March 31, 2025

BY EMAIL TO
comments@osc.gov.on.ca
consultation-en-cours@lautorite.qc.ca

The Secretary
Ontario Securities Commission
20 Queen Street West
22nd Floor, Box 55
Toronto, Ontario M5H 3S8

Me Philippe Lebel
Corporate Secretary and Executive Director, Legal Affairs
Autorité des marchés financiers
Place de la cité, tour Cominar
2640, boulevard Laurier, 3e étage
Québec (Québec) G1V 5C1

Dear Sirs/Mesdames,

Re: CSA Staff Notice and Consultation 11-348, *Applicability of Canadian Securities Laws and the use of Artificial, Intelligence Systems in Capital Markets*

TMX Group Limited ("**TMX**" or "**we**") welcomes the opportunity to comment on CSA Staff Notice and Consultation 11-348, *Applicability of Canadian Securities Laws and the use of Artificial, Intelligence Systems in Capital Markets* (the "**Discussion Paper**") published by the Canadian Securities Administrators (the "**CSA**").[1] TMX appreciates the CSA's thoughtful work relating to this rapidly developing technology and its use in the capital markets industry.

About TMX

TMX Group's key subsidiaries operate cash and derivatives markets for multiple asset classes, including equities and fixed income, and provide clearing facilities, data driven solutions and other services to domestic and global financial and energy markets. Toronto Stock Exchange, TSX Venture Exchange, TSX Alpha Exchange, the Canadian Depository for Securities, Montréal Exchange, Canadian Derivatives Clearing Corporation, TMX Datalinx, Shorcan Brokers Limited, and other companies within the TMX

[1] Capitalized terms used in this letter and not specifically defined have the meaning given to them in the Discussion Paper.

Group provide listing markets, trading markets, clearing facilities, data products and other services to the global financial community in the Canadian capital and financial markets.

Discussion Paper

The Discussion Paper indicates that the CSA's goal "is to advance our commitment to deliver smart and responsive regulatory actions in anticipation of significant emerging issues, trends, technologies and business models and to continue our ongoing dialogue with market participants."[2] The Discussion Paper also specifies that the guidance it provides "is based on existing securities laws and does not create any new legal requirements, nor modify existing ones"[3] while adding that it seeks to gather input that would help the CSA determine "if additional guidance and oversight can better facilitate responsible innovation and adoption of AI systems across Canadian capital markets, and if changes to requirements under securities law are needed."[4] TMX commends the CSA for not seeking to create new regulatory requirements or obligations through publication of the Discussion Paper, and appreciates that the CSA has engaged, and continues to engage, with the industry and other stakeholders throughout the ongoing development of its AI-related initiative.

Overview Comments

TMX makes the following observations and comments regarding the Discussion Paper.

Technology neutrality

Canadian securities laws should be technology neutral, with the onus on the regulated entity to determine how best to comply with its obligations in light of its technological solution of choice. AI is merely one more development in a long line of information-technology innovations that have enhanced the delivery of financial services. Improvements in data processing, analytics and analysis have made the delivery of financial services quicker and, overall, more secure. While each advancement in technology presents its own challenges and risks, the CSA should neither promote nor be hostile to any particular technology. Rather, it should be neutral toward an enterprise's choice of technology as long as the enterprise complies with applicable laws and regulations. While this principle is relevant for any new technology, it is doubly important in this context given that AI-specific regulations would need to define what constitutes AI - a technology whose boundaries and characteristics are notoriously difficult to define with precision.

In this regard, it is critical that the CSA refrain from enshrining particular forms of technology or technological processes in regulation, whether explicitly or implicitly. Doing so could lock regulated entities into obsolete technologies or processes or, at the least, slow their ability to keep pace with technological change and developments. The Discussion Paper specifically refrains from imposing new AI-related regulatory obligations and TMX agrees that this approach is correct. We urge the CSA to continue to refrain from attempting to regulate or guide the development of AI as a technology.

[2] Discussion Paper at page 2.
[3] *Ibid,* page 1.
[4] *Ibid*.

