materials. The noumenon of rebate incentives serves as royalty payments for the use of others’ copyrighted material.<sup>16</sup> We need mechanisms that reward “content” creators. Then “streamers” would be based on who they want to serve, how many subscriptions they are going to get and determine whether to carry a broader or narrower “catalog”. The broader the “catalog”, the platform would pay a wider range of broker-dealers, featured traders, algo developers in royalties. That is how the playing field should be aligned.

**Variety** helps reach a wider audience. Policy and market incentives should direct creative efforts by different market participants to decipher “outliers” and reduce unknowns<sup>5</sup> (98% → 99.9% incremental improvement is better than 85% → 90% because it is 95% error reductions vs just 33%). Our counter suggestions would achieve Pareto improvement (someone<sup>6</sup> better off without anybody worst off or win-win for all).<sup>22</sup> Please see [Appendix 3](#) that illustrates how our Copyright Licensing approach would fulfill the SEC’s three-part mission to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation.

*C3. “Should Rule 605 apply to all broker-dealers ... Should the creation and formatting of the reports be standardized? Should the reports be made accessible in a central location? Are the summary reports likely to be helpful to investors?”*

NO. ① essentially publicizes some Consolidated Audit Trail (CAT) data that would otherwise be confidential. Giving away vast amounts of information to free riders (e.g., activists, MEME stock insurgents, and foreign adversaries) increases vulnerabilities. These free riders have no skin in the game while



they use market modeling for mischief. Increasing MEME events and other irrational exuberance is detrimental to rational price discovery (i.e. worsen the **veracity** outcomes). The SEC prescribed or endorsed statistics or the summary reports in ① are deemed overly complicated for the average investors to digest and contradicted with standard investor disclaimer – “*Past performance is NOT indicative of future results*”. Not all broker-dealers’ execution quality are equal, an analogy of it is – not all ETFs are created equal.<sup>38</sup> We worried that ① would create false sense of comfort about order execution practices and quality. Compilation of protected quotes is complicated. An odd-lot NBBO creates ambiguity. The SEC would get lambasted, while free riding speculators ask for evermore “indicators” that they amplify herd behaviors by using the echo chamber to disrupt the US market.

- C4. *“Extending the minimum tick size to trades executed in non-exchange markets, namely ATs and off-exchange wholesalers, should help provide a more level playing field across venues ... vital to ensuring that the minimum tick sizes strike the right balance between those competing concerns... if the fees stay the same while the minimum tick size is reduced, the fees become a greater portion of the cost of executing a trade and can undermine price transparency.”*

Striking the right balance is absolutely important. Yet, while the Commission over concentrated on calibrating the “minors”, it often causes blindsided with the “majors”. Over emphasized on “*most favorable price*” undermines the other aspects of the 4Vs. The Commission failed to account for inevitable consequences where the market is constantly picking up signals. Failed auction is analogy to the collapse of Silicon Valley Bank (SVB) after failure to raise funds in the lit market. Per our discussion about Four-Part Test,<sup>19</sup> “willing seller willing buyer standard”, and Fair market value in [A2](#), how share price would be “fair” depends on whom, under what circumstances and many contextual factors. What appears to be “fair” in the Commission’s eyes, in effect, can be hurting retail investors and other market participants as we illustrated in [E1](#) and [Appendix 2](#).

- C5. *“Require that all exchange fees and rebates be determinable at the time an order is executed... This uncertainty has implications for transparency and best execution analyses. Transparency at the time of execution should help broker-dealers make better order routing decisions, and could facilitate a broker-dealer’s ability to pass through the fee or rebate associated with a transaction... While this change has the potential to mitigate certain issues around volume-based fees and rebates, I continue to have deep concerns ... From a competitive standpoint, volume-based pricing subsidizes bigger broker-dealer firms at the expense of smaller and mid-sized firms, making it difficult for the smaller players to compete. From an investor protection standpoint, the need to qualify for a given tier may influence a broker-dealer’s routing decisions at the expense of seeking the best execution for a customer... are unlikely to be eliminated ...”*

NOTE: the Commission proposed prohibition of any volume discount that could give the largest participants an economic advantage is limited to ⑤ qualified auctions. The SEC exacerbates the gap between the ‘haves’ and ‘have-not’ by not curbing the Exchanges’ tier rebate in ③, letting NYSE launched 100G colocation service since April 2020 when MDIR is based on 10G connectivity, and imposing disproportional burdens on small players.

It is not wrong to say “*fees and rebates should be determinable at the time an order is executed*”, but a more appropriate way to implement Time of Execution (ToE) is first having a Copyright Licensing mechanism per our suggestions in [Appendix 3](#) to align all these access fee rebates, PFOF, market data and connectivity issues, so that different market centers or “streamers” would weigh-in on who they want to serve, how many subscriptions they



are going to get and determine whether to carry a broader or narrower “catalog”. The broader the “catalog”, the platform would pay a wider range of broker-dealers, featured traders, algo developers in royalties. Once this copyright mechanism is in place in accordance to objective Four-Part Test<sup>19</sup> that uplifts the “willing seller willing buyer standard” per 75 FR 3597,<sup>20</sup> rather than rate setting by the SROs or the SEC, then every market participants or “contents” creators would know how much they will earn in replacing existing fees and rebates and channel their efforts into productive activities, such as growing the numbers of diversified investors participating in the markets and/or discovering unknowns<sup>5</sup> to make the markets safer.

If the ToE provision is adopted as is, we believe it would push trading venues to be more defensive, or MMs retaliating against the skewed structure, and spreads be wider. The SEC’s expected a reduction in access fee rebates under ③ of \$1.857 billion (80.3%). Trimming that substantial amount of incentives to go around in the market is a direct hit to broker-dealers’ bottom line that they will have to find alternate ways to squeeze, exploit, or rent seek to cover their losses. The adverse consequences, such as *“increased costs could be passed through to customers in the form of higher commissions or reduced services [and] could ... result in higher barriers to entry and potential exit of small broker-dealers”*, acknowledged in pages 190 and 335 of ⑥, are likely to happen.

