AI, RISK AND RESPONSIBILITY: A PRAGMATIC APPROACH TO AI REGULATION IN INDIAN SECURITIES

Pragati Purohit[1] and Muskan Suhag[2]

INTRODUCTION

The significance of Artificial Intelligence **(AI)** in the securities sector has seen a tremendous uptick, especially after COVID-19. Recent studies have showcased that algorithmic trading has increased to about 70% of the total trading volume in the United States of America **(USA)**, owing to the simplification and ease it offers.[3] This trend is expected to increase as investors lean towards data-driven, automated, and efficient trading practices.[4] However, AI usage is not just about efficiency- it provides investors with insights and data analytics that were once only available to mammoth firms and agencies, thus aiding in the formation of better-informed and economical investment strategies. Furthermore, broker-dealers also deploy AI for several purposes, including communication with customers, brokerage account and portfolio management, compliance, and risk management.[5]

With the commencement of this year, the Securities and Exchange Board of India's **(SEBI)** then-chairperson emphasised SEBI's growing reliance on AI and technological advancements to improve efficiency in protecting India's capital markets.[6] SEBI unabashedly deploys AI not only for data analytics but also to inform policy to achieve better settlement rates and successful outcomes in litigation. Today, AI has penetrated all three aspects of the regular functioning of the regulator: data-driven policy formulation, speedy administrative approvals and investigation, surveillance and enforcement. Consequently, a dozen projects on AI are already underway at SEBI.[7]

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[1] Pragati Purohit is a student at the National University of Study & Research in Law, Ranchi.
[2] Muskan Suhag is a student at the National University of Study & Research in Law, Ranchi.
[3] David Wu, *The Use of AI and AI Algorithms in Financial Markets,* MICHIGAN JOURNAL OF ECONOMICS https://sites.lsa.umich.edu/mje/2025/03/09/the-use-of-ai-and-ai-algorithms-in-financial-markets/ (last visited June 29, 2025).
[4] Pratik Adani, *The growing role of AI in trading and stock market democratization*, THE ECONOMIC TIMES, (Dec. 29, 2024) https://economictimes.indiatimes.com/markets/stocks/news/the-growing-role-of-ai-in-trading-and-stock-market-democratization/articleshow/116766438.cms (last visited June 29, 2025).
[5] *Artificial Intelligence (AI) in the Securities Industry*, FINRA (Jun. 10, 2020) https://www.finra.org/rules-guidance/key-topics/fintech/report/artificial-intelligence-in-the-securities-industry (last visited June 29, 2025).
[6] Online Bureau, *SEBI Chief highlights AI integration and tech-driven reforms in capital markets Regulation*, Economic Times Legal World, https://legal.economictimes.indiatimes.com/news/regulators/sebi-chief-highlights-ai-integration-and-tech-driven-reforms-in-capital-markets-regulation/117272016 (last visited June 29, 2025).
[7] Abhyjith K. Ashokan, *Sebi is working on a dozen AI projects to increase speed and efficiency, chairperson Madhabi Puri Buch says* HINDUSTAN TIMES (Sep. 27, 2024) https://www.hindustantimes.com/business/sebi-is-working-on-a-dozen-ai-projects-to-increase-speed-and-efficiency-chairperson-madhabi-puri-buch-says-101727414629962.html (last visited June 29, 2025).

In view of this transformative evolution of AI in the securities market, SEBI released a consultation paper on proposed amendments to assign responsibility for AI usage on November 13, 2024.[8] Subsequently, an amendment was rolled out on February 6, 2025, to the SEBI (Intermediaries) Regulations, 2008, to affix responsibility for the use of AI to protect investors from the downsides of the proliferation of such AI tools in the sector.[9] Notably, SEBI had already introduced mandatory reporting obligations concerning the implementation of AI or Machine Learning **(ML**) systems through its Circulars/Master Circulars. However, there remained a need to establish clear accountability for the Market Infrastructure Institutions **(MII)**, intermediaries, and other SEBI-regulated entities utilizing AI/ML. This assignment of responsibility aimed to encourage a more conscientious approach toward the deployment of these tools.[10] Further, privacy and confidentiality risks with AI technology continue to evolve with its potential, thus calling for regulation.[11]

The amendment in question imposes liability on any person regulated by the Board who uses AI tools or technologies specified by the Board as AI/ML techniques, regardless of whether an entity develops AI-based techniques internally or acquires them from third-party technology providers, it is required to assume responsibility irrespective of the extent or nature of their adoption in business operations and investor services. This obligation extends to:

(a) ensuring the confidentiality, security, and integrity of the data belonging to investors and stakeholders

(b) addressing risks associated with reliance on such AI-generated outputs; and

(c) complying with prevailing legal and regulatory requirements.[12]

However, affixing such responsibility raises several concerns, *inter alia,* regarding issues with explainability of AI processing and data hygiene, the inappropriateness of a one-size-fits-all approach, etc.

