



Technological breakthrough: A critical analysis on the use of Artificial intelligence by SEBI

MR. SAMRIT JAGGA

(21212269)

STUDENT, 3RD YEAR

CHRIST (DEEMED TO BE UNIVERSITY) DELHI NCR CAMPUS

ABSTRACT

Security exchange board of India SEBI a statutory body established in 1992 with SEBI act to provide a framework for regulating security market protecting it from the act of insider trading also protecting the interest of investors and educating them about the market and market intermediaries, as the financial sector grows with the evolving technology the SEBI faces a lot of challenges specially when it comes to artificial intelligence being used as a tool to deceive SEBI in a way that include Market manipulation and automated trading, SEBI as of today focuses on written rules and regulation based system to regulate the market and punishing the perpetrators, but with the use of Artificial intelligence by market participants to deceive SEBI it has become necessary for SEBI to also include Artificial intelligence in its regulatory work.

This study aims to to' provide a detailed comprehensive analysis on the implementation of Artificial intelligence by SEBI with respect to its advantages and disadvantages compared with UK's FCA established in 2013 working independently of the UK government responsible for regulating financial market in United kingdom who has already implemented Artificial intelligence in their regulatory framework.

Keywords: Artificial Intelligence, Securities and Exchange Board of India, Investor interests, Security market, Regulating, Market intermediaries, Market manipulation, Insider trading.

INTRODUCTION

In this rapidly growing world of global finance, the use of artificial intelligence by global market regulatory has become topic of conversation these authorities work with AI in order to improve their regulatory efficiency, maintain market integrity but in countries like India, it is still required to consider a potential impact of the technological shift. With the help of AI

technologies such as machine, learning, algorithms, and predictive analysis it has made easier to perform complex task, identify fraudulent activities and giving easy understanding due to the transforming of regulatory processes, there are several global financial regulatory bodies whom have already been using artificial intelligence in their working as to effectively in their respective countries such as SEC was established in U.S. by Securities Exchange Act of 1934¹, The Autorité des Marchés Financiers (AMF) is the independent regulatory organization in charge of overseeing France's financial markets, having been established by the Financial Security Act of 2003², The Financial Services Act of 2012³ created the Financial Conduct Authority (FCA) United Kingdom's independent financial regulator.

It is mandatory to check whether use of artificial intelligence in financial regulator, will bring advantages or disadvantages upon the advancement of technology in Indian financial sector. This study aims to provide the pros and cons that SEBI may face in adopting the evolving technology due to the influence of worldwide adaptation of artificial intelligence in financial regulation.

Implementation of artificial intelligence by SEBI could either present opportunity to surpass the conventional regulatory frameworks such as setting up of AI driven surveillance systems, or it could either leads to the problem of Data privacy breach, through this study we will aim to provide a thorough understanding of India's journey towards the technologically driven financial future⁴.

¹ The Securities Exchange Act, 1934 (Public Law 73–291)

² The Finance Act, 2003 (Act 32 of 2003)

³ The Financial Services Act, 2012 (Commencement No. 6 2014)

⁴ PTI, "SEBI uses Artificial Intelligence for investigations, says official" The Hindu business line, Feb. 24, 2024.

SEBI'S MOVE TOWARDS UTILISING ARTIFICIAL INTELLIGENCE

SEBI started using artificial intelligence to improve financial regulation it has introduced AI-driven algorithms to analyze large amounts of structured and unstructured data in real-time, marking it as one of their noteworthy initiatives. This allows for the detection of unusual trading patterns, market manipulation, and insider trading with unparalleled precision. SEBI has significantly improved its capacity to quickly identify fraudulent activities and implement necessary regulatory actions by utilizing the capabilities of AI, also SEBI has introduced advance data analytics system that analyses historical market data ,news, media trends and other information and with their help perform a predictive analysis and take necessary preventive steps for future threats.⁵

Also, Service is being working on NLP, natural language processing that analyses financial filings research reports, news, article and social media post related to listed companies in Indian stock exchange in order to identify potential problems and non-compliance or misleading statements by these companies. This is due to the SEBI approach towards the more enhanced Transparent and accurate corporate disclosure.