C6. *“If adopted, the proposal should help provide consistency and clarity with respect to the duty of best execution, while also updating that duty in two key ways: by setting elevated standards applicable to the conflicted transactions that are a common feature of retail trading today; and by better reflecting the role of the introducing broker... should they apply to trades for institutional customers as well? Should the requirements for conflicted transactions apply to all transactions? Do the proposed requirements provide too much flexibility to broker-dealers in designing and applying their policies and procedures?”*

*“Elevated standards applicable to the conflicted transactions”* or “false sense of comfort”, we think it is the later. The SEC’s proposed definition or characterization of “conflicted transactions” is inappropriate because there are additional factors beyond the 3 subjective conditions on page 100 of ⑥ to affirm the ‘suspicious activities’ are indeed in ‘conflict’ or not. “Selective timing” to get in-and-out of market, or if firms may classify a trade as dealing with “clients” versus “counter-parties”, somehow banks outsource trading to execution service vendors, and these vendors have another set of third parties to review order routing and execution quality. God knows if rubber stamping on BestEx reports is any good as compared to thorough assessment of market makers’ risk profile and market timing.

As we mentioned in [B2](#) and [B9](#), it is economically not viable to ask every broker-dealer to have dynamic price shopping capabilities like “Booking.com” or “Ticketmaster”. Despite the SEC burning billions a year in budget and wasting time finding a needle in a haystack through CAT, it is humanly impossible for the SEC examiners to objectively decipher if there may or may not be BestEx violation or conflicted transactions (even if given the sophisticated algorithms to determine “where” and “when” in indicating “most favorable price”).

Literally there are thousands of trade messages within the 50± millisecond timestamp tolerance for CAT. It is not how a broker-dealer “claims” the trades were dealing with a customer or counter-party. Rather, as the trade data would reveal, with consistency, whether the firm was “in effect” acting in the best interest of the customer rather than treating the party as a counter-party (i.e. without fiduciary responsibility). Therefore, an automated



system is needed to conduct the “regular and rigorous review” for “best execution” compliance if regulators want to discourage the “flipping-a-switch” between clients versus non-clients behavior. Also, the automated checking would need to access if a market-maker’s risk profile may suddenly change and under what market conditions. Ultimately, any “out-of-proportion” or “unreasonable” trade activities should be curbed because the result of many small incremental exploitation or hedges and/or commitments can accumulate into out-sized bets or bubbles. Please see our May 2021 comment letter for our counter suggestions to overhaul the outdated design of CAT.<sup>36</sup>

The SocGen \$7.2 Billion loss<sup>13</sup> in 2008 should serve as a reminder for the uselessness of these policies and procedures. Per our comments in [A3](#), subjective judgements by a ruler’s taste lead to disputes and arguments detrimental to productivity of our industry and Nation. Alleged violations would not reach definitive conclusions. More cases end up in settlement favoring the ‘Too Big to Fail’ (TBTF), rather than seeing justice prevail. Victims may not be identified in many of these cases and settlement fines are usually divided among regulators. ⑥ is brazenly self-serving driven by Officials craving for evermore powers may lead to unethical behaviors in exploiting the governed. The outside counsels (incl. paralegal) will ring in a total of \$267 million, and outside compliance services is going to get \$3 million. So lucrative and tempting for the SEC’s “revolving door”!<sup>14</sup>



**Commissioner Uyeda**

*D1. “Substantially increase costs for many market participants and may render otherwise efficient order routing outsourcing by retail broker-dealers less economic. This increased burden, at least in respect to payment for order flow as a so-called ‘conflicted transaction,’ may unduly impact the retailer/wholesaler model... Some broker-dealers may choose to de-conflict to avoid the costs that apply solely to conflicted transactions.”*

We agree with Commissioner Uyeda’s comment. Firms’ compliance best bet may be through hiring from the SEC’s “revolving door”.<sup>14</sup> The larger firms may have wider “shoulders” to bear the burden through big law or consulting firms which smaller players cannot afford, yet this does not mean smaller firms have higher risk than their larger counterparts. It is humanly impossible for the SEC examiners to objectively decipher if there may or may not be BestEx violation or conflicted transactions. The SocGen \$7.2 Billion loss<sup>13</sup> in 2008 should serve as a reminder for the uselessness of these policies and procedures. Per our comments in [A3](#), [B9](#), and [C6](#), subjective judgements by a ruler’s taste lead to disputes and arguments detrimental to productivity of our industry and Nation. Alleged violations would not reach definitive conclusions. More cases end up in settlement favoring the ‘Too Big to Fail’ (TBTF), rather than seeing justice prevail. Victims may not be identified in many of these cases and settlement fines are usually divided among regulators. Officials craving for evermore powers may lead to unethical behaviors in exploiting the governed.



### Commissioner Lizárraga

E1. *“Although the current market structure may work well for many market participants, it may not for others. The meme stock event of early-2021 highlighted serious investor protection and market integrity issues... A key question is whether certain conflicts and misaligned incentives place retail investors at a disadvantage relative to other market participants with substantial market power.”*

We want to narrow the gap between the ‘haves’ and ‘have-not’. For years, we have said, it is a ‘warring states period’<sup>43</sup> and ‘animal farm’<sup>44</sup> that market constituents are negotiating to be “more equal”. We are afraid that the Commission has got it wrong in taking the stand to protect the exchanges’ “agency market business model”. We argue that for-profit exchanges are indeed operating a “Jukebox model” to extract rent. Letting these streamers divide the cake by selectively paying rebates and other perks to the elites hurts the other “content” creators. The situation is worse in the futures market as CME and ICE hold duopoly power.

Major on the majors, the Commission should mandate the use of time-lock encryption<sup>7</sup> to end the endless pursuit of ever faster **velocity** with a secured and synchronized ‘starting line’ to improve market integrity and promote the FRAND principle. However, the proposals finesse with the minors about the way queue priority is operated and/or prohibit “gaming” or “step in front of” of the queues. Access fee rebate, PFOF, and market data/ market structure issues are all intertwined. The SEC failed to grasp the correct context of the market problem – i.e., ‘**who owns the data**’. The Commission’s DID regression model is biased on how the treatment group is chosen or omitted. Think about what gives rise to arbitrage or pick offs on price. Anyone would have done it if they did not have to bear the corresponding cost in using others’ copyrighted materials.