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[8] SEBI, *Consultation paper on "Proposed amendments with respect to assigning responsibility for the use of artificial intelligence tools by Market Infrastructure Institutions, Registered Intermediaries and other persons regulated by SEBI* (2024) https://www.sebi.gov.in/reports-and-statistics/reports/nov-2024/proposed-amendments-with-respect-to-assigning-responsibility-for-the-use-of-artificial-intelligence-tools-by-market-infrastructure-institutions-registered-intermediaries-and-other-persons-regulated-b-_88470.html (last visited June 29, 2025).

[9] The Securities and Exchange Board of India (Intermediaries) (Amendment) Regulations, 2025, SEBI/LAD-NRO/GN/2025/226.

[10] Consultation Paper, *see supra note 6*.

[11] Anu Tiwar, et al., *SEBI's Proposed New Amendments on Usage of AI Tools by Regulated Entities* India Corp Law (Dec. 5 2024) https://corporate.cyrilamarchandblogs.com/2024/12/sebis-proposed-new-amendments-on-usage-of-ai-tools-by-regulated-entities/ (last visited June 29, 2025).

[12] Amendment Ch. IIIB, s. 16(C) (1).

To address these concerns, this piece will proceed in two main parts. It first delves directly into the four main issues encountered in the approach adopted by SEBI. Then, it proposes amendments and suggestions to rectify the issues faced on the basis of the global best practices. Conclusively, this piece supports the regulation of AI in the sector while ensuring enough room for entities to innovate and manoeuvre independently.

CRITICISMS OF SEBI'S STRICT LIABILITY APPROACH

The AI Black Box Problem

Although SEBI's step towards affixing liability for AI usage is a step in the right direction, it ignores the black box problem that exists across most AI models. The black box phenomenon describes the challenge of understanding how AI-driven systems arrive at their decisions.[13] meaning thereby that while users can observe the inputs fed into the system and the corresponding outputs, the internal decision-making processes remain concealed.[14] This opacity may result in a lack of explainability, which refers to an AI system's ability to consistently provide a rationale for its output.[15]

The Economic Survey 2025 also recognised that the opaque nature of AI systems complicates efforts to evaluate their reliability or challenge their decisions, thus calling for a robust AI governance system.[16] However, such AI systems function on complex neural networks that adapt over time. Further, gaining insights into such networks is quite a complicated task for companies deploying such tools, as not all companies may be equipped enough to tap into such networks and understand/tweak them. If financial intermediaries and market players are held accountable for such opaque AI outputs, regulatory enforcement may become arbitrary and ineffective as it will equate to imposing liability for AI decisions they cannot interpret.

Thus, such uniform imposition of strict liability on all companies that use AI tools, without addressing the black box issue adequately, may deter firms from adopting such tools and stifle AI innovation in the sector, thus defeating the very purpose of regulation.

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[13] Samir Rawashadeh, *AI's mysterious 'black box' problem, explained* UMDEARBORN (Mar. 6, 2023) https://umdearborn.edu/news/ais-mysterious-black-box-problem-explained (last visited June 29, 2025).
[14] Mathew Kosinski, *What Is Black Box AI and How Does It Work?* IBM (last visited Mar. 14, 2025)
[15] US Dept of Treasury, *Managing Artificial Intelligence-Specific Cybersecurity Risks in the Financial Services Sector* (Mar. 2024) https://home.treasury.gov/system/files/136/Managing-Artificial-Intelligence-Specific-Cybersecurity-Risks-In-The-Financial-Services-Sector.pdf (last visited June 29, 2025).
[16] ETBFSI Research, *The black box nature of AI entails risks in banking: Economic Survey 2025*, ECONOMIC TIMES BFSI (Jan. 31, 2025) https://bfsi.economictimes.indiatimes.com/news/banking/the-black-box-nature-of-ai-entails-risks-in-banking-economic-survey-2025/117781097 (last visited June 29, 2025).

Moreover, outputs depend on the information that is fed to the system, bringing in the concept of data hygiene and nutrition labels. However, such concepts are also at a nascent stage of development in India, making it difficult to impose liability on this account.

Making Entities Liable for Client Decisions

The Foreign Portfolio Investor lobby, Asia Securities Industry and Financial Markets Associations **(ASIFMA)**, in its response to SEBI's consultation paper, among various concerns, has raised serious concerns regarding the vague and overbroad language of the amendment.[17] The provision states that entities shall be held liable "*if the output... is relied upon or dealt with*",[18] but it remains ambiguous whether this applies to reliance by the intermediary itself or by external stakeholders, including clients.[19] This ambiguity could potentially extend liability to decisions made by clients based on AI-generated insights, even when the AI system has produced accurate and fair outputs.