Role of CSA toward AI in the financial sector

Rather than developing best practices applicable to AI technology generally, the CSA, as Canada's securities regulators, should develop their analysis and guidance based on specific examples and concerns related to AI's use in the capital markets industry. AI in capital markets may present different challenges than in other sectors and the CSA is best positioned to analyze these challenges, in dialogue with industry, and to explore how best to meet them. Concentration on specific use cases common to the capital markets ecosystem, rather than on issues common to the technology as a whole, would make best use of the CSA's wealth of experience and expertise in regulating the financial sector. It also apportions correctly to the CSA and the firms involved responsibility for decisions relating to the development and deployment of AI technologies that are unrelated to CSA-regulated activities.

Use of best practice guidance

The Discussion Paper specifically notes that it is intended "to provide clarity and guidance on how securities legislation applies to the use of AI systems by market participants,"[5] and not to establish a regulatory framework. We commend the CSA for this approach. The flexibility inherent in best practice guidance is critical in this early stage of development of AI. A more prescriptive approach would be quickly overtaken by new advancements, resulting in a regulatory framework that does not conform to reality. Accordingly, the only practical approach to the growing use of AI is the one that the CSA has taken: principles-based, best practice guidance. The CSA should continue to use this approach as AI becomes more accepted and more widely deployed.

We also commend the CSA for providing guidance for different categories of market participants, as the impact of AI on capital markets is likely to differ greatly among them. That said, we submit that the CSA must further differentiate among various potential users of AI since, even within a single sector of the capital markets, the issues flowing from AI's use are likely to vary in size and complexity depending on the characteristics of a specific participant and their specific use of AI. For example, some of the relevant considerations that may vary from one participant to another and raise differing risks and may require different levels of governance and control include the following:

- whether they rely on AI solely for internal purposes or for customer-facing interactions;
- whether they use AI systems only for customer service interactions or for market-related tasks and uses;
- whether their AI systems are used directly for decision-making purposes or only to assist individuals in making decisions;
- whether they use AI systems for regulated activities or unregulated activities;
- whether they develop an AI system internally or license a third-party product;
- the resources available to them, given their size.

The current best practice guidance does not sufficiently distinguish among these differing examples, which reinforces our suggestion that the CSA consider publishing further, more granular guidance. Specifically, the best practices addressing governance and controls should have sufficient flexibility to take into account the type, size and complexity of the enterprise and its use of AI systems.

[5] Discussion Paper at page 1.

International development and competition

As a global business, TMX believes that it is crucial that in analyzing the issues raised by AI, the CSA considers the impact that its AI-related guidance will have on the international competitiveness of the entities that it regulates. The CSA should also assess whether its actions will indirectly affect the international competitiveness of Canadian firms that develop AI systems for the financial sector, particularly given the international nature of both the firms developing AI systems and many of the firms in the financial sector that may make use or plan to make use of AI systems. While such concerns are not within the CSA's core mandate, we submit that it should be mindful of the fact that the greater the influence of Canadian firms in the AI sector, the greater the influence Canadians will have in how to address the technical, legal, ethical and other considerations that AI raises.

Internationally, many regulatory authorities are currently considering AI's implications,[6] with change occurring at a rapid pace.[7] If the suggested best practices are out of alignment with developments abroad, the effect on the competitiveness of Canada's capital markets and on its world-leading technology sector could be profound. Although best practices, principles based guidance should help avoid direct conflict with foreign requirements, TMX urges the CSA to map the form and substance of their AI-related guidance against developments in other jurisdictions to prevent misalignment (without merely replicating AI-related requirements in other jurisdictions if they are not appropriate for our market or do not address a strong underlying policy issue). The CSA should also closely monitor the status of AI-related regulatory proposals abroad and be ready to react to new developments.

Further steps

TMX appreciates the CSA's efforts to develop best practice guidance relating to AI. However, rather than attempting to provide guidance regarding AI technology as a whole, the CSA may make a more significant contribution by focussing on (1) specific risks to the financial system posed by AI systems and what steps can be taken to mitigate them; (2) protections for consumers that are necessary and appropriate when AI systems are customer facing; and (3) which existing regulatory obligations may be affected by AI systems and how firms might navigate such issues. These issues are specific to the use of AI systems by capital markets participants. The CSA's thought leadership and dialogue with and among industry stakeholders regarding these issues would help to deepen an appreciation for and consideration of the implications that the deployment of AI systems might have for the financial sector and positive ways to address them.