As mentioned in [A5](#) and [B4](#), artificially altering the queue (equal waiting line at all checkout counters, except leaving much room for the Exchanges to selectively use tier rebates and other perks to divide the cake with the elites in hurting the other “content” creators) may affect the “apparent”, NOT the real supply and demand for securities. Making all ‘streamers’<sup>6</sup> (MMs, ATs, SDPs, and SROs) the same is a detriment to the **variety** factor of the 4Vs because it undermines the different roles they play and the frienemy dynamics they have in fabricating the fragmented market under Reg. NMS.

The long list of cumbersome parameters that the SEC attempts to prohibit gaming or latency arbitrage seems ineffective and deter innovation. No control over interaction with derivative trading that is under the CFTC’s jurisdiction is the fatal flaw. Also, their enforceability is doubtful. Benchmark reference price arbitrage would persist due to multiple-NBBOs. Auction only works in an “all or nothing” mode, i.e. mutually exclusive with continuous-time limit order books (CoB). A poorly functioned batch auction model at best would create yet another speed bump like the IEX. This is NOT what the industry, market, or the underprivileged needs.

MEME stocks phenomenon may best represent 2021 as the “cyberpunk” year. Gamma-squeeze the hedge funds, mobilize the naïve to move prices (the gag would have been prohibited if it occurred at a broker-dealer), lambast the top market-makers to advance controversial agenda on payment for order flow... a rebellious move by an insurgent or who has the war chest to orchestrate a market wide shake-up? Heightened disclosure in the

<sup>43</sup> <https://www.linkedin.com/pulse/trading-venue-perimeter-between-rock-hard-place-kelvin-to/>

<sup>44</sup> <https://www.linkedin.com/pulse/animal-farm-market-data-negotiate-more-equal-kelvin-to/>





beautified name of “improve transparency” may indeed be bad policies for an uneven playing field. Giving away vast amounts of information to free riders (e.g., activists, MEME stock insurgents, and foreign adversaries) that they may use market modeling for mischief, such as increase MEME events and other irrational exuberance that is detrimental to rational price discovery (i.e. worsen the **veracity** outcomes).

Technology advancements do NOT reduce “flickering” concerns (footnote 195 of ②) because tech in itself is neutral. In contrast to the Commission’s belief, the ‘phantom quotes’ phenomenon has been exacerbated ever since IEX goes all-in on Data Revenues, Quote Fade and (Virtual) Rebates.<sup>12</sup> Investors’ frustrations and complaints will rise. People will shift focus to passive strategies and/or derivatives trading. Asset maximizers (‘farmers’: fund industry, retirement, insurance sectors) will have a hard time achieving economy of scale without losing out to the ‘hunters’ amid the NMS tectonic shift, leading to further consolidation of asset managers. Without sufficient diversity or **variety** of participants in the market, price discovery or **veracity** leaving up to the auction process may indeed intensify “gamification”. A vicious cycle is created when the echo chamber generates more bifurcated behaviors. It will cannibalize the market.

We foresee the widening of spreads (likewise, per NASDAQ)<sup>37</sup>. The additional market complexity, as well as the increased MEME events and other irrational exuberances, would convolute the US market. MiFID-II calls for ‘sufficient steps’ to ensure favorable execution of client orders, while the US under ⑥ requires ‘reasonable steps’ that is more bureaucratic and subjective. Ebb and flow would cause the over half a trillion dollars US equity markets to lose a competitive edge. All leading to it would not yield the SEC’s desired **volume** growth.

Conflicts would persist. The SEC’s proposed definition or characterization of “conflicted transactions” is inappropriate because there are additional factors beyond the 3 subjective conditions on page 100 of ⑥ to affirm the ‘suspicious activities’ are indeed in ‘conflict’ or not. As mentioned in [B9](#), it is humanly impossible for the SEC examiners to objectively decipher if there may or may not be BestEx violation or conflicted transactions. It is economically not viable to ask every broker-dealer to have dynamic price shopping capabilities like “Booking.com” or “Ticketmaster”. Despite the SEC burning billions a year in budget and wasting time finding a needle in a haystack through CAT, it is humanly impossible for the SEC examiners to objectively decipher if there may or may not be BestEx violation or conflicted transactions (even if given the sophisticated algorithms to determine “where” and “when” in indicating “most favorable price”).

There are thousands of trade messages within the 50± millisecond timestamp tolerance for CAT. Therefore, an automated system is needed to conduct the “regular and rigorous review” for “best execution” compliance if regulators want to discourage the “flipping-a-switch” between clients versus non-clients behavior. Also, the automated checking would need to access if a market-maker’s risk profile may suddenly change and under what market conditions. Any “out-of-proportion” or “unreasonable” trade activities should be curbed because the result of many small incremental exploitation or hedges and/or commitments can accumulate into out-sized bets or bubbles. Please see our May 2021 comment letter for our counter suggestions to overhaul the outdated design of CAT.<sup>36</sup>

The SocGen \$7.2 Billion loss<sup>13</sup> in 2008 should serve as a reminder for the uselessness of these policies and procedures. Malicious targeting or selective enforcement only benefits the middlemen, big law and consulting firms. How bureaucratic rules became a cottage industry, the ‘total combined initial



and annual internal and external cost<sup>4</sup> for four proposal packages is near \$1 billion. The SEC's expected reduction in access fee rebates under (3) of \$1.857 billion (80.3%) together with the expected cut in '606 payment', it would mean trimming of incentives in total of \$3.6 billion to go around in the market. It will directly hit the broker-dealers' bottom line that they will find alternate ways to squeeze, exploit, or rent seek to cover their losses. The adverse consequences, such as *"increased costs could be passed through to customers in the form of higher commissions or reduced services [and] could ... result in higher barriers to entry and potential exit of small broker-dealers"*, acknowledged in pages 190 and 335 of (6), are likely to happen.

