



October 26, 2020

**Via Electronic Mail:** [consultation-02-2020@iosco.org](mailto:consultation-02-2020@iosco.org)

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

**Re: The Use of Artificial Intelligence and Machine Learning by Market Intermediaries and Asset Managers**

Dear Mr. Eroglu:

Managed Funds Association (“MFA”)<sup>1</sup> appreciates the opportunity to provide comments to IOSCO on its consultation report on the use of artificial intelligence (“AI”) and machine learning (“ML”) by market intermediaries and asset managers (the “Consultation”). As the Consultation correctly assesses, the use of AI and ML by asset managers is still in its nascent stages and is *mainly* used to support human decision-making. In fact, our members view AI and ML entirely as that – a *tool* to support human decision-making in the investment process, and not the *process*, nor is it replacing human decision-making. As such, controls in place under existing regulatory frameworks may be entirely appropriate. In our letter, we discuss the use of AI/ML by our members and provide comments to the Consultation’s proposed measures.

## **I. Overview & Background**

MFA’s members, asset managers of alternative investment funds, may use AI/ML as a tool to assist with the investment process, including data intake, data review, research and model development, execution, risk management, compliance and post-execution activities, among others. As fiduciaries to their investors, asset managers have detailed controls and processes in place to ensure sound decision-making and oversight of best execution, and to safeguard investor assets. AI/ML are tools used under an existing control framework and part of the evolution of the technological process. At every stage of the investment process, our members implement controls and oversight before signing off on AI/ML tools as they do for other algorithms that impact their investment processes. Use of AI/ML does not eliminate human decision-making, but merely changes the types of decisions humans need to make.

---

<sup>1</sup> MFA represents the global alternative investment industry and its investors by advocating for public policies that foster efficient, transparent, fair capital markets, and competitive tax and regulatory structures. MFA supports member business strategy and growth via proprietary access to subject matter experts, peer-to-peer networking, and best practices. MFA’s more than 140 member firms collectively manage nearly \$1.6 trillion across a diverse group of investment strategies. Member firms help pension plans, university endowments, charitable foundations, and other institutional investors to diversify their investments, manage risk, and generate attractive returns over time. MFA has a global presence and is active in Washington, London, Brussels, and Asia, supporting a global policy environment that fosters growth in the alternative investment industry.

## A. Evolution of the Investment Process

Just as the industrial revolution was marked by the transition from hand production methods to machines, now, in the digital revolution, the investment management industry is working to continue to automate certain steps of the investment process. Firms are researching and developing different ways to automate tasks that have historically been labor intensive. This automation sometimes draws upon AI and ML among other mathematical and technological approaches. While pop culture and science fiction have projected hugely futuristic and fantastical views of AI and ML, in reality, these technologies as used by investment managers are generally in their infancy and used to perform very specific tasks. The application of AI and ML differs greatly by domain. The non-stationary nature of financial markets distinguishes the use of AI and ML from where we've seen the most significant advancements to date—in the automotive, medical and pharmaceutical industries.

In the investment process, AI and ML are being used in a variety of ways, including to automate processes. As an example, some firms are using Natural Language Processing, a sub-field of AI, to automate the process of monitoring text data streams, reviewing annual reports, and transcribing speech through speech recognition research—with the purpose of “reading” such documents and assigning them a score in terms of positive or negative news. ML may be used to sift through large datasets to identify predictive signals or to impute missing values into incomplete datasets at scale. These technologies help to automate tasks that would otherwise be performed by analysts.<sup>2</sup> Nevertheless, it is still up to experienced portfolio managers or researchers to determine what to do with the results of the AI and ML programs, such as how to design a model, whether to buy or sell a stock, or whether certain patterns found in data are evidence of predictive relationships or just spurious correlations. In some use cases, a series of specific tasks that have been automated and have undergone rigorous testing before deployment may be strung together just as if a human were performing multiple consecutive steps though.