ARTIFICIAL INTELLIGENCE AND REGULATORY OVERSIGHT

The use of advanced algorithm and machine learning capabilities, AI has revolutionised many industries verified if we talk about regulatory oversight, then artificial intelligence offers a potential to improve efficiency, accuracy and performance, in UK FCA financial conduct authority have adopted artificial intelligence to actively monitor market activities and protect the investors from any sort of misleading. It can analyse vast data in real time very quickly and identify patterns that may cause market manipulation or fraud and activities, this approach helps regulators to stay ahead of risk and take necessary action to maintain market integrity.⁶ In addition, artificial intelligence based technologies give a lot of opportunities as its significantly, shorten the response time in crucial situations machine learning can also analyse trend historical data that might be missed by human analysis AI can also effectively improves tedious tasks such as data, validation and reporting this save time also, can reduce human errors In addition, enable system can adapt to changing regulations by updating their algorithm based on new guidance or regulatory framework.

FCA AND ARTIFICIAL INTELLIGENCE

United Kingdom's financial conduct authority (FCA) is already utilising artificial intelligence for regulatory oversight by recognising its potential. FCA have already launched digital regulatory reporting (DRR) pilot project with this project. They take initiative to designed and simplify regulatory reporting using machine learning algorithms, the system analyses, reporting of data, minimising human an errors and improving operational efficiency.

FCA have introduced the legacy sandbox, which provide fitting companies with opportunities to experiment the cutting edge technologies with the supervised settings, such as AI solutions with the approach that by working

⁵ Bandi, Swati and Anil Kothari "Artificial intelligence:An asset for the financial sector."JAIOT 259-287 (2022)

⁶ Soviany and Cristina."AI- powered surveillance for financial markets and transactions."JDB 319-329 (2019)

together, we can test our new ideas and still make sure consumer are protected. The ongoing efforts of FCA include technical sprints to enhance innovation this aims to address complex issues and financial regulation , in order to solve specific specific regulatory problems, the industrial experts and technology providers and regulators come together for intense collaboration during short sprints to create a prototype or proof of concept to implement artificial intelligence in order to guide firms to promote transparency, accountability, and fairness during process of listing securities..

FCA COMPARED WITH SEBI

In this section with thoroughly compare security exchange board of India and financial conduct authority of United Kingdom as one is trying to utilise artificial intelligence and one is already working with artificial intelligence for its regulatory oversight, respectively. By comparing their approaches, we can gain inside into the future direction of AI driven regulations.⁷

- **Adopting technological advancements** - Both Sebi and FCA have acknowledged the importance of technological advancements specifically if you talk about artificial intelligence, FCA have a strong dedication towards technological innovation and have adopted machine learning algorithms to effectively and efficiently perform regulatory oversight, SEBI is now taking a step in approaching to include artificial intelligence into market surveillance system, fraud detection, and risk management.
- **Market surveillance and investor protection** - Although the regulatory focus of SEBI and FCA, both acknowledge the transformed potential of artificial intelligence technology in financial regulation, but both have different area of focus. FCA promotes use of artificial intelligence to save investors from misconduct or fraud and a whole fair treatment and market integrity, but SEBI focuses on improving market capabilities.

Both SEBI and FCA mission to protect investors in a pool fair treatment and transparent market to boost investors. Confidence is reflected by there, dedicated approach towards artificial intelligence. It is a opportunity for SEBI to learn from FCA As to minimise the risk of new technology implementation, as they have already implemented artificial intelligence in their regulatory oversight. Both SEBI and FCA have stressed, need to address ethical consideration related to use of artificial intelligence as both recognise, transparency and data collection and algorithm decision making and also emphasise on ensuring fairness and accountability in the implementation of artificial intelligence driven system for regulation.

⁷ Ipsita das and prof. (dr.) Pradip kumar sarkar. "Investor Protection in India and UK comparative study" JPSP 4220-4231 (2022)

LEGALITY ON USE OF ARTIFICIAL INTELLIGENCE BY SEBI

Security exchange, food of India, SEBI is governed by the regulatory power and rules under SEBI act 1992⁸ there may not be a specific regulation for artificial intelligence, but SEBI has brought the regulatory powers to effectively regulate and monitor securities market to implement technological solutions.