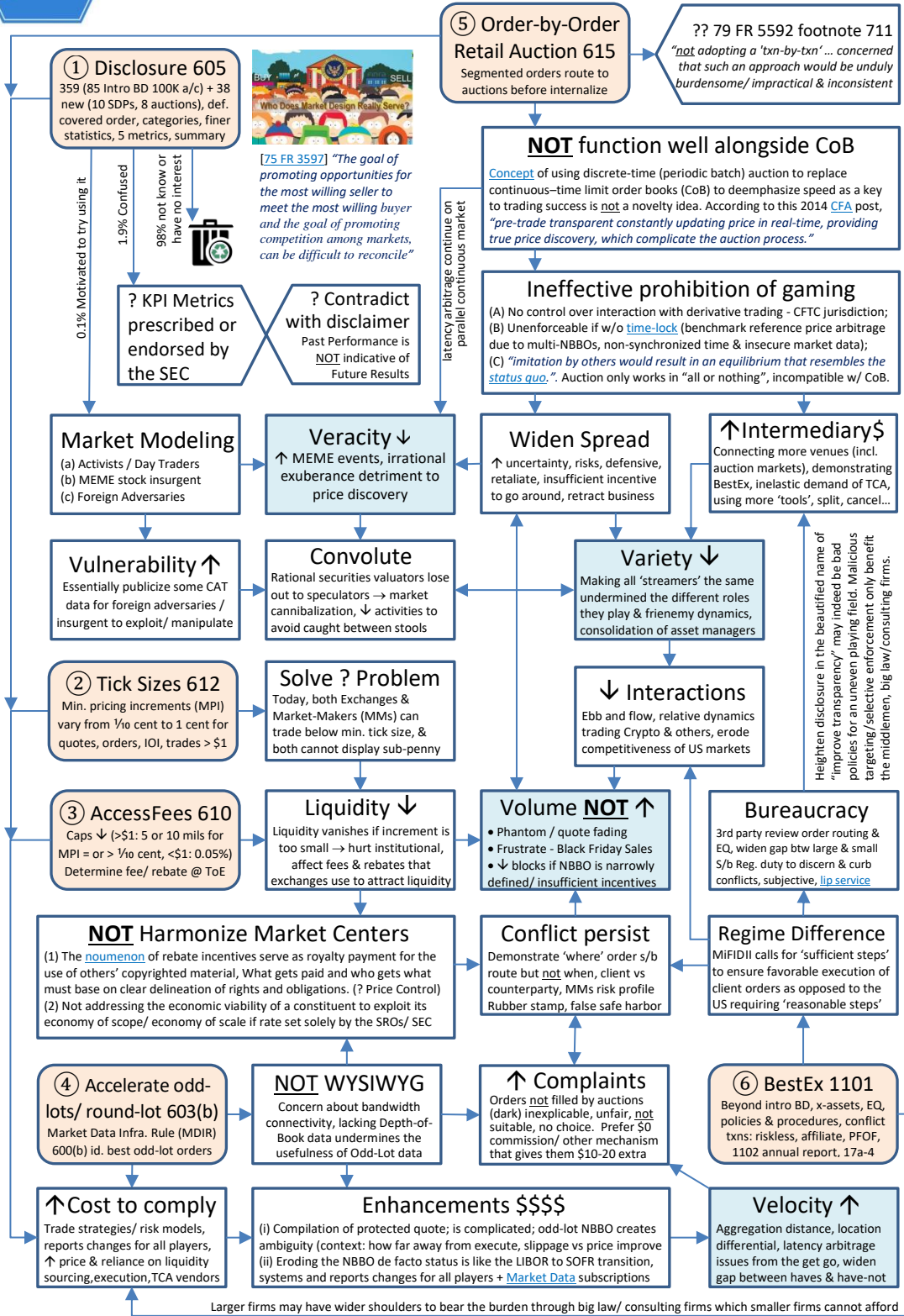
Per our comments in [A2](#), how share price would be "fair" depends on whom, under what circumstances and many contextual factors. What appears to be "fair" in the Commission's eyes, in effect, can be hurting retail investors and other market participants. The Commission failed to account for inevitable consequences where the market is constantly picking up signals. Failed auction is analogy to the collapse of Silicon Valley Bank (SVB) after failure to raise funds in the lit market. *"Darkness is to space what silence is to sound"*.<sup>45</sup> The **velocity** of sound or bad news travels faster than good news; gives the messengers (principal trading firms)<sup>24</sup> space. Healthy markets need both farmers (assets maximizers) and hunters (performance optimizers). Without a consistent copyright licensing mechanism<sup>21</sup> to align and address the economic viability of a constituent to exploit its economy of scope and/or economy of scale, there is NO harmonization of different market centers.

Rather than attempt to price control or inadvertently calibrate the wrong prescriptions, the SEC should consider principle-based rules, like the Four-Part Test<sup>19</sup> that uplifts the "willing seller willing buyer standard" per 75 FR 3597.<sup>20</sup> **Variety** helps reach a wider audience and avert the continuous down trend in the number of FINRA registered firms.<sup>18</sup> Again, policy and market incentives should direct creative efforts by different market participants to decipher "outliers" and reduce unknowns<sup>5</sup> (98% → 99.9% incremental improvement is better than 85% → 90% because it is 95% error reductions vs just 33%). Our counter suggestions in [Appendix 3](#) would achieve Pareto improvement (someone better off without anybody worst off or win-win for all)<sup>22</sup> for market efficiency gain and address conflicts by better delineating rights and obligations. However, the SEC's 1,656 pages of complicated proposals would not (see our value chain assessment in [Appendix 2](#) and this related article<sup>15</sup> and whitepaper).<sup>16</sup>

<sup>45</sup> <https://www.tandfonline.com/doi/abs/10.1080/17458927.2016.1162946?journalCode=rfss20>



Value Chain Smile Curve Assessment

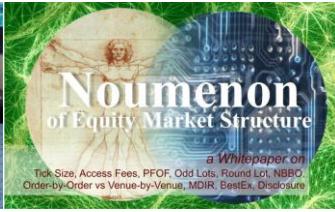
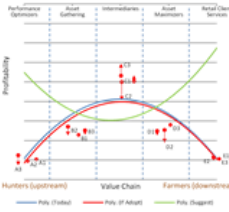


