

# DECODING THE CODE: ALGO TRADING IN INDIA

—Mahira Gupta\*

## **Abstract**

*Algorithmic trading is rapidly transforming global finance through automated, AI-driven systems that enable ultra-fast analysis and execution of trades. In India, algorithmic trading accounts for over 50% of equity transaction volumes and SEBI's regulations aim to harness benefits while minimising risks. Concerns remain around opaque marketing claims and lack of oversight for third-party algorithms marketed to retail investors. This analysis proposes two alternative regulatory approaches customised for India's maturing algorithmic landscape: (i) A voluntary industry Code of Conduct upholding ethical standards around transparency and investor protections without legalistic prohibitions that may constrain participation, and (ii) A specialised Regulatory Sandbox to rigorously stress-test retail algorithms through simulations before controlled launch, allowing vetted strategies to benefit from relaxed promotion norms unavailable normally. Together, these customised mechanisms encourage consultative governance and industry collaboration to balance stability and innovation in this disruptive domain critical to the technological advancement of India's capital markets.*

**Keywords:** *Algorithmic Trading; SEBI Regulations; API Access; AI-driven Finance*

## I. INTRODUCTION

From market monitoring to investment decisions, artificial intelligence algorithms are reshaping global finance; capital markets stand on the threshold of a technology-driven revolution spearheaded by these adept automatons designed to detect patterns and capitalise on opportunities faster than the blink of a human eye. A vanguard technology propelling the ascent of Artificial Intelligence (“AI”) across global finance is algorithmic trading, also known as algo trading, where intricate AI systems rapidly digest real-time data and events to autonomously execute buy and sell decisions absent human discretion. Algorithmic trading holds immense disruptive capacity. Algo trading uses algorithms, or a pre-defined set of commands, to dictate the exact criteria for buying and selling stocks and other assets such as futures and options, commodities and currency derivatives.<sup>1</sup>

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<sup>1</sup> Jocelyn Fernandes, 'MC Explains | What is algo trading, why SEBI is seeking to regulate the segment' (Money-control, 28 June 2022) <<https://www.moneycontrol.com/news/business/markets/algo-trading-rules-all-you-need-to-know-about-why-sebi-is-seeking-to-regulate-the-segment-8748961.html>> accessed 29 November 2023.

A simple example to illustrate this is an algorithm instructing the system to buy 100 Infosys shares every time the rupee depreciates five per cent (5%) against the US dollar. The trades take place faster and manual monitoring is done away with.

In India, to provide an algo hosted and managed by the broker to an investor, the algo requires approval of the respective stock exchange. When the broker orders the algo to the investor, such algo runs on the broker's system and not on the investor's. Whenever the algo generates a signal based on the matched criteria, an order automatically gets punched into the investor's account with no human involvement. Several Indian stockbrokers provide Application Programming Interface ("API") access to their clients to establish an online connection between them and their clients. The API access enables a client to use third-party applications or build its front-end features for making investments.<sup>2</sup>

Algo trading is not a new element in India's financial markets. As early as 2008, the Securities and Exchange Board of India ("SEBI") had introduced and allowed it.<sup>3</sup> It started with Direct Market Access and for a long period was restricted to institutional investors. In 2012, when stock exchanges started leasing co-location servers to brokers and fintech firms, retail participation displayed marked gains.<sup>4</sup> Subsequently, the regulator introduced board guidelines for algo trading in the securities market.<sup>5</sup>

There has been, however, an exponential increase in the utilisation of algo trading owing to the advent of technology. According to a study conducted by the National Institute of Financial Management in 2018, algo trading has a fifty per cent (50%) share of the Indian financial market.<sup>6</sup>

## II. REGULATORY FRAMEWORKS

SEBI introduced initial algorithmic trading regulations in 2012 to strengthen systems, enhance oversight of algo providers, and address risks. Stock exchanges had to upgrade capacity, enforce limits on order-to-trade ratios and order flooding to detect manipulation, check algo order prices/quantities, and intervene against dysfunctional algos.<sup>7</sup>

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<sup>2</sup> Prakhar Dua and Kishore Joshi, 'Regulatory Hotline: SEBI'S CONCERNS ON ALGORITHMIC TRADING BY RETAIL INVESTORS' (Nishith Desai Associates, 22 June 2022) <<https://nishithdesai.com/generateHTML/6177/4#:~:text=Considering%20that%20the%20algos%20that,%20interests%2C%20especially%20retail%20investors>> accessed 29 November 2023.