SEBI ACT empowers SEBI to make rules regulation to prevent fraudulent and unfair market activities, protect investors, interest, and also prevent insider trading and promote the development of Indian securities market. It gives power to SEBI to act as a independent body issue guidelines, circular instruction for various market participants that includes market intermediaries, stock exchanges and listed companies.

SEBI has actively used technology and realized the potential benefits of AI in its regulatory functions. It has issued several circulars and guidelines emphasizing the adoption of technology-based solutions for supervision, risk management, investor protection and efficient market operations. These include guidelines for using artificial intelligence and machine learning in the Indian securities market.

For example, SEBI's circular on both artificial intelligence and machine learning guides market intermediaries using artificial intelligence and machine learning models in trading and risk management. The circular emphasizes the need to support risk management frameworks, transparency and explainability of AI models used in business.

In addition, SEBI and Market Supervision and Monitoring Regulations such as Prohibition of Insider Trading 2015 and SEBI (Prohibition of Frauds and Unfair Trading Practices in Securities Markets, 2003) allow SEBI to use AI technology for surveillance, detection and detection of market manipulation. of suspicious transactions. Although SEBI's use of AI may not be specifically mentioned in the Act, SEBI's regulatory initiatives and mandates provide a broad framework for the adoption and implementation of AI-based solutions in its operations, provided they adhere to the principles . transparency, fairness and investor protection.

CHALLENGES UPON IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE FACED BY FCA

There were several challenges faced by FCA upon the implementation of artificial intelligence. These challenges require careful consideration and mitigation in order to effectively implement artificial intelligence. These are as follows:

1. Quality data availability - FCA faced problems related to availability of higher quality data. This problem was eventually solved by maintaining relationship and working with industrial stakeholders.
2. Data privacy - With the use of artificial intelligence, it has become concerning about safety of sensitive data but let complying with GDPR loss, FCA as implemented a robust and strong safeguard system to protect sensitive data

⁸ Securities and Exchange Board of India Act, 1992 (15 of 1992)

3. Transparency - It is important for AI system to be transparent as to explain their decision particularly if we talk about regulatory actions in order to ensure transparency and fairness. It is necessary to balance transparency and complexity's of AI algorithms.
4. Ethical Use - FCA has properly implemented artificial intelligence with its ethical use in order to protect investors, interest, market integrity and fairness, by carefully removing the human labour and asymmetric information.
5. Flexibility and regulatory adaptation - FCA is continuously working to understand upcoming issues with the implementation of artificial intelligence and also keeping check and balance on the evolving technology.

Addressing these challenges requires a multidisciplinary approach that requires collaboration between legal, technological and ethical experts. Continuous evaluation, Monitoring and adaptation are essential to ensure that AI remains a valuable tool for the FCA while maintaining its regulatory objectives.

BENEFITS OF ARTIFICIAL INTELLIGENCE

AI is changing how financial market regulators monitor their operations. The possible influence of regulatory framework based on AI is actually benefiting. In UK organization like FCA is utilizing AI and machine learning to improve their regulatory functions not only to enhancing market supervision but also to safeguard investor. AI-driven systems continually monitor vast amounts of data in real-time because of this Regulators have the ability to promptly detect questionable patterns or irregularities also analyze intricate financial information and pinpoint patterns that may go unnoticed by human analysts, Enabling them to be proactive.

Machine learning algorithms can analyze data effectively.

FCA is leading by example for other global authorities like SEBI by implementing AI technologies for monitoring and regulatory aspect. due to this other regulators will also observe successful outcomes of AI-driven regulation and implement them as pr their need

Artificial Intelligence (AI) is revolutionizing the way regulators oversee financial markets, and the potential impact of AI-based regulation is truly inspiring. By leveraging advanced algorithms and machine learning capabilities, regulators such as SEBI in India and the FCA in the UK are not only improving market oversight, but also transforming investor protection. The opportunities ahead are huge. One of the key areas where AI-based regulation can drive change is fraud detection and prevention. Traditional methods of detecting market manipulation or insider trading often rely on manual analysis, which can be time-consuming and prone to human error. However AI-powered systems constantly monitor massive amounts of data in real time, so regulators can quickly identify suspicious patterns or anomalies, allowing them to take proactive steps to protect market