Enthralling Things<sup>+</sup>

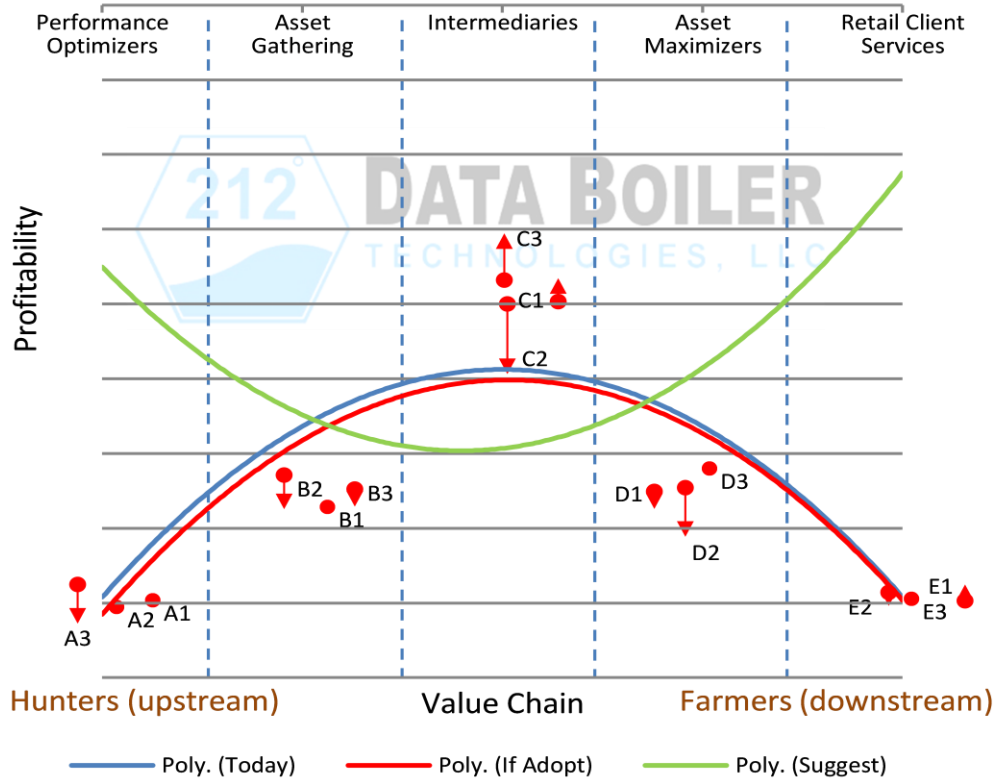
- ① Pg. 86 "NMOs received... at a time when an NBBO is not being disseminated could be considered covered orders... even though ... before the primary listing market has disseminated its first quotation", footnote 236 "... when the consolidated BBO reflects a spread that > \$1 + 5% of the midpoint could be the result of potentially erroneous quotes or of abnormal trading conditions... inclusion affect the comparability & reliability of EQ."
  - ② Pg. 34, 66, 188 Table 8 "identified 1,337 NMS stocks ... considered tick-constrained" ... "Avg. Quoted Spread < \$0.04, # of stocks 1,707 + 2,648 = 4,355"; "are tick-constrained, or near... designed... with a range of price points (4 to 8)"; footnote 217 "if spread ... wider than the avg. quoted spread used to determine the minimum pricing increment there would be more than 4 price levels"
  - ③ Pg. 99, 101, 106 "\$0.0005 cap for NMS stocks so that the cap does not exceed half the minimum increment, which could disrupt quote priority & result in unintended market distortions. For > 0.001, the \$0.001 cap avoid interference with existing agency market business models.", footnote 305 "bring ... fees exchanges charge for removing liquidity in line with ... ATs", "all fees & rebates determinable at the Time of Execution (ToE)"
  - ④ Pg. 129-130 "requiring the existing exclusive SIPs ... will prevent the imposition of unnecessary costs... on... SIPs immediately prior to their retirement"... "in light of the delay... the costs imposed on the exclusive SIPs by this requirement would not rep. 'unnecessary costs' on the exclusive SIPs"
  - ⑤ Pg. 88, 97 "absence of a threshold could result in... substantial increase of connectivity costs & complexity... detract from the level of competition", "attracted a wide range of market participants... avoid... fragmentation"
  - ⑥ Pg. 43 "require broker-dealers that have certain conflicts of interest to establish additional policies & procedures... enforce ... comply ... best execution standard"
- "Internal Hours ... Outside Costs... Attorney \$401,417,462,483; C.M. \$298,310,344,359"
- Remarks: Enthralling Things<sup>+</sup> ≠ agree or disagree, like or unlike.

Things to improve

- ① Customers do not need better assess of BDs' potential conflicts, the SEC is. Public relies on market regulators & SROs to assure that they are not scammed in open market. If 605 is for retail, approach such as the [red/ green boxes \(payments/ receipts\)](#) has merits. If any constituents, incl. regulators, want to have comprehensive metrics produce, let's vendors compete for their business.
- ② Half cent may be more reasonable, yet the only way to truly "harmonize" across market centers is by implementing a [Copyright Licensing Mechanism](#)
- ③ Noumenon of rebate incentives serve as royalty payment for the use of others' copyrighted material. The orderly function of any market requires ample liquidity from diversified sources. Suggest tweaking incentives ([green](#)) causing it to be not viable for a constituent to exploit its econ of scope, scale, or engage in other misbehavior acts.
- ④ Realize the gap between MDIR & where market data and market structure reforms should go. Right from the start, it has always been about aggregation distance/ location differential issues. See [this](#)
- ⑤ Joint force w/ CFTC to set e.g. 11: Xam ET for periodic auction (mutually exclusive, no CoB); 1/0 1% SCI threshold, open bids for 2-4 licenses to design &/ operate qualified auction + use of [time-lock encryption](#)
- ⑥ 'Most favorable price' <> 'willing buyers sellers standard', should consider [Four-Part Test](#). See [2021 letter](#) for our suggestion to curb misbehaviors, modernize the outdated design of CAT, save \$, & better intelligence.



P.S. Why reform the NMS amid the impending financial turmoil, unless it is about a better way to delineate rights & obligations (who owns the data).



