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Alp Eroglu
International Organization of Securities Commissions (IOSCO)
Calle Oquendo 12
28006 Madrid
Spain

Submitted via email to consultation-02-2020@iosco.org

RE: Consultation Report on the use of artificial intelligence and machine learning by market intermediaries and asset managers; CR02/2020

BlackRock, Inc. (together with its affiliates, “BlackRock”)¹ respectfully submits its comments to the International Organization of Securities Commissions (“IOSCO”) in response to its consultation report on the use of artificial intelligence and machine learning by market intermediaries and asset managers (the “Consultation Report”). Our views in this letter largely reflect our October 2019 *ViewPoint* on [Artificial intelligence and machine learning in asset management](#).

We believe the use of artificial intelligence (“AI”) and machine learning (“ML”) reflects the natural evolution of technology in asset management. AI and ML are being employed to improve the customer experience, increase the efficiency and accuracy of operational workflows, and enhance performance by supporting multiple aspects of the investment process. In asset management, there are a myriad of regulations, which apply regardless of whether a process is performed manually or automated. Specifically, most regulatory regimes across the globe have standards of conduct for trading practices, safety and soundness rules governing electronic trading, information security regulations, disclosure requirements, regulatory reporting, and regulation regarding the provision of advice.

We appreciate IOSCO’s focus on how AI and ML are being used in asset management and on where securities regulators should focus to mitigate potential risks that may not be addressed by existing regulation. Before promulgating new regulations, we believe regulators should consider providing education and clarification on how existing regulations apply to the use of new technologies. We agree that the use of AI and ML may increase as the technology advances, and the regulatory framework may similarly need to evolve. Given the global nature of many AI and ML innovations and the financial system as a whole, we support efforts by IOSCO to encourage regulators to work together

¹ BlackRock manages assets on behalf of individual and institutional clients across equity, fixed income, real assets, and other strategies. The assets we manage represent our clients’ futures and the investment outcomes they seek, and it is our responsibility to help them better prepare themselves and their families to achieve their financial goals. Two thirds of the assets we manage are retirement-related assets. BlackRock manages assets for public and private pensions, including defined benefit (“DB”) and defined contribution (“DC”) plans of varying sizes.

to facilitate globally consistent regimes to ensure that these technologies can function across borders. We also appreciate IOSCO's recognition that proportionality should underpin the consideration of any regulations, as the impact of such technologies varies based on their use case.

Below, we outline our responses to the questions posed by IOSCO in the Consultation Report.

Question 1: Do you agree with the proposed definition of AI and ML?

We appreciate IOSCO's robust research and agree with the definitions proposed. Importantly, AI and ML techniques reflect the natural evolution of technology as increased computing power enables computers to sort through and analyze large data sets. We view these tools as a form of sophisticated analytics - the latest developments on a continuum of capabilities that have evolved over time and will continue to evolve for the foreseeable future. These technological tools are part of a larger ecosystem in which people provide oversight, manage risk or make decisions using the information generated by computers in various aspects of asset management. The responsible use of such advancements is essential to protecting investors and markets as the financial services industry becomes more sophisticated and complex.

BlackRock has defined AI simply as the use of machines to replicate human intelligence. This aligns with IOSCO's proposed definition of AI as "a combination of mass data, sufficient computing resources and ML, which can accomplish simple, repetitive tasks, or can be more sophisticated and, to some degree, self-learn and perform autonomously, based on a system that mimics human cognitive skills or human capabilities." We also agree with IOSCO's point that "the prospect of a computer having such a level of intelligence, also called 'strong artificial intelligence' is not expected in the foreseeable future." We have noted that even the most advanced AI at present is still considered "weak" by the computer science and academic community.

We have defined ML as a specific data science approach to AI. ML programs learn to perform tasks by finding patterns in large data sets and making inferences instead of following explicit task-specific instructions that have already been programmed. Again, we agree with IOSCO's definition of ML as "a specific subset and application of AI, which focuses on the development of computer programs that analyze and look for patterns in large quantities of data, with the aim of building knowledge to make better future decisions."

IOSCO explains that ML algorithms learn and develop using past data trends to predict future outcomes, noting that a successful ML algorithm will learn and evolve over time and may make recommendations that were not explicitly envisaged when it was created. We believe it is important to recognize that many AI/ML applications do not implement an action and make decisions autonomously. Rather, the underlying data science models drive a research process that enable users to make a more informed decision by identifying relationships and patterns in the data that were previously undiscoverable by human efforts alone. In other words, they are one way to increase the amount, or quality, of information available to the human users by extracting insights from vast quantities of data. These insights are but one of many inputs, user may take into

account in making the end decision of which path to follow, in choosing to deviate from a recommended path, or determining that the best course of action is to wait and conduct further investigation before taking action, in all cases as he or she sees fit based on prior experience. The majority of use cases in asset management fall within research-oriented applications of AI/ML rather than production-oriented applications.

Question 2: Do you see any risks or challenges around AI and ML which are not mentioned in the report?

IOSCO's views of the potential areas of concern around the use of AI and ML in asset management generally align with where we have focused our efforts.

Question 3: Do you agree that the guidance set out in Chapter 6 of the Consultation Report is appropriate to address the potential risks associated with the general use of AI and ML by market intermediaries and asset managers? If not, please provide details.

Overall, we agree with IOSCO's focus on risk management across the proposed measures. In our October 2019 *ViewPoint* on [Artificial intelligence and machine learning in asset management](#), we outline our suggested best practices for asset management firms and regulators. Across all measures, we believe that it is important for regulators to first consider how existing regulation may apply before promulgating new any regulation.