Responses to the specific questions posed in the Discussion Paper

The Discussion Paper posed seven specific questions for comment. The questions and our responses follow.

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[6] For example, the European Parliament adopted the "Artificial Intelligence Act" that aims to regulate the use of AI across the European Union and the United Kingdom has adopted a cross-sector framework for regulating AI.

[7] For example, on October 30, 2023 former U.S. President Biden signed "Executive Order 14110 on Safe, Secure and Trustworthy Development and Use of Artificial Intelligence" establishing a government-wide effort to guide responsible AI development and deployment. Fewer than three months later, on the day of his inauguration, President Trump rescinded that order, suggesting that his administration's approach to AI may be radically different from that of his predecessor.

1. ***Are there use cases for AI systems that you believe cannot be accommodated without new or amended rules, or targeted exemptions from current rules? Please be specific as to the changes you consider necessary.***

As mentioned above, TMX is of the view that Canada's securities regulatory framework should be technologically neutral. While capital markets participants may identify specific challenges in applying existing rules to the use of AI as they increasingly adopt it, at present TMX has identified no such challenges.

2. ***Should there be new or amended rules and/or guidance to address risks associated with the use of AI systems in capital markets, including related to risk management approaches to the AI system lifecycle? Should firms develop new governance frameworks or can existing ones be adapted? Should we consider adopting specific governance measures or standards (e.g. OSFI's E-23 Guideline on Model Risk Management, ISO, NIST).***

Specific governance measures and standards are a useful tool in the development and deployment of AI, but it is essential that capital markets participants have the flexibility to adopt those that are best-suited to their particular circumstances. As a result, any such measures and standards should be voluntary in nature in order to avoid the risk of enacting into law standards that will be slow to change but rapidly be obsolete. To the extent that the CSA takes the view that it would be useful to adopt existing measures and standards, it would be best to establish them as safe harbours rather than as mandatory requirements.

3. ***Data plays a critical role in the functioning of AI systems and is the basis on which their outputs are created. What considerations should market participants keep in mind when determining what data sources to use for the AI systems they deploy (e.g. privacy, accuracy, completeness)? What measures should market participants take when using AI systems to account for the unique risks tied to data sources used by AI systems (e.g. measures that would enhance privacy, accuracy, security, quality, and completeness of data)?***

AI raises issues that cut across numerous areas of law, including privacy and intellectual property. Given the complexity of these various fields, TMX is of the view that the CSA should focus on issues within their core mandate, such as the intersection of AI systems and investor protection or market integrity, while deferring to other regulatory authorities on other issues to avoid creating duplicative or contradictory requirements.

4. ***What role should humans play in the oversight of AI systems (e.g. "human-in-the-loop") and how should this role be built into a firm's AI governance framework? Are there certain uses of AI systems in capital markets where direct human involvement in the oversight of AI systems is more important than others (e.g. use cases relying on machine learning techniques that may have lesser degrees of explainability)? Depending on the AI system, what necessary skills, knowledge, training, and expertise should be required? Please provide details and examples.***

Generally, the degree to which an AI system requires human oversight should be a function of its potential impact, for example on systemic risk, individual consumers and so on. We take the view that CSA guidance should not set out specifics as to who is qualified to oversee an AI system, but should instead provide expectations as to what variables capital markets participants should consider in determining the appropriate level of human oversight of an AI system. The specific skills, knowledge, training, and expertise relate not only to the technical aspect of AI systems but also to their legal and ethical aspects (including privacy and bias) as well.

5. ***Is it possible to effectively monitor AI systems on a continuous basis to identify variations in model output using test-driven development, including stress tests, post-trade reviews, spot checks, and corrective action in the same ways as rules-based trading algorithms in order to mitigate against risks such as model drifts and hallucinations? If so, please provide examples. Do you have suggestions for how such processes derived from the oversight of algorithmic trading systems could be adapted to AI systems for trading recommendations and decisions?***

TMX agrees that strong software quality assurance practices remain crucial during the development phase of a new AI process. One strategy to mitigate the risk of hallucination is to request an explanatory log and incorporate it into the validation process, which enables the rationale behind the AI process's recommendation or decision to be validated in real-time using another AI process. Moreover, maintaining LLM data that is up-to-date with the evolving ecosystem is important in preventing model drifting and also requires a robust data validation process.

