October 10, 2023

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

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

Re: Conflicts of Interest Associated with the Use of Predictive Data Analytics by Broker-Dealers and Investment Advisors (Release Nos. 34-97990; IA-6353; File No. S7-12-23; RIN 3235-AN00; 3235-AN14)[1]

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 captioned release concerning the proposed new rules and amendments to address certain conflicts of interest associated with the use of Predictive Data Analytics (PDA) by broker-dealers (BDs) and investment advisers (IAs) in investor interactions, thereafter, refers as the "Proposal".

As an inventor of patented solutions (US and Canada, pending in EPO and other regions) in signal processing, ensemble learning, trading, etc., I understand why policy makers around the world are scrambling to regulate Big-TECH,[2] and Artificial Intelligence (AI). The AI Act[3] in the EU is the world's first AI law to ensure better conditions for the development and use of this innovative technology. Deepfake imposter scams are driving a new wave of fraud.[4] Disinformation and privacy issues[5] should be a concern for society and government.

Users should be aware that there are different machine learning models. Some are "Black Boxes" that lack good interpretability. If the proposal was to pin-point these "Black Boxes" and favor our approach which includes taxonomy and customizable parameters by trading desk, region(s), asset class(es), etc. that provides appropriate 'contexts' (e.g., market scenarios, client types/ segments, instruments) to the analysis and ensuring 'fit-for-purpose', then the related guidance to alert the users would make sense. However, if adopted as drafted, the scope of the SEC's requirements is overly broad (see further explanations later in this letter).

We are concerned that the rule if adopted would become a tollgate every time a broker-dealer or investment advisory firm procures new technology, they will have to first consult a law or consulting firm. This would result in, the 'non-TECH bureaucrats' regulating the 'TECH professionals' and corruptions. We cannot support the captioned Proposal[1]. It is detrimental to innovation.

The following are highlights of our key thoughts:

1. The right focus and priority to regulate misuse of AI and/or other technologies should be to curb fraudulent activities. The Commission has extensive powers under its existing authority to tackle fraud. The Proposal missed the right target, or it is a mismatch to civic concerns about disinformation and privacy issues.

2. The SEC failed to articulate why the burden to decipher "conflict of interest" should fall on the BDs and IAs. It should and always is the responsibility of the regulators to review if there are conflicts in the markets and take appropriate

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[1] https://www.sec.gov/files/rules/proposed/2023/34-97990.pdf
[2] https://www.brookings.edu/articles/a-focused-federal-agency-is-necessary-to-oversee-big-tech/
[3] https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence
[4] www.bloomberg.com/news/articles/2023-08-21/money-scams-deepfakes-ai-will-drive-10-trillion-in-financial-fraud-and-crime
[5] https://time.com/5872868/big-tech-regulated-here-is-4-ways/

actions to prosecute wrongdoing. The authority slacks off its own responsibility and asks the BDs and IAs (or their delegated law / consulting firms) to self-assess. It is in essence a 'self-regulation' regime, to that we disagree.

3. The Proposal failed to provide a clear definition of "conflict of interest". If without the appropriate "contexts" of HOW certain activities should be prohibited versus permissible under WHAT "circumstances" (see point 4), it is impossible for a BD or IA to fulfill the Proposal's requirement to identify the "WHEN" a *"firm uses a covered technology that takes into consideration an interest of the firm or its associated persons"* that constitute as an existence of a "conflict".

4. To some extent, the Proposal has the effect of requiring all BDs and IAs to also comply with the Dodd-Frank Volcker Rule's proprietary trading ban that is applicable only to the largest banks with $10 billion in total consolidated assets. This is with reference to the process and system[6] to identify potential "conflicts" or impermissible activities by accounting for securities inventory and then assessing whether market-making or underwriting trade orders may cause the running inventory figure to exceed Reasonable Expected Near-Term Demand (RENTD)[7] forecast or determines if risk mitigating hedges exceed hedge exposure limits or treasury trades exceed funding need for liquidity management inventory plan,… whether the trade activity is associated with a sudden market disruption … when the risks and market price moved … agency trade on behalf of customers while the trade size or trade timing being inconsistent … (the list goes on-and-on – see point 3 regarding the "contexts" of HOW and under WHAT "circumstances").

Given that, three issues arise here:

(a) The Commission underestimated the cost and challenge to comply significantly.

(b) The Proposal is ineffective to prevent misuse of technologies or curb conflicts of interest.

(c) Chilling effect on smaller BDs and IAs – hesitate their use of PDA, offer of derivatives, or other product innovations to compete with the larger encumbrances, in turn, exacerbate the gaps between the 'Haves' and 'Have-not'.

5. The definition of Covered technology, *"includes a firm's use of analytical, technological, or computational functions, algorithms, models, correlation matrices, or similar methods or processes that optimize for, predict, guide, forecast, or direct investment-related behaviors or outcomes of an investor, directly or indirectly"*. Under the Proposal, it seems to encompass all modern and age-old technologies. Would the following scenarios fall within scope:

(a) Capital Asset Pricing Model (CAPM), an age-old widely used method to OPTIMIZE the risk and portfolio return.

(b) Black-Scholes, Value-at-Risk, or other risk management approaches, which CORRELATION assumptions can break. These techniques are commonly used by market participants and applicable to all options and derivative trading.