In terms of the measures proposed by IOSCO, we recommend that IOSCO add a new measure 1 reflecting and codifying its views on proportionality. We believe both regulators and firms should evaluate the potential proportionality of technologies leveraging AI and ML and adopt measures consistent with that evaluation. The use of AI/ML, the complexity of the activity, and the potential impact of the technology on clients and markets are important factors to consider. In addition, the principle of proportionality can be a consideration in evaluating whether existing regulations, which emphasize prudent decision-making based on reliable information, are adequate to govern certain lower-risk or lower-complexity AI and ML uses cases.

In addition, we have outlined below suggested edits to the measures proposed by IOSCO, with additions in underlined font. Notably, we are not fully in agreement around the role of the compliance function as set out in Chapter 6. Given the heavy technical nature of AI/ML and the ability for Compliance to rely on other control functions to perform activities that help a firm be compliant with regulatory requirements and demonstrate such compliance, we recommend that Measure 3 be changed from Compliance and risk functions to Control and risk functions to allow for the functions with the right expertise and experience, such as risk and technology internal audit, to develop, test, deploy, monitor and oversee the controls over AI/ML, understand and challenge the algorithms that are produced, and conduct due diligence on any third-party provider.

Suggested edits to measures proposed

Measure 1: Regulators should consider requiring firms to have designated senior management responsible for the oversight of the development, testing, deployment, monitoring and controls of enterprise critical tasks that have material dependencies on AI and/or ML. This includes requiring firms to have a documented internal governance

framework, with clear lines of accountability for these tasks. Senior Management should designate an appropriately senior individual, groups of individuals or function (e.g., model risk management), with the relevant skill set and knowledge to sign off on initial deployment and substantial updates of the technology.

Measure 2: For enterprise critical tasks, regulators should require firms to adequately test and monitor the algorithms to validate the results of an AI and ML techniques on a continuous basis. For AI or ML developed in-house by the firm, ~~the~~ testing should be conducted in an environment that is segregated from the live environment prior to deployment to ensure that AI and ML: (a) behave as expected in stressed and unstressed market conditions; (b) operate in a way that complies with regulatory obligations.

Measure 3: Regulators should require firms to have the adequate skills, expertise and experience to develop, test, deploy, monitor and oversee the controls over the AI and ML that the firm utilises. Compliance Control and risk management functions should be able to understand and challenge the algorithms that are produced and conduct due diligence on any third-party provider, including on the level of knowledge, expertise and experience present.

Measure 4: Regulators should require firms to understand their reliance on and manage their relationships with third party providers of AI and ML, including, where appropriate, monitoring their performance and conducting oversight. For enterprise critical tasks, to ensure adequate accountability, firms should have a clear service level agreement and contract in place clarifying the scope of the outsourced functions and the responsibility of the service provider. Where appropriate, the ~~this~~ agreement should contain clear performance indicators and should also clearly determine sanctions for poor performance.

Measure 5: Regulators should consider what level of disclosure of the use of AI and ML is required by firms, including: (a) Regulators should consider requiring firms to disclose meaningful information to customers and clients around their use of AI and ML that could materially impact client outcomes-investment performance. (b) Regulators should consider what type of information they may require from firms using AI and ML to ensure they can have appropriate oversight of those firms.

Measure 6: Regulators should consider requiring firms to have appropriate controls in place to ensure that the data used in AI and ML is sourced from reputable sources and that there are data quality review measures in place where appropriate. In addition, firms should have means in place to ascertain which utilizations of that the performance of the AI and ML may lead to inadequate or inappropriate results based on potential bias, and, for such instances, have reasonable methodologies pertaining to the selection, development and monitoring of such AI and ML applications to mitigate or eliminate bias or the potential effects thereof, is dependent on is of sufficient quality to prevent biases and sufficiently broad for a well-founded application of AI and ML.

Question 4: Do you disclose information to customers / clients on the use of AI and ML? If yes, please indicate what kind of information is disclosed.

To the extent we view the use of AI and ML as a risk, we disclose it as required under the existing regulatory framework. Before promulgating new rules, regulators should

consider whether new disclosure requirements would be duplicative with existing requirements.

In addition to risk disclosures, we provide information on how AI and ML are used to clients if they have requested such information or where appropriate. For example, an investment team may disclose their use of AI and ML in a client presentation if these technologies are used to support the investment process.

Question 5: What factors do you need to take into account when considering the appropriate level of information that should be disclosed to clients (including prospective clients) and other relevant stakeholders around the firm's use of AI and ML algorithms?

The level of information provided is based on regulatory requirements, client expectations, and client requests. Some disclosures may be subject to marketing regulatory requirements, depending how and where the information is being used.

Question 6: How do you consider and apply proportionality to your systems and controls over the use of AI and ML?

As we have noted, many AI/ML applications do not currently implement an action and make decisions autonomously. That is, they typically augment human insights, decisions, and actions rather than replacing them. Moreover, the majority of use cases in asset management still fall within research-oriented applications of AI/ML rather than production-oriented applications. As a result, they do not yet require specific controls over their use.

However, as the application of AI/ML expands, the consideration and application of proportionality for controls over their use would include, amongst others, the complexity and materiality of the application and the degree to which it can operate autonomously. Materiality would depend upon the breadth of application, as well as the criticality of the processes or outcomes driven by the application. In sum, controls should be proportional to the potential impact of risk or harm to the operation of the firm, to clients, or to other market participants.

Similar considerations are already applied in other contexts, for example the management of our model risks, where models are assigned into different tiers for the purposes of specifying and applying proportional controls. We might expect to see the emergence of similar approaches in the future for the management of AI/ML risks.

We thank IOSCO for providing the opportunity to comment on the Proposal, and we welcome the opportunity to further discuss any of the information or recommendations we have provided.

Sincerely,

Justin Chan
Managing Director, Legal & Compliance

Norbert Schnadt
Managing Director, Risk & Quantitative Analysis