integrity.⁹ Furthermore, the potential impact of AI-based regulation extends beyond fraud detection. Machine learning algorithms have the ability to analyze complex financial data and identify trends that human analysts would otherwise miss. This opens up opportunities for regulatory authorities to gain a deeper understanding of market dynamics, prevent risks more effectively and, if necessary, implement targeted measures. In addition, both SEBI and the FCA are setting an example for other jurisdictions around the world by adopting AI technologies for regulatory oversight. Their commitment to leveraging cutting-edge technology demonstrates a forward-looking approach that resonates throughout the financial industry. As other regulators witness the positive results of AI-based regulation – increased transparency, increased efficiency and increased investor confidence – they may also be inspired to adopt similar strategies tailored to their own unique contexts.

POINTS SEBI NEED TO LEARN FROM FCA IN REGARDS TO THE IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE.

1. **Advancements in technology:** SEBI has the ability to actively take advantage of the opportunities provided for regulatory framework by artificial intelligence. This has already been achieved by FCA. These tasks are fulfilled with the use of AI such as surveillance, managing risks, detecting fraud, and protecting investors. These aids's can provide opportunity to SEBI to enhance effectiveness and adapt to quickly changing market trends.
2. **Dealing with data protection and bias:** SEBI can take note from FCA's method of handling data. . It is critical for SEBI to ensure compliance with relevant data protection regulations and take robust measures to mitigate bias and discrimination arising from the use of AI. SEBI should also prioritize transparency and explainability in its AI systems to maintain trust and accountability.
3. **Encouraging collaboration and industry engagement:** The FCA is actively engaging with industry stakeholders and experts to develop guidelines, frameworks and best practices for the use of AI in the financial sector. SEBI can take a similar approach by fostering collaboration with key stakeholders such as market intermediaries, technology providers and academia. This collaboration can lead to the development of industry-specific guidelines and standards for the responsible and effective use of AI in the Indian securities market.
4. **Continuous adaptation and learning:** SEBI must continuously adapt its regulations and guidelines to keep pace with the evolving world of AI, just as the FCA continuously updates its frameworks. SEBI must be adaptable and open to new technologies and best practices to ensure effective regulation of securities markets.

⁹ Artificial Intelligence: Opportunity, risk, and regulation in financial services *available at:* <https://www.bdo.co.uk>
(Visited on March 29, 2024)

SUGGESTIONS

These suggestions need to be carefully considered and mitigated to ensure the effective, reliable and equitable use of artificial intelligence. Let's explore these recommendations in detail:

1. **Improve data infrastructure:** Invest in improving data infrastructure to ensure access to comprehensive, quality data from many different sources. This may include working with financial institutions and market participants to streamline data collection processes.
2. **Data and Compliance:** Develop robust data management policies and processes to ensure compliance with data protection regulations such as GDPR. This includes obtaining consent, analyzing data, and implementing strong safeguards to protect sensitive data.
3. **Transparency of AI models:** Prioritize transparency of AI models used for regulatory purposes. Ensure that these models can explain their decisions in a clear and understandable way, increasing accountability and trust among stakeholders.
4. **Bias mitigation strategies:** Use bias reduction techniques when developing and deploying AI models to avoid biased results. This includes using rich and representative data sets, conducting regular testing, and continuously monitoring for bias.
5. **Management capabilities:** Keep abreast of emerging AI technologies and their impact on financial markets. Proactively design regulatory frameworks to address the unique risks and challenges presented by AI, providing guidance and regulation where appropriate.

CONCLUSION

A critical analysis of the FCA and the use of AI in regulatory oversight demonstrates the enormous potential and transformative impact of this technological breakthrough. As organizations adopt AI solutions for market surveillance, investor protection and effective regulation, they are setting a compelling precedent for other regulators around the world. Thanks to artificial intelligence and the ability to simplify processes, identify patterns and identify potential risks in real time, we can foresee a future where financial markets are better protected and investors' interests are protected more effectively than ever before. Using the power of artificial intelligence responsibly and constantly adapting to new challenges,

The FCA is an example of how technological innovation can bring about positive change in the FSA industry and it can also help SEBI understand the future challenges and potential benefits of using AI in financial regulatory tasks by analyzing it from a regulatory perspective.