Role	Costs <sup>^</sup>	Benefits <sup>~</sup>	Constituents	Data Values Contribution		Data Values Extraction		Redistribution		Info Advantage*	
				a) Volume	b) Veracity	c) Velocity*	d) Variety	e) Subsidies	f) Market Data	Today	If Adopt
Hunters	↑	↓	A1 Hedge Funds	1.2	4.1	4.2	3.2	2.2	1.2	4.2	4.2
			A2 Proprietary Trading, Family Office	1.3	4.3	4.3	3.3	2.3	1.3	4.3	4.3
			A3 High Frequency Trading	1.1	4.2	4.1	3.1	2.1	1.1	4.1	4.1
Asset Gathering	↑	↓	B1 Issuers	4.3	2.2	3.3	4.2	3.3	4.3	3.3	3.3
			B2 Bulge Brackets	4.1	2.1	3.1	4.1	3.1	4.1	3.1	3.1
			B3 Index/ Risk Modeling, Tier 2, Non-bank MM	4.2	2.3	3.2	4.3	3.2	4.2	3.2	3.2
Intermediaries	↑	↑	C1 Open Competition Trading Center	5.2	3.3	1.3	1.2	5.2	5.3	1.2	1.3
			C2 Restricted Competition Trading Center	5.3	3.2	1.2	1.3	5.3	5.2	1.3	1.2
			C3 TCA, Liquidity Sourcing/ Execution Vendors	5.1	3.1	1.1	1.1	5.1	5.1	1.1	1.1
Asset Maximizers	↑	↓	D1 Retirement & Insurance Platforms	2.2	1.1	2.3	2.2	4.1	2.1	2.3	2.3
			D2 Institutional Active Managers	2.3	1.2	2.1	2.3	4.3	2.3	2.1	2.1
			D3 Exchange Traded Products	2.1	1.3	2.2	2.1	4.2	2.2	2.2	2.2
Retail Client Services	↑	↓	E1 Securities Processing, Custodian	3.3	5.3	5.3	5.3	1.3	3.3	5.3	5.3
			E2 Originating Broker, Retail Disc. Brokerage	3.1	5.1	5.1	5.1	1.1	3.1	5.1	5.1
			E3 Investment Advisory Networks	3.2	5.2	5.2	5.2	1.2	3.2	5.2	5.2

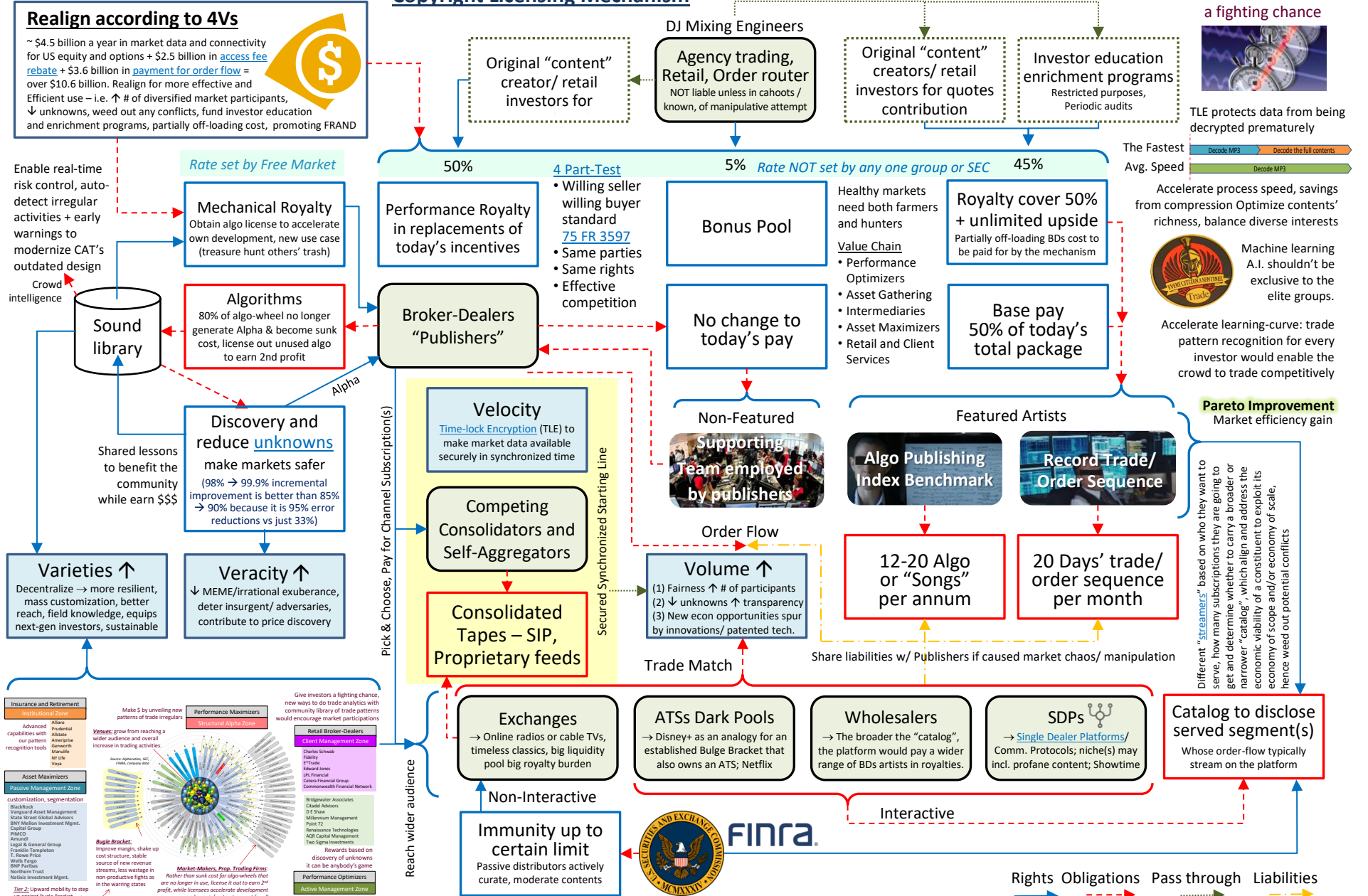
Role	Constituents	Info Advantage*		Econ of Scope		Econ of Scale		Sector's Profitability			"Realign" Info Advantage
		Today	If Adopt	Today	If Adopt <sup>~</sup>	Today	If Adopt <sup>^</sup>	Today	If Adopt	Suggest	
Hunters	A1 Hedge Funds	4.2	4.2	2.2	1.9	5.2	5.7	3.9	3.9	2.2	-1.1
	A2 Proprietary Trading, Family Office	4.3	4.3	2.3	2.0	5.3	5.6	4.0	4.0	2.2	-1.0
	A3 High Frequency Trading	4.1	4.1	2.1	2.0	5.1	6.1	3.8	4.1	2.4	-0.9
Asset Gathering	B1 Issuers	3.3	3.3	4.3	4.2	2.2	2.3	3.3	3.3	1.5	-2.0
	B2 Bulge Brackets	3.1	3.1	4.1	4.0	2.1	2.8	3.1	3.3	1.6	-2.0
	B3 Index/ Risk Modeling, Tier 2, Non-bank MM	3.2	3.2	4.2	3.9	2.3	2.8	3.2	3.3	1.6	-2.0
Intermediaries	C1 Open Competition Trading Center	1.2	1.3	1.3	0.8	3.1	3.4	1.9	1.8	3.4	5.9
	C2 Restricted Competition Trading Center	1.3	1.2	1.2	1.1	3.2	4.7	1.9	2.3	4.0	6.1
	C3 TCA, Liquidity Sourcing/ Execution Vendors	1.1	1.1	1.1	0.1	3.3	3.4	1.8	1.5	3.2	6.0
Asset Maximizers	D1 Retirement & Insurance Platforms	2.3	2.3	3.2	3.1	4.2	4.5	3.2	3.3	2.8	0.8
	D2 Institutional Active Managers	2.1	2.1	3.3	3.0	4.3	5.3	3.2	3.5	3.1	1.1
	D3 Exchange Traded Products	2.2	2.2	3.1	2.8	4.1	4.4	3.1	3.1	2.8	1.1
Retail Client Services	E1 Securities Processing, Custodian	5.3	5.3	5.3	4.6	1.1	1.4	3.9	3.8	0.7	-4.0
	E2 Originating Broker, Retail Disc. Brokerage	5.1	5.1	5.1	4.8	1.2	1.9	3.8	3.9	0.9	-4.0
	E3 Investment Advisory Networks	5.2	5.2	5.2	5.1	1.3	1.4	3.9	3.9	0.8	-4.0