If SEBI intends to hold entities liable for client decisions, this would constitute a significant regulatory overreach, deviating from global best practices.[20] Such an approach would make India an outlier in AI regulation in the finance sector, as no major jurisdiction imposes strict liability on intermediaries for independent client decisions.[21] Investment decisions inherently involve discretion, and clients often take into consideration multiple factors like personal risk appetite, market conditions, and external advice before executing trades.[22] Even the most advanced AI tools merely assist in decision-making but do not eliminate the possibility of financial losses or market volatility. Thus, shifting accountability for client decisions onto these entities is unjustified and impractical.

SEBI's approach could deter financial institutions from integrating AI technologies, fearing legal exposure even when their AI systems operate within regulatory guidelines.

Misplaced Liability for Third-Party AI

In many cases, financial institutions do not develop their in-house AI system but rather work with technology companies or rely on third-party service providers.[23] A fundamental issue with SEBI's

[17] Khushboo Tiwari, *FPI lobby opposes Sebi's proposed norms for regulating AI and ML,* BUSINESS STANDARD (Mar. 15, 2025, 9:00 PM), https://www.google.com/amp/s/www.business-standard.com/amp/markets/news/fpi-lobby-opposes-sebi-s-proposed-norms-for-regulating-ai-and-ml-124120600981_1.html (last visited June 29, 2025).
[18] Consultation Paper, *see supra note 6*.
[19] ASIA SECURITIES INDUSTRY & FINANCIAL MARKETS ASSOCIATION, https://www.asifma.org/wp-content/uploads/2024/11/2024-11-28-asifma-response-to-sebi-consult-on-responsibility-for-use-of-ai-final.pdf (last visited June 29, 2025).
[20] Ibid.
[21] Ibid.
[22] Abdul Kareem et al, *Factors Influencing Investment Decisions in Financial Investment Companies*, 11 SYSTEMS (2023).
[23] LINKLATERS, https://www.linklaters.com/en/insights/thought-leadership/fintech/artificial-intelligence-in-financial-services (last visited June 29, 2025).

amendment is its failure to differentiate between AI tools developed in-house and those procured from third-party providers. Given that AI models are fundamentally data-driven,[24] their effectiveness, accuracy and reliability are directly influenced by the quality and integrity of the training data that human developer has used in their development.[25] However, the targeted entities may not have direct control over how third party service providers collect, curate and process this data, thereby making it unreasonable to hold them strictly liable for AI-related failures.

The integrity of AI-generated decisions depends on the initial coding, data selection, and underlying algorithms established by human developers.[26] These developers determine which data is prioritized, how biases are mitigated, and how risk factors are weighed.[27] An entity using such AI tools for client services, trading, risk assessment, etc., lacks third-party oversight and relies on the assumption that the third party has adhered to the best practices in terms of bias mitigation and data hygiene.[28] If a flaw in the AI model's underlying structure leads to erroneous market predictions or unintended trading patterns, it would not be viable to impose strict liability on the entity using this model.

Moreover, these targeted entities may not have the required technical expertise or access to the database used by third-party AI providers since many AI providers can possibly operate under confidentiality agreements or trade secret protection, which prevents outsiders from fully auditing the inner workings of their models.[29] Therefore, in the absence of means to review or modify the fundamental design of an AI model, imposing strict liability for the usage of AI is an unreasonable compliance burden.

Failure to Differentiate between Trading Models

For trading purposes in India, four different varieties of AI/ML-driven trading systems are employed: Quantitative Trading, Algorithmic Trading, High-Frequency Trading, and Automated

[24] Contributor, *AI's Dependency on High-Quality Data: A Double-Edged Sword for Organizations*, INSIDE AI NEWS (Sep. 17, 2024), https://insideainews.com/2024/09/17/ais-dependency-on-high-quality-data-a-double-edged-sword-for-organizations/ (last visited June 29, 2025).
[25] Gina-Gail S. Fletcher et al, *The Future of AI Accountability in the Financial Markets*, 24 VJETL 303, 289-322 (2022).
[26] Id.
[27] Nicol Turner Lee et al, *Algorithmic bias detection and mitigation: Best practices and policies to reduce consumer harms,* BROOKINGS (May 22, 2019), https://www.brookings.edu/articles/algorithmic-bias-detection-and-mitigation-best-practices-and-policies-to-reduce-consumer-harms/ (last visited June 29, 2025).
[28] ACA Group, *Financial Services Firms Lag in AI Governance and Compliance Readiness, Survey Reveals*, ACA (Oct. 29, 2024), https://www.acaglobal.com/insights/financial-services-firms-lag-ai-governance-and-compliance-readiness-survey-reveals (last visited June 29, 2025).
[29]ORRICK, https://www.orrick.com/en/insights/2025/01/protecting-trade-secrets-tips-for-ai-companies#:~:text=AI%20companies%20should%20familiarize%20themselves,%2C%20processes%2C%20datasets%20and%20more (last visited June 29, 2025).

Trading.[30] Each of these systems operates variably, with different levels of human intervention and risk exposure.

Quantitative trading relies on AI to analyse huge amount of market data, identify patterns and generate profitable trading signals.[31] However, the final execution of trades includes human discretion, as the system merely processes existing data rather than autonomously executing trades. This type of system showcases a degree of human oversight, making it less susceptible to fully automated risks.