<sup>3</sup> Hitesh Malviya, 'Algorithmic Trading Rules and Regulations' (shareindia.com, 2021) <<https://www.shareindia.com/knowledge-center/algo-trading/algorithmic-trading-rules-and-regulations>> accessed 11 December 2023.

<sup>4</sup> National Institute of Financial Management, 'Report of the Committee on Algorithmic Trading in the Securities Market' (Ministry of Finance, Government of India 2021). <<https://dea.gov.in/sites/default/files/NIFM%20Report%20on%20Algo%20trading.pdf>> accessed 11 December 2023.

<sup>5</sup> Securities and Exchange Board of India, 'Broad Guidelines on Algorithmic Trading' (Circular CIR/MRD/DP/09/2012, 30 March 2012).

<sup>6</sup> DEA-NIFM Research, 'NIFM Report on Algo trading' (National Institute of Financial Management 2018) 12

<sup>7</sup> Securities and Exchange Board of India, 'Broad Guidelines on Algorithmic Trading' (Circular No. CIR/MRD/DP/09/2012, 30 March 2012).

Additionally, SEBI mandated periodic audits and pre-deployment software checks in 2013 to improve algo governance. By stipulating that exchanges test algo software pre-rollout alongside requiring brokers to conduct regular audits of systems post-deployment, SEBI aimed to minimise disruptions.<sup>8</sup>

In 2016, SEBI extended governance to commodity derivatives algos while customising certain provisions like order size/price protections, assessing algorithms' impact on price discovery, and evaluating retail liquidity effects before enabling algos in smaller contracts.<sup>9</sup>

Since 2018, SEBI has eased select restrictions to enable greater participation while augmenting transparency. Key relaxations include higher ceilings for order-to-trade ratios and orders per second to support growth, removal of mandatory algorithmic trading auditor empanelment to reduce compliance overheads, and mandated provision of tick-by-tick data feeds to members free of cost to ensure a level playing field. Concurrently, SEBI has expanded oversight such as through 2018 order-to-trade ratio limits encompassing liquidity enhancement scheme orders to cover potential misuse.<sup>10</sup>

Through progressive relaxations to boost innovation alongside measures promoting transparency and continuous risk calibration, SEBI has signalled a balanced approach to governing algorithmic trading. This aims to facilitate ecosystem growth while safeguarding market quality as algo activity rises. For instance, higher order-to-trade ratio limits, supported by audits, checks, and data availability for monitoring, demonstrate preparedness for higher volumes.

### III. NEW CHALLENGES

A recent regulatory concern is that retail investors utilising third-party algorithms or custom-building algo strategies via APIs escape oversight, as their trades cannot be identified as algorithmic by brokers or exchanges. SEBI rightly worries unchecked algos can enable manipulation and mis-selling.

Hence, in its 2021 Consultation Paper,<sup>11</sup> SEBI proposed classifying all API orders as algorithmic and requiring unique IDs reflecting exchange approval. It stated brokers must assume responsibility for all trading algorithms on their platforms, with exchanges not recognising external algo creators. Additionally, SEBI sought clarity on whether third-party algo services constitute investment advice. It asked brokers to ascertain if clients obtain advisory services. For transparency, SEBI suggested brokers either use in-house vendor algorithms or outsource from approved external providers.<sup>12</sup> Subsequently, in March 2023, given inadequate investor safeguards and grievance redressal around algo trading, SEBI barred brokers from mentioning

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<sup>8</sup> Securities and Exchange Board of India, 'Memorandum to the Board No. 58/2014 Report of the Depository System Review Committee' (28 July 2011).

<sup>9</sup> Securities and Exchange Board of India, 'Broad Guidelines on Algorithmic Trading for National Commodity Derivatives Exchanges' (Circular No. SEBI/HO/CDMRD/DMP/CIR/P/2016/97, 27 September 2016).

<sup>10</sup> Securities and Exchange Board of India, 'Introduction of Managed Co-location Services' (Circular No. SEBI/HO/MRD/DP/CIR/P/2018/62, 9 April 2018).

<sup>11</sup> Securities and Exchange Board of India, 'Consultation Paper on Review of Certain Provisions Related to Preferential Issue Guidelines' (26 November 2021).

<sup>12</sup> *ibid.*

past or potential algo profitability/effectiveness. Brokers also cannot partner with entities making such claims. Exchanges must swiftly implement notification changes and secure broker compliance confirmation within 60 days. Through these directives, SEBI aims to extend governance, transparency and accountability to the algorithmic trading ecosystem for investor protection while facilitating innovation.<sup>13</sup>

#### IV. EFFECT OF THIS CIRCULAR ON RETAIL INVESTORS AND TRADERS

The stock brokers have argued against this