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## Appendix 3 – Counter Suggestions



Picture the broker-dealers, and their algo developers/ traders as “record labels/ publishers”, and “featured composers/ artists” in the music industry. “Streaming platforms” (trade venues, market centers) are exploiting on trading firms’ worry that their trade algorithms or strategies may get exposed. Instead of paying for the use of others’ intellectual property (trade strategies, order flows), ‘streamers’ can rent seek on market data and connectivity. Such phenomenon is like the coin collecting jukebox operators prior to the 70s.

We argue that for-profit exchanges / integrated conglomerates are operating a “Jukebox model” to extract rent, hurting all, but mostly the smaller players. Policy makers should consider Market Makers (MM), Alternative Trading Systems (ATs)/ Multilateral Trading Facilities (MTFs), single dealer platforms (SDPs), and Exchanges as different streaming platforms in order to have the right focus. Letting these “streamers” divide the cake in “Animal Farm”<sup>44</sup> by selectively paying rebates and other perks to the elites hurts the other “content” creators.

Per Chris Steiner, *“Algorithms have come to rule our World”*. Many are using algo wheels. Reverse engineering to unveil others’ trade secrets is inevitable. When risk cannot be fully mitigated, it is better to protect it via active monitoring. Tech advancement overcame the challenges in preserving the confidentiality of trade strategies through appropriate obfuscation, while rights to claim ownership of data by broker-dealers can be asserted.

Reckoning the above, it is possible to crossover apply the music sector’s copyright licensing mechanism<sup>21</sup> to our Capital Markets. As illustrated in our diagram on previous page, order flows would be like “songs” streaming on different platforms. Broker-dealers would earn “performance royalty” on top of their trading revenue, whereas “performance royalty” in today’s term would be equivalent to access fee rebates or PFOF, except the incentives being standardized and available to all “content” creators.

Using the prevailing rates in the music industry as a hypothetical case study, and assuming algo developers and traders play the role of “featured artists” for their respective broker-dealers or “publishers”, 50% of performance royalty is allocated to the “publishers”, 45% is allocated to the “featured artists”, and 5% is allocated to the non-featured supporting team. Next, the agency trading, retail brokerage, order routers or other non-algorithm market participants to some extents are functioned like the “non-featured” musicians or “DJ mixing engineers”<sup>46</sup>, which they typically earn the 5% in the music industry, and the remaining 95% would be a “pass through” payment to the original “content” creators. Unless the “**derivative work**” of a “DJ mixing engineer” is able to avert the original “song” or trade strategy into another new “song” (such as Exchange Traded Products, benchmarks and indices), their “remix” deems to be a “reproduction” or a “covered” song where they are compensated at 5% rather than the higher bracket of a “featured artist” at 45%.

In the case of agency trading, retail brokerage, order routers or other non-algorithm market participants, they function like the “DJ mixing engineers”, where aggregating order flow upstream would record trade/ order sequence into songs daily. Their efforts as supporting team in songs production should get compensated with appropriate ‘pass through’. If we picture the ‘index providers’, benchmark or ‘model portfolio providers’, pricing services or CRA as either ‘Algo Publishing’ (artists) or ‘DJ Mixing Engineers’ (aggregate and push upstream), it is not hard to see that their “derivative works” may or may not have

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<sup>46</sup> <https://djtechtools.com/2017/06/05/basics-dj-copyright-laws/>

significant difference from the original “songs” or trade strategies. So, the deterministic factor is whether these CRAs, Benchmark Indices firms are artistic enough to “create” original “contents” that uniquely different from the underlying securities and the rivalries.

If not, they may be treated like the advisors or aggregators to earn the 5%, while they would NOT be held liable for the “contents” that they did not create, unless these firms knowingly are in cahoots with those engaged in manipulation, greenwashing of ESG securities, or other misbehaviours.

If yes, they command respect for their professionalism and they justified their earning of 45% instead of the 5% copyright royalty under our hypothetical model. Higher pay must accompany higher responsibilities to the society. Grouping them under “algo publishing/ index benchmark” category better reflects how they would become liable if their conducts might result in conflicts of interest, market chaos, or manipulation scandals.