Intermediaries are beginning to use ML tools in the next generation of algorithmic trading execution strategies. Traditional execution strategies are programmed based on if/then rules. Incorporating ML—advanced statistical and algorithmic techniques—into execution strategies allow the algorithms to learn by doing, making the execution strategies more dynamic through the use of multi-layered computational abstractions and neural networks. In general, asset managers send their trade orders to intermediaries for order execution. Some asset managers develop their own execution strategy and may employ AI tools to optimize order execution as well.

Through the use of greater computing power, AI/ML techniques allow an algorithmic trading execution strategy to simulate and determine, taking into consideration how the market may respond which will impact affiliated child orders,<sup>3</sup> the optimal venue to trade on, at what price and what quantity. However, the recommended order execution strategy must always comply with a fund's execution criteria and preferences. Regardless of whether AI and ML tools are used as part of an execution strategy, the same system controls are used to ensure that orders meet fund specifications and fit within certain established thresholds and parameters. As such, the execution process continues to work with rigorous controls in place to protect against orders that could be disruptive to markets or the market participant sending the orders.

---

<sup>2</sup> For example, whereas an analyst might read and compare a public company's quarterly disclosures and other relevant materials to analyze the company's outlook in determining whether to buy or sell the company's stock, some firms have automated this function and are able to download the quarterly reports and other public information into a computer system and have it generate an outlook rating.

<sup>3</sup> Generally, an intermediary will take a customer trade order and break it down and send to trading venues as multiple smaller “child” orders. The smaller order sizes decrease the likelihood of “moving” the market.

As used with respect to trade execution, some asset managers are beginning to use AI and ML tools to assist with internal management of their margin agreements with counterparties or for other administrative tasks. For example, an asset manager is likely to have financing agreements with a few different intermediaries and may use AI/ML software tools to assist with calculating real-time margin levels with intermediaries to use as one of many inputs in determining which counterparties to send their orders to for best execution.

With respect to post-execution uses, some asset managers have begun incorporating the use of ML tools to assist with administrative tasks, such as with respect to trade confirmation and margin replication and reconciliation issues. Researching trade and margin reconciliation issues can be a laborious task. As such, some firms have begun employing ML tools to assist with replicating an intermediary's margin model in order to quickly address and resolve margin reconciliation issues should they arise with a counterparty. Asset managers have also begun using AI/ML tools for compliance purposes. They may use AI/ML tools pre-trade by programming trading regulations and prohibitions into the program, as well as use different AI/ML tools for more sophisticated and holistic post-trade surveillance.

## **B. General Comments**

AI and ML, as used by asset managers, are advanced software tools capable of helping with advanced computing and more complex statistical calculations and modeling. These tools allow managers to automate certain tasks performed by humans and to find answers to very specific questions. It is then up to humans though to determine what to do with the answer—whether manually or through additional consecutive automated steps as part of a broader program. That being said, AI/ML is not the investment process, nor has it changed the process—if one were to diagram the investment process into a flow chart, AI and ML programs might appear as one or more specific functions/boxes in the flow chart or supplementing or supporting one or more phases of the investment process.

Firms have controls in place at each step before moving to the next stage of the process. AI and ML, as software programs, undergo significant development and testing before they are deployed. In fact, it is in the development and testing phase where an AI/ML tool, through simulations, does the majority of its “learning.” Even once deployed, the AI/ML tool, depending upon the type of tool and how it is used, may be monitored in real-time by developers, researchers, portfolio managers, traders and risk personnel and compliance personnel. As a result, we have found that the existing regulatory frameworks are appropriate to ensure adequate oversight of AI/ML. After much deliberation over the measures proposed by IOSCO, we are of the view that none of the measures are needed for asset managers of alternative investment funds because the existing regulatory frameworks provide a holistic and more tailored framework with respect to the management of risk, internal controls, compliance and disclosure.