On the other hand, algorithmic trading involves predefined rule-based execution, where the AI system automatically places buy and sell orders based on some pre-conditions set by the trader.[32] While the execution of orders is automated, the rules themselves are created and refined by human traders, thereby ensuring a controlled environment where AI functions merely as an execution instrument rather than a decision-making entity.

High-Frequency Trading, a subset of algorithmic trading, uses powerful computational systems to place orders at extremely high speeds, often within milliseconds or microseconds.[33] However, given the speed and volume of transactions, HFT often carries a higher risk of market disruptions and flash crashes.[34] Except for initial programming, human action is not required.[35]

Automated trading is a broader category, inclusive of rule-based and AI-driven models that analyse price movements, market conditions, and other technical indicators. These algorithms range from simple conditional logic-based systems to complex AI-powered predictive models, incorporating machine learning and deep learning techniques to refine trading strategies over time.[36]

Given these significant operational differences, SEBI's one-size-fits-all regulatory approach appears problematic and impractical. A uniform framework fails to account for the varying levels of risk, human oversight, and AI autonomy across these trading mechanisms.

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[30] Pratik Adani, *The growing role of AI in trading and stock market democratization*, THE ECONOMIC TIMES (Mar. 15, 2025 9:05 PM), https://economictimes.indiatimes.com/markets/stocks/news/the-growing-role-of-ai-in-trading-and-stock-market-democratization/articleshow/116766438.cms (last visited June 29, 2025).

[31] Jeff Sekinger, *Unveiling the Future of Finance: What Is AI Quantitative Trading?,* NURP (May 14, 2024) https://nurp.com/wisdom/unveiling-the-future-of-finance-what-is-ai-quantitative-trading/ (last visited June 29, 2025).

[32] GEEKS FOR GEEKS, https://www.geeksforgeeks.org/what-is-algorithmic-trading/ (last visited June 29, 2025).

[33] THE FOREX GEEK, https://theforexgeek.com/high-frequency-trading-strategy/ (last visited June 29, 2025).

[34] Ping-Hsiang Lin et al, *Assessing the Impact of High-Frequency Trading on Market Efficiency and Stability*, OXJOURNAL (Sep. 17, 2024), https://www.oxjournal.org/assessing-the-impact-of-high-frequency-trading-on-market-efficiency-andstability/#:~:text=Impacts%20of%20HFT%20on%20the,sudden%20and%20extreme%20price%20movements (last visited June 29, 2025).

[35] SEVEN PILLAR INSTITUTE, https://sevenpillarsinstitute.org/case-studies/high-frequency-trading/ (last visited June 29, 2025).

[36] FYERS, https://fyers.in/blog/what-is-automated-trading/ (last visited June 29, 2025).

COMPARATIVE ANALYSIS

The United Kingdom

The UK has adopted a pro-innovation approach,[37] prioritising agility in its financial market.[38] Its regulatory framework is based on five key principles, namely safety; security; appropriate transparency and explainability; fairness accountability, governance, and, contestability and redress. It also includes voluntary safety and transparency measures for developers of highly capable AI models. Although the framework has not been codified into law for now, regulations are sought to increase gradually, with the rolling out of more guidelines, information gathering and enforcement. The DSIT at UK has also established a Central function to support UK regulators' understanding of the AI risk landscape via expert risk analyses. This would enable them to take a holistic view and fix potential gaps timely.[39] Furthermore,

The Financial Conduct Authority at the UK aims to take up an evidence-based approach in scrutinising the systems and processes that firms have in place to ensure regulatory expectations are met, to balance benefits and risks of AI.[40] It seeks to achieve this objective by taking into consideration the adverse implications of the usage of AI by regulated firms at the market level via an objective assessment. Further, taking the lead from the Financial Services and Markets Act 2000,[41] the principle of proportionality has been espoused so that the burdens or restrictions imposed are in proportion with the expected benefits. Overall, an outcome-based approach provides much-needed leeway to the firms to adapt and innovate.

The need for such a well-delineated approach is felt in India, wherein the said circular only provides the scope of liability but not the specific principles at play. While it may be construed that the general principles applicable under the law shall be automatically applicable herein too, the financial regulator would better subserve the markets' interests by laying out detailed instructions as to how the liability sought is to be imposed. Furthermore, the establishment of the Central

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[37] *A pro-innovation approach to AI regulation: government response,* DEPARTMENT FOR SCIENCE, INNOVATION AND TECHNOLOGY, (2024) https://www.gov.uk/government/consultations/ai-regulation-a-pro-innovation-approach-policy-proposals/outcome/a-pro-innovation-approach-to-ai-regulation-government-response (last visited June 29, 2025).

[38] Valeria Gallo & Suchitra Nair, *The UK's framework for AI regulation,* DELOITTE, https://www.deloitte.com/uk/en/Industries/financial-services/blogs/the-uks-framework-for-ai-regulation.html (last visited June 29, 2025).