6. ***Certain aspects of securities law require detailed documentation and tracing of decisionmaking. This type of recording may be difficult in the context of using models relying on certain types of AI techniques. What level of transparency/explainability should be built into an AI system during the design, planning, and building in order for an AI system's outputs to be understood and explainable by humans? Should there be new or amended rules and/or guidance regarding the use of an AI system that offer less explainability (e.g. safeguards to independently verify the reliability of outputs)?***

As mentioned above, TMX takes the view that regulation should be technology-neutral. As a result, the CSA should generally avoid setting out AI-specific rules. To the extent that market participants identify specific requirements that are impossible or impractical to comply with in connection with an AI system, before considering an AI-specific carveout the CSA should first consider whether it may be suitable to amend those requirements as they apply in general. If and only if the CSA determines that the general requirements should remain in place but AI-specific carveouts are appropriate, then for the reasons set out previously regarding the need for flexibility and adaptiveness we submit that the best approach is for the CSA to adopt additional guidance rather than amendments that enshrine the carveout in law.

7. ***FinTech solutions that rely on AI systems proposing to provide KYC and onboarding, advice, and carry out discretionary investment management challenge existing reliance on proficient individuals to carry out registerable activity. Should regulatory accommodations be made to allow for such solutions and, if so, which ones? What restrictions should be imposed to provide the same regulatory outcomes and safeguards as those provided through current proficiency requirements imposed on registered individuals?***

Under the current regulatory framework, nothing prevents capital markets participants from using technology to carry out their registerable activities. However, the use of such technologies does not alter the legal obligations of registered firms and individuals. In principle, there is no reason why the use of AI systems should be treated differently, in that such systems may be used but without diminishing any existing legal obligations. An approach where no single firm or individual is clearly responsible for compliance with applicable law would create various risks, particularly the question of against whom a customer who has suffered damages can seek legal redress. As a result, any accommodations that weaken the clear apportionment of legal responsibilities should ensure that customers are not left without recourse.

8. ***Given the capacity of AI systems to analyze a vast array of potential investments, should we alter our expectations relating to product shelf offerings and the universe of reasonable alternatives that representatives need to take into account in making recommendations that are suitable for clients and put clients' interests first? How onerous would such an expanded responsibility be in terms of supervision and explainability of the AI systems used?***

TMX takes no view on this question.

9. ***Should market participants be subject to any additional rules relating to the use of third-party products or services that rely on AI systems? Once such a third-party product or service is in use by a market participant, should the third-party provider be subject to requirements, and if so, based on what factors?***

TMX is of the view that outsourcing should generally neither relieve a party of its existing obligations nor create new ones and that such matters are best dealt with by contract between the market participant and the service provider. Existing regulations typically provide that outsourcing does not relieve the outsourcing party of its obligations with respect to the function being outsourced, and that outsourcing arrangements should include mechanisms to ensure that both the outsourcing party and any competent regulator is able to audit the outsourced activity appropriately. Such mechanisms are especially important in connection with AI systems, but we submit that it would be premature to adopt specific rules governing AI-based outsourcing as there is not yet a compelling rationale to do so.

10. ***Does the increased use of AI systems in capital markets exacerbate existing vulnerabilities/systemic risks or create new ones? If so, please outline them. Are market participants adopting specific measures to mitigate against systemic risks? Should there be new or amended rules to account for these systemic risks? If so, please provide details.***

The use of AI systems does carry the potential to create or exacerbate existing vulnerabilities and systemic risks. For example, in an extreme case trading algorithms trained on the same data sets could respond to market fluctuations in the same way, thereby creating a procyclical “herd effect” by amplifying market trends.

Rather than adopting new rules we submit that the best approach for the CSA would be to gather the information necessary to ensure that it understands the nature and scope of such risks. For example, questioning market participants on which AI use cases they are implementing, which data sets their

models are training on, what controls they have in place to mitigate the risk of undesired behaviour by the AI systems, and so on. A detailed understanding of what market participants are doing and how they are doing are necessary for the CSA to determine what additional steps may be appropriate to address the concerns raised by this question.

Sincerely yours,

Richard Everett
Chief Strategy and Innovation Officer, TMX Group