We are concerned that the Consultation's proposed measures treats the use of AI and ML as if they were specific programs used uniformly by the financial industry. Given the many use cases and potential applications, we think it is more appropriate to contextualize AI/ML implementations and avoid overly broad regulatory measures across use cases. Our comments on the Consultation's proposed guidance are specific to the use of AI/ML by asset managers of alternative investment funds. It's possible that different considerations are necessary with respect to different applications of AI//ML, such as determinations impacting consumers. We do not opine on the application of AI/ML with respect to other products, contexts, or as used by other market participants.

## II. Proposed Guidance

**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 AI and ML. This includes requiring firms to have a documented internal governance framework, with clear lines of accountability. Senior Management should designate an appropriately senior individual (or groups of individuals), with the relevant skill set and knowledge to sign off on initial deployment and substantial updates of the technology.*

In our view, Measure 1 is unnecessary, because AI/ML is used as a tool and *not* the end-product in investment management, and as part of the investment process is already subject to oversight and regulation. Depictions of AI as a program capable of thinking and developing trading models in place of a human being are fantastical and misleading portrayals of how AI and ML are deployed. As used by the investment management industry, AI and ML are computing programs capable of performing complex statistical analyses—and only that, programs performing very specific tasks or series of tasks. Even as those AI/ML programs continue to develop in sophistication and capability and the tasks they perform similarly evolve in complexity, these tools are not becoming the end-product in a manner that would require regulation as contemplated in Measure 1.

Asset managers may use AI/ML in the investment process to help sift through large datasets (*e.g.*, downloading large datasets into an AI/ML program for the purpose of comparing earnings reports, quarterly disclosures and other information for positive/negative impact on an issuer's stock) and/or develop investment or trading models (*e.g.*, downloading historical market data for the purpose of identifying stock correlations and trading patterns), but at each stage of the process it is up to research scientists, applying judgement and expertise, to determine the useability and appropriateness of the data for the firm's investment strategy and to provide the requisite level of oversight. Like any tool that an investment firm/asset manager uses, regulators should not get bogged down on the complexities of the tool but focus on the overall control and supervisory framework in place at a firm which would be expected to flag problematic or questionable determinations of a program.

Current regulatory frameworks, such as the U.S. and EU, already require asset managers to implement risk management, compliance and supervisory programs with respect to their activities as an asset manager. In addition, regulations imposed on intermediaries or market participants with market access require those firms to have robust controls in place to prevent against disruptive orders from being sent to markets. For example, the European Union Markets in Financial Instruments Directive requires investment firms to have an appropriate governance structure, clear development and testing standards, controlled deployment of algorithms, effective systems and risk controls to ensure the system is resilient and has capacity, pre- and post-trade controls, and real-time monitoring systems, among others. These regulations continue to be adequate to ensure appropriate oversight of the investment process. Thus, we do not believe separate regulatory guidance is needed to address the use of AI and ML.

**Measure 2:** *Regulators should require firms to adequately test and monitor the algorithms to validate the results of an AI and ML technique on a continuous basis. 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.*

The U.S. and EU already have regulatory frameworks that address risk management with respect to electronic trading and/or testing and oversight. As mentioned above, we do not believe it makes sense to have a separate testing requirement with respect to AI and ML. We agree that firms need to have adequate risk management systems, but don't believe a specific risk management rule is necessary for AI/ML. Firms should ensure that their risk management practices fit the nature, scale and complexity of their trading. As such, we think regulators could add to the existing framework by making clear that supervision should adapt to the technology at hand—firms should always assess the risk of the technology/tool used and implement appropriate controls to address the risk.

**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 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.*

It is important for firms to have a reasonable control framework. We are concerned, however, that Measure 3 is overly broad and not practical. Asset managers are fiduciaries to their investors and already subject to supervision and compliance requirements. Regulators should require firms to have reasonable control frameworks with respect to the investment process. With respect to compliance and risk management oversight, it is not practical to expect such personnel to have the same level of understanding of AI/ML as a research scientist with, for example, a doctorate in math or computer science. Compliance and risk management personnel should help design, understand and test the overall process, the objective of the tool or strategy and how it should generally operate or behave. Even at a firm using fundamental research analysis, a compliance professional may not understand how a portfolio manager arrived at her investment decision but is expected to understand the expected size, frequency or characteristics of trades and other context surrounding the trade.