[39] *Implementing the UK's AI regulatory principles: initial guidance for regulators,* (2024) https://www.gov.uk/government/publications/implementing-the-uks-ai-regulatory-principles-initial-guidance-for-regulators/implementing-the-uks-ai-regulatory-principles-initial-guidance-for-regulators (last visited June 29, 2025).

[40] *Artificial Intelligence (AI) update – further to the Government's response to the AI White Paper,* FINANCIAL CONDUCT AUTHORITY (2024). Artificial Intelligence (AI) update – further to the Government's response to the AI White Paper | FCA.

[41] The Financial Services and Markets Act, 2000

function showcases an approach wherein strengthening the AI capabilities and risk assessment tools of the regulators is also in perspective- a point which India seems to have missed in this regard.

Singapore

While recognising the transformative power of AI, the Monetary Authority of Singapore aims to harness and rein in its power by adopting a flexible strategy, by taking a sectoral approach akin to the UK.[42] The Info-comm Media Development Authority and the Personal Data Protection Commission have rolled out a Model AI Governance Framework for Generative AI (based on 9 dimensions), along with guidelines which focus on principles of promoting Fairness, Ethics, Accountability and Transparency (FEAT) in the use of AI and Data Analytics (AIDA).

The Accountability principle includes two aspects: internal and external accountability. It entails clearly laying out responsibility for and ownership of AIDA-driven decisions within the firm, with appropriate internal approving authorities for the use of AIDA, whether internally developed or externally sourced. Further, AI-driven decisions that can significantly impact individuals are required to be based on an accurate understanding of the individuals. Furthermore, establishing clear channels for reporting, redressal, and correction of decisions made by AI systems by the firms is emphasised. Additionally, a Veritas Toolkit Version 2.0, which is an open-source toolkit developed by an MAS-led consortium, has been rolled out to help financial institutions in carrying out assessments, to promote responsible and ethical use of AI.[43]

Such a corrective approach ensures that innovation is not stifled and firms do not face a setback in case of any incorrect AI decisions- an approach that does not find a mention in the Consultation paper, which only provides room for the imposition of responsibility, not correction mechanisms. Further, initiatives like the Veritas toolkit aid in assessment for the FEAT principles, carrying these principles into action on the ground.

The USA

In the recently concluded roundtable conference hosted by the Securities and Exchange Commission **(SEC)**on governance of AI in the financial industry, the pressing need to adopt a

[42] Rohit Nayak, *Singapore's forward-thinking approach to AI regulation,* DILIGENT (2024) https://www.diligent.com/resources/blog/Singapore-AI-regulation (last visited June 29, 2025).
[43] Jennifer Chih, *Navigating the Intricacies of Artificial Intelligence in Singapore's Securities Sector,* MAYERBROWN (2024) https://www.mayerbrown.com/en/insights/publications/2024/05/navigating-the-intricacies-of-artificial-intelligence-in-singapores-securities-sector (last visited June 29, 2025).

reasoned approach to use AI was emphasized.[44] The panelist, as well as the Commissioners, highlighted the importance of avoiding placing unnecessary barriers on the use of technology and taking a technology-neutral approach to the regulation.[45] The panelists also recognized the problem of the "black box," where it is difficult to ascertain how inputs are weighed and outputs are derived.[46] Prior to this, on July 26, 2023, the SEC introduced a proposal aimed at tackling possible conflicts of interest that could arise from the use of artificial intelligence and predictive data tools by brokerage and investment advisory firms..[47] The proposal made it mandatory for these firms to take proactive actions to estimate and alleviate conflicts of interest associated with their use of AI and predictive data analytics. Firms are required to comply with their obligations irrespective of the technology they adopt.[48]

It is pertinent to note that in 2024, the SEC announced two enforcement actions against two investment advisors, Delphia (USA) Inc. and Global Predictions Inc., because they made false and misleading statements about the purported usage of AI and ML in the services provided by them.[49] The SEC has outlined five key concerns associated with the growing use of AI in financial services. These include five practices, namely- the practice of falsely claiming the use of AI by firms, the possibility of using such technology to engage in fraud or manipulate markets, situations where the technology may be used in ways that benefit the company more than the client, the risk of errors or misleading information appearing in investor or promotional materials and the broader concern that widespread reliance on similar data and models by major players could pose risks to the financial system as a whole.[50] These developments reflect the SEC's clear position that while the use of advanced technology in finance is encouraged, it must be accompanied by honesty, accountability, and a strong commitment to protecting investors.