Copyright Licensing Mechanism<sup>21</sup> is NOT a drastic change. It simply asks trading platforms to pay a wider range of broker-dealers, featured traders, algo developers in royalties if they shall choose to carry a broader “catalog” of whose order flows be streamed on their platform. This levels the playing field or “harmonizes” different trading platforms. Royalty rate setting is market driven. Calibration to mimic payoff behaviors like today is possible, so there will be a seamless transition to a new equilibrium.

Using Disney+ as an analogy for an established Bulge Bracket that also owns an ATS; they have their own Disney, Pixar, Marvel, Star Wars, and National Geographic contents for interactive streaming. Using Showtime as another analogy, they are a competitive interactive streaming platform. Their crafted niche is different compared to Disney+. Equity securities that are not NMS stocks, corporate bonds, or municipal securities may just need specialized streaming platform(s) like Showtime.

For a third analogy, there are the “non-interactive” platforms such as online radios or cable TVs, which we refer to them as the “Exchanges”. In contrast to Disney+ and Showtime which are interactive, they serve the broadest audience while not having a “catalog”. They may pay a substantial portion of all royalties, yet they represent the biggest liquidity pool in all markets. Participants would not see “cyberpunk” or any “obscene, indecent and profane” content given these non-interactive platforms are intensely regulated. Their contents include “timeless classics” rather than new first run blockbusters; they continue to be profitable.

Viacom CBS does have MTV, Comedy Central, Paramount Network and other interactive platforms under their group. This crossover of “non-interactive” with interactive” approach, or the earlier mentioned analogies have illustrated that existing vested interests, other encumbrances, and new entrants can all flourish under our recommendations. Viewers (investors) get more choices and better content.

Our suggested ‘sound library’<sup>47</sup> would accelerate algo development lifecycle and foster creative discovery of unknown unknowns<sup>5</sup>, which can be anybody’s game and make the market safer. Give average investors a fighting chance, and empower the next-gen to participate with fair-play TLE.<sup>7</sup> Our recommendations would grow the overall pie (see the next page), achieve Pareto improvement<sup>22</sup> for market efficient gain, and provide tremendous values for a sustainable development of our industry and the economy.

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<sup>47</sup> <https://www.databoiler.com/index.htm/files/DataBoiler%20SoundLibrary.pdf>



## Something for Everyone

Insurance and Retirement  
Institutional Zone

Advanced capabilities with our pattern recognition tools

- Allianz
- Allstate
- Ameriprise
- Genworth
- Manulife
- NY Life
- Prudential
- Voya

Asset Maximizers  
Passive Management Zone

Customization, segmentation

- BlackRock
- Vanguard Asset Management
- State Street Global Advisors
- BNY Mellon Investment Mgmt.
- Capital Group
- PIMCO
- Amundi
- Legal & General Group
- Franklin Templeton
- T. Rowe Price
- Wells Fargo
- BNP Paribas
- Northern Trust
- Natixis Investment Mgmt.

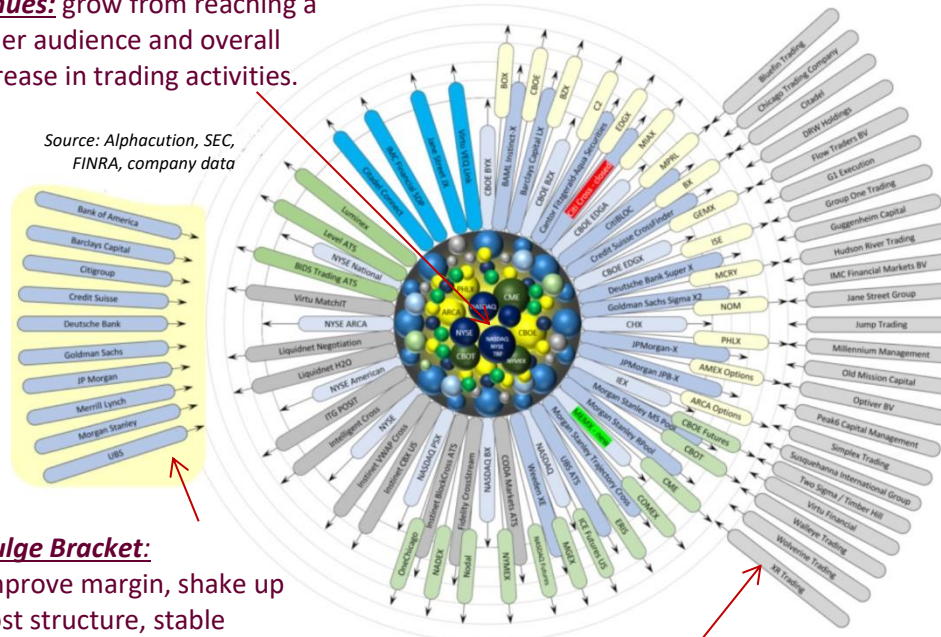
Tier 2: Upward mobility to step up against Bugle Bracket

Make \$ by unveiling new patterns of trade irregulars

Performance Maximizers  
Structural Alpha Zone

Venues: grow from reaching a wider audience and overall increase in trading activities.

Source: Alpacution, SEC, FINRA, company data



Bulge Bracket: Improve margin, shake up cost structure, stable source of new revenue streams, less wastage in non-productive fights as in the warring states

Market-Makers, Prop. Trading Firms: Rather than sunk cost for algo-wheels that are no longer in use, license it out to earn 2<sup>nd</sup> profit, while licensees accelerate development + lower infrastructure cost for all

Give investors a fighting chance  
New ways to do trade analytics with community library of trade patterns would encourage market participations

Retail Broker-Dealers  
Client Management Zone

- Charles Schwab
- Fidelity
- E\*Trade
- Edward Jones
- LPL Financial
- Cetera Financial Group
- Commonwealth Financial Network

- Bridgewater Associates
- Citadel Advisors
- D E Shaw
- Millennium Management
- Point 72
- Renaissance Technologies
- AQR Capital Management
- Two Sigma Investments

Rewards based on discovery of unknowns  
It can be anybody's game

Performance Optimizers  
Active Management Zone