**Measure 4:** *Regulators should require firms to understand their reliance and manage their relationship with third party providers, including monitoring their performance and conducting oversight. 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. This agreement should contain clear performance indicators and should also clearly determine sanctions for poor performance.*

Existing regulatory frameworks already address registrant use of third-party providers. We do not believe a specific regulatory provision with respect to use of third-party providers in the AI/ML context is necessary, nor should regulators engage in regulating contractual provisions (*i.e.*, sanctions for poor performance).<sup>4</sup> Such regulatory provisions are unnecessary because a natural incentive structure already exists: service providers that do not perform are generally terminated. We believe asset managers should

---

<sup>4</sup> For example, there are likely to be better ways for a firm to address poor performance by a third-party provider that are potentially less damaging to the relationship than sanctions.

have the flexibility of selecting the most effective service providers and dismissing those that fail to perform. Instead, regulators should continue to emphasize the importance of business continuity and resilience preparations, and conducting due diligence on service providers.

**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 impact client outcomes.*
- (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.*

AI/ML are used as tools in the investment process. As such, regulators should not single out the use of these computing tools from others as they may not be more meaningful or impactful than other tools in the overall investment, execution, or post-execution process. For example, we do not believe it is particularly meaningful or useful for an investor if an asset manager is required to report to it that it uses a ML tool to determine to which intermediary it should send an order or that it uses a ML tool to assist with margin replication or trade reconciliation issues. Asset managers provide investors with risk disclosures (e.g., Securities and Exchange Commission Form ADV) which, if applicable, may include the use of computer programs for analysis and trade execution. To the extent that AI/ML creates additional risks to the process, these risks should be disclosed to investors. In addition, asset managers have robust conversations with investors who are interested in learning more about their use of computer programs. Given the different uses and applications of AI and ML, we believe asset managers should have discretion with respect to disclosures on the use of AI and ML.

With respect to regulatory oversight of firms using AI/ML, regulators should focus on the robustness of a firm's control framework, and trade output as confirmed by intermediaries. Asset managers expend significant resources developing proprietary computing models, and as such, AI/ML tools are often sensitive, proprietary, confidential intellectual property. We believe regulators should balance any regulatory need for requesting for trade secrets or detailed confidential intellectual property with the potential harm to registrants and their investors.

**Measure 6:** *Regulators should consider requiring firms to have appropriate controls in place to ensure that the data that the performance of the AI and ML is dependent on is of sufficient quality to prevent biases and sufficiently broad for a well-founded application of AI and ML.*

While Measure 6 may be appropriate in other AI/ML contexts or applications, it is not necessary in the investment management context. In the investment management context, data that is not of sufficient quality is likely to produce poor investment results. As such, asset managers have every incentive to ensure that AI/ML is sufficiently cleansing data or being used with respect to data that is of a sufficient quality. Also, as asset managers generally avoid collecting personally identifiable information and do not use large datasets in ways that impact consumers, the risk of their use of software tools leading to consumer harm through biases is unlikely. As discussed, asset managers have robust controls built into the investment process, in which AI/ML tools may be used to automate steps of the process. We believe that, regulators should focus on an asset manager's overall control framework, rather than the application or use of a specific tool, such as AI/ML.

\* \* \* \* \*

Mr. Eroglu  
October 26, 2020  
Page 7 of 7

MFA welcomes the opportunity to discuss its comments with IOSCO, its members or its staff. Please do not hesitate to contact the undersigned at (202) 730-2600.

Respectfully submitted,

/s/ Jennifer W. Han

Jennifer W. Han  
Managing Director & Counsel,  
Regulatory Affairs