China

[44] Michael J. Blankenship et al, *SEC Hosts Roundtable on Artificial Intelligence in Finance*, MONDAQ, https://www.mondaq.com/unitedstates/new-technology/1607018/sec-hosts-roundtable-on-artificial-intelligence-in-finance (last visited June 28, 2025).
[45] Jennifer L. Klass, et al, *United States: SEC's Approach to Artificial Intelligence Begins to Take Shape*, K&L GATES GLOBALINVESTMENT WATCH, https://www.investmentlawwatch.com/2025/03/31/secs-approach-to-artificial-intelligence-begins-to-take-shape/ last visited June 29, 2025).
[46] Ibid.
[47] *SEC Proposes New Requirements to Address Risks to Investors From Conflicts of Interest Associated With the Use of Predictive Data Analytics by Broker-Dealers and Investment Advisers*, US SECURITIES AND EXCHANGE COMMISSION, https://www.sec.gov/newsroom/press-releases/2023-140 (last visited June 29, 2025).
[48] Thomas Stewart, *The SEC's New AI Rule: How You Can Use AI Innovations While Staying Compliant*, HADRIIUS https://www.hadrius.com/articles/sec-ai-rule (last visited June 29, 2025).
[49] *SEC Announces First-Ever Enforcement Actions for "AI Washing"*, LATHAM & WATKINS, https://www.lw.com/admin/upload/SiteAttachments/SEC-Announces-First-Ever-Enforcement-Actions-for-AI-Washing.pdf (last visited June 28, 2025).
[50] Id.

In China, the latest regulatory measures, *Provisional Administrative Measures of the Generative Artificial Intelligence Services*, were drafted and enforced in 2023 under the aegis of the Cyberspace Administration of China along with the participation of other government agencies.[51] An important provision of these measures make AI developers and operators legally responsible for the outcomes of the generative AI systems. Therefore, developers and operators of AI can be sanctioned if an AI system generates content that is harmful to others.[52]

The China Securities Regulatory Commission **(CSRC)** has taken a more prescriptive approach to algorithmic trading. CSRC, in May 2024, published its first standalone rules on program trading in the stock market.[53] These Administrative Rules require that all program trading and related activities comply with existing laws, CSRC rules, and the exchanges' own business rules. Similarly, in June 2025, the CSRC issued Program Trading Provisions for the Futures Market, extending these principles to futures contracts. Both sets of rules impose stricter oversight on rapid automated trading.[54] Together, these measures show China's regulatory intent to maintain firm oversight over AI applications in finance.

SUGGESTIONS

Advancing Research on AI Explainability

More research surrounding explainability is needed to gain better insights into how the outputs were generated. In the meantime, while workable solutions are yet to be developed for providing black box explainability, financial institutions should establish best practices for using AI without explainability. In order to mitigate these risks, adopting best practices such as maintaining good data hygiene for the data and high-quality standards for data for training AI models and restricting their application to scenarios where explainability is not a critical requirement may be useful. Presently, there is an absence of a well-defined and comprehensive framework for assessing and auditing black box AI solutions. Such a framework should guide firms through essential evaluation processes, including assessing input data, monitoring outputs, training methodologies, and

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[51] Anna Gamvros, et al, *China finalises its Generative AI Regulation*, NORTON ROS FULBRIGHT, https://www.dataprotectionreport.com/2023/07/china-finalises-its-generative-ai-regulation/ (last visited June 28, 2025).

[52] Sebestian Wiendieck, et al, *Generative Artificial Intelligence: China's legal framework*, RODL & PARTNER, https://www.roedl.com/insights/china-legal-framework-generative-artificial-intelligence#:~:text=Responsibility%20and%20Liability%3A%20AI%20developers,ensure%20compliance%20with%20legal%20requirements (last visited June 28, 2025).

[53] Qing (Natasha) Xie, et al, *CSRC Issued the Futures Program Trading Administrative Provisions*, LEXOLOGY, https://www.lexology.com/library/detail.aspx?g=2b29ad1c-9b5e-4928-8533-f0ceb079a6b2#:~:text=These%20provisions%20align%20with%20the,effect%20on%20October%208%2C%202024, (last visited June 28, 2025).

[54] *CSRC Released the Provisions on Futures Program Trading*, CHAMBERS AND PARTNERS, https://chambers.com/articles/csrc-released-the-provisions-on-futures-program-trading (last visited June 28, 2025).

scrutinising the underlying models. Given that SEBI's amendment applies to AI usage across varying scales and scenarios, any proposed regulatory structure must be repeatable and scalable to accommodate firms of varied sizes and operational complexities.[55]

Further, akin to the US Department of the Treasury, the Government of India and SEBI would do well to collaborate with the financial sector and relevant R&D programs. This would enable a deeper understanding of the implications of AI explainability, particularly in relation to cybersecurity and fraud prevention within financial services.[56]

Also, in order to maintain good data hygiene and easy resolution to the black box problem, the development of best practices for the mapping of data supply chains and data standards becomes crucial in the long run. This would also aid in assuaging data privacy concerns.

Lessons from IOSCO's Guidance

Taking lead from the International Organization of Securities Commissions' **(IOSCO)** 2021 Guidance,[57] SEBI can adopt a proportionality-based approach for AI regulation in the securities market. Such an approach should advocate for regulation for risks posed by AI being aligned with the potential impact of respective AI applications, rather than treating all AI-driven activities under the same regulatory lens. The difference between client-facing AI tools[58] and AI used in back-office operations[59] needs to be recognized, since the former carries higher risks and requires transparency, and the latter is used for operational efficiency of business, thereby requiring a more flexible approach.