(c) BDs / IAs following the OFR's example[8] to use Agent-Based Models for ANALYZING threats to financial stability.

(d) BDs / IAs following the SEC's example[9] in engaging Academia to use Machine Learning models to research or prove if there is alpha in odd-Lot, depth-of-book data, + other PDA to determine the optimal tick size, etc.

If (a) and (b) are within scope of 'Covered technology', then too many BDs and IAs will be required to comply. How will the SEC and FINRA have the resources to review all related written policies and procedures? Would it be a "check-the-box" type of review, which big law / consulting firms on behalf of the BDs and IAs would prepare a "standard

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[6] https://www.databoiler.com/index_htm_files/DBT%20VR%20Machine%20Presentation.pdf
[7] https://www.databoiler.com/index_htm_files/VR%20Machine%20RENTD.pdf
[8] https://www.financialresearch.gov/working-papers/files/OFR_Working_Paper_No3_ABM_Bookstaber_Final.pdf
[9] https://youtu.be/s9gdfxCoIq4

compliance template" for the "evaluation" of conflicts? For (b), how frequently (every 3 months or annually) should BDs and IAs access if correlation assumptions may break or not? Why is there different treatment for private use of PDA by BD or IA versus government officials if (c) and (d) are within scope? Would research or the SEC example in (d) constitute as INVESTOR INTERACTIONS? Would there be exemption(s) for Academia? The Proposal claimed to be a "principle-based rule" but indeed generates more questions than answers.

6. The Proposal *"requires a firm to eliminate or neutralize the effect of any conflicts of interest that place the firm's or its associated person's interest ahead of investors' interests"*. How to eliminate or neutralize? When action need to be taken? What if the corrective actions are ineffective? The Proposal does not state how a BD or IA should follow-up and follow-through to prevent violations or achieve compliance. Per point 2, the Proposal is in essence a 'self-regulation' regime. It only benefits the big law / consulting firms and vendors in the recordkeeping business.

7. The *"Investor Interactions"* provision of the Proposal would apply even if no investment recommendation or advice is offered. The Proposal suggests it will also cover *"the firm's sales practices and investor interactions more generally, such as design elements, features, or communications that nudge or prompt more immediate and less informed action by the investor"*. This is much broader and more subjective than the Regulation Best Interest (Reg BI) requirements. Why Reg BI + the latest 'Additional Interpretive Guidance and Standard of Care'[10] being insufficient to accomplish the regulatory objective to curb conflicts and require new rules and amendments under this Proposal? Bureaucracy to add layers of rules should be avoided. We despise subjective rules. We concur with the comment by various trade associations about *"If Congress had intended to give the Commission the authority to regulate any activity of a broker-dealer or adviser outside of the standards of conduct when providing recommendations or investment advice to investors, it would have explicitly granted this authority"*.[11] The SEC overstepped its authority.

8. It is inevitable that markets will be driven increasingly by algorithms. Financial engineering problems require an engineering approach to solve. Unfortunately, the Proposal indiscriminately discourages all PDA developments. Rather than rewarding the development and use of innovative PDA to prevent frauds, curb conflicts or abuses, the Proposal's requirements create unnecessary bureaucracy, favored subjective judgements, and is counter-productive to the Commission's stated goals.

9. We try not to repeat arguments by others[12] for opposing this Proposal. The lack of substance makes this Proposal bad. Even though certain aspects of the policy may favor our invention over others' "black box" algorithms, we cannot support it.

10. There are more effective ways to guard against misuse of TECH in trading or to curb "black box" algorithms causing market chaos, market manipulation, or conflicts. They are: (i) follow our suggestions to overhaul the outdated design of Consolidated Audit Trail (CAT);[13] (ii) require market data Available SECURELY in Synchronized time using Time-Lock Encryption (TLE);[14] (iii) align rights and obligations with Copyright Licensing mechanism[15] – by putting a value on quotes and trades composition and requiring "streaming platforms" (trading venues) to provide a "catalog" (disclosure), proper considerations will be given to eliminate conflict of interest, as well as ensuring efficiency in deployment of resources, rather than engaging in non-productive fights that destroy value.

10 https://www.sec.gov/tm/standards-conduct-broker-dealers-and-investment-advisers
11 https://www.sec.gov/comments/s7-12-23/s71223-258279-605062.pdf
12 https://finopsinfo.com/technology/data/secs-take-on-predictive-data-analytics-a-failed-prediction/
13 https://www.linkedin.com/pulse/hr-block-analogy-cat-combating-fraud-kelvin-to/
14 https://www.linkedin.com/pulse/market-data-available-securely-synchronized-time-kelvin-to/
15 https://www.databoiler.com/index_htm_files/DataBoiler%20BIG%20OPP.pdf

We hope Policy Makers can work constructively together with us to address the 21st Century's problems, such as: insurgent in Cyberpunk Era, misuse of TECH by "Big Corpo" to exploit others, Global decoupling, etc. Feel free to contact us with any questions and please keep us posted where our expertise might be helpful.

Sincerely,

Kelvin To
Founder and President
Data Boiler Technologies, LLC

CC: The Honorable Gary Gensler, Chairman
        The Honorable Hester M. Peirce, Commissioner
        The Honorable Allison Herren Lee, Commissioner
        The Honorable Caroline A. Crenshaw, 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%2020231010%20Predictive%20Analytics.pdf