Important measures suggested by IOSCO include the requirement to establish a clear internal governance within financial institutions for AI oversight.[60] SEBI can mandate the designation of senior management personnel in the entities who will be responsible for reviewing and approving AI models at different stages, like development, testing, deployment, and continuous monitoring. The duty of ensuring that such personnel possess the necessary technical expertise would rest with

[55] US Dept of Treasury, *Managing Artificial Intelligence-Specific Cybersecurity Risks in the Financial Services Sector* (Mar. 2024) https://home.treasury.gov/system/files/136/Managing-Artificial-Intelligence-Specific-Cybersecurity-Risks-In-The-Financial-Services-Sector.pdf (last visited June 29, 2025).
[56] Id.
[57] IOSCO, https://www.iosco.org/library/pubdocs/pdf/IOSCOPD684.pdf#:~:text=The%20guidance%20consists%20of%20six%20measures%20that%20reflect,intermediaries%20and%20asset%20managers%20using%20AI%20and%20ML (last visited June 29, 2025).
[58] Kartik Jobanputra, Customer Service: How AI Is Transforming Interactions, FORBES (Mar. 15, 2025 9:05 PM), https://www.forbes.com/councils/forbesbusinesscouncil/2024/08/22/customer-service-how-ai-is-transforming-interactions (last visited June 29, 2025).
[59] CHARTER GLOBAL, https://www.charterglobal.com/transforming-the-back-office-how-ai-is-making-an-impact/ (last visited June 29, 2025).
[60] Measure 1, IOSCO Report, *see supra note 56*.

the financial institutions.[61] Moreover, rather than making the entities strictly liable even for third-party service providers, SEBI can require firms to have a defined legal recourse against these service providers.[62] Adopting these measures would guarantee a fair allocation of responsibility in AI adoption.

Defining Obligations Based on Risk Levels

Drawing insights from the European Union Artificial Intelligence Act, 2024 **(EU AI Act)**,[63] SEBI would do well if it considers a risk-based classification system for AI regulation in the securities market. The EU AI Act, recognized as the first comprehensive law for regulation of AI,[64] categorizes AI systems into four risk levels, i.e., unacceptable (prohibited),[65] high,[66] limited[67] and minimal risk.[68] The regulatory oversight varies in degrees based on the potential risks and human involvement. Under this approach, a proportionate allocation of compliance obligations and liability is ensured, which prevents excessive regulatory burdens on lower-risk AI applications while maintaining stringent monitoring for high-risk AI models.

Applying this classification to the Indian securities market, quantitative AI tools, which primarily analyze market data with significant human interference,[69] would fall under the limited risk category and thereby warranting lighter compliance obligations. Algorithmic AI tools, functioning as executory mechanisms with some level of human involvement,[70] would similarly be categorized as limited risk, though with a slightly lower degree of human intervention. On the other hand, HFT and fully automated trading tools, which operate without direct human involvement and execute buy and sell orders at extreme speeds,[71] would be classified as high risk due to their potential impact on market stability, liquidity and systemic risks. These AI models should be subject to prior regulatory approvals and increased compliance requirements in order to ensure that their deployment does not compromise investor protection or market integrity.

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[61] Measure 3, IOSCO Report, *see supra note 56*.
[62] Measure 4, IOSCO Report, *see supra note 56*.
[63] European Union Artificial Intelligence Act, 2024, No. 1689, Acts of European Parliament and Council, 2024 (EU).
[64] Frederiek Fernhout et al, The EU Artificial Intelligence Act: our 16 key takeaways, STIBBE (Mar. 15, 2025 9:05 PM), https://www.stibbe.com/publications-and-insights/the-eu-artificial-intelligence-act-our-16-key-takeaways.
[65] European Union Artificial Intelligence Act, 2024, § 5, No. 1689, Acts of European Parliament and Council, 2024 (EU).
[66] European Union Artificial Intelligence Act, 2024, § 6, No. 1689, Acts of European Parliament and Council, 2024 (EU).
[67] European Union Artificial Intelligence Act, 2024, § 52, No. 1689, Acts of European Parliament and Council, 2024 (EU).
[68] European Union Artificial Intelligence Act, 2024, § 69, No. 1689, Acts of European Parliament and Council, 2024 (EU).
[69] Quantitative Trading, *see supra note 29*.
[70] Algorithmic Trading, *see supra note 30*.
[71] High Frequency and Automated Trading, *see supra note 31 & 34*.

Integrating ASIFMA's Principles

Building upon ASIFMA's Principle 3, Principle 4 and Principle 4, SEBI can do well in bringing a balanced approach that fosters innovation while protecting interests of investors.

ASIFMA's Principle 3[72] emphasizes that regulators should adopt a technology-agnostic approach, meaning thereby regulations need to focus on activities and associated risks rather than the particular technology used. This approach is instrumental as it guarantees that financial institutions are not burdened with compliance requirements simply because they use AI, but are rather regulated based on the nature of AI's operations and potential risks posed to market integrity. The *"same activity, same risk, same regulation"* principle prevents discriminatory or inconsistent regulatory mechanism between AI-driven and non-AI-driven models, allowing AI innovations to develop within a well-defined risk management framework

This principle can be a guiding light for SEBI in ensuring that AI usage is not penalized simply for leveraging advanced technology. Instead of blindly targeting AI systems in isolation, SEBI should calculate the actual risks associated with financial activities- whether conducted through AI, human decision-making or traditional automation. Also, AI-based client advisory tools should be regulated for transparency, but their use should not be subjected to unnecessary restrictions that limit their accessibility.

Principle 4[73] emphasizes that regulators should first see whether existing financial regulations sufficiently address AI-related risks before introducing new AI-specific laws. Since financial markets are already governed by strict compliance regimes, including requirements on risk management, governance, cybersecurity, outsourcing and third-party risk management, a new layer of AI-specific regulations could lead to regulatory overlap and compliance inefficiencies. Pre-existing regulatory frameworks should be reviewed and adapted to incorporate AI-related regulations when necessary. This principle focuses on a progressive & incremental approach starting with non-binding guidelines and gradually moving towards formal regulations only if required.

SEBI can apply this principle by conducting a comprehensive research on scope of India's existing financial regulations to determine whether AI usage already falls within their purview. Currently

[72] ASIFMA, https://www.asifma.org/wp-content/uploads/2021/06/enabling-an-efficient-regulatory-environment-for-ai-report_june-2021.pdf (last visited June 29, 2025).
[73] Principle 4, ASIFMA Report, *see supra note 71*.

India doesn't have regulations directly addressing concerns of AI-related risks,[74] therefore going by progressive approach, SEBI can focus on publishing handbooks, manuals for financial institutions using AI, FAQs, investor awareness program etc. instead of directly bringing a law that imposes strict liability on the entities.

Principle 7[75] focuses on the importance of engagement between regulator and industries to address uncertainties surrounding governance of AI. AI technologies are evolving at a fast pace and financial institutions need clear guidance on how existing regulations apply to AI-driven operations. The focus of such engagements should be on identifying gaps in existing laws, clarifying compliance expectations, and ensuring alignment with international best practices. Apart from that, defining key concepts such as AI explainability, ethical AI usage, and bias mitigation requires the collaborative effort of regulators and industry experts. Without such collaboration, AI regulations risk being too rigid or misaligned with practical industry applications, which could hinder AI adoption in the financial sector in the long run.

SEBI can work as per this principle by structured industry consultations and collaborating with financial institutions, technology providers, and other stakeholders. One key area for engagement is the development of a standardized definition of AI, which should be in line with international standards. By promoting a culture of continuous dialogue and knowledge-sharing, SEBI can ensure that AI regulations remain relevant, effective, and adaptable to emerging technologies.

CONCLUSION

The rise of artificial intelligence in the securities market has brought both immense opportunities and regulatory challenges. SEBI's recent amendment, while intending to ensure accountability for AI-motivated decisions, adopts a rigid, one-size-fits-all approach that fails to take into consideration the complexities of AI deployment in financial markets. This paper identified four important issues with SEBI's framework, namely, the AI black box problem, misplaced liability for client decisions, unjustified responsibility for third-party AI tools, and failure to differentiate between trading models. Each of these concerns raises serious doubts about the practicality and fairness of imposing strict liability on financial institutions for AI-related risks.

To address these concerns, the paper examined global best practices, drawing insights from frameworks such as the US Department of the Treasury, IOSCO's recommendations, the EU AI

[74] Ankit Singh, *The AI Regulatory Landscape in India: What to Know*, AZO ROBOTICS, https://www.azorobotics.com/Article.aspx?ArticleID=742#:~:text=The%20Current%20AI%20Regulatory%20Landscape,different%20aspects%20of%20AI%20deployment (Feb. 26, 2025).

[75] Principle 7, ASIFMA Report, *see supra note 71*.

Act, and ASIFMA's principles. These international approaches call for risk-based, proportionate and technology-agnostic regulations that ensure AI accountability while fostering innovation. By adopting these principles, SEBI can create a regulatory framework that is adaptable, evolving and aligned with global standards.

Eventually, AI regulation in financial markets have to strike a balance between investor protection and innovation. Overly rigid liability systems discourage AI adoption, while inadequate oversight may expose investors to unforeseen risks. The optimal model lies in proportional and principle-based regulation that holds entities accountable for their AI applications without stifling technological advancements. Recognizing that AI is here to stay, SEBI must prioritize sustainable, forward-looking policies that encourage responsible AI usage while ensuring the long-term resilience of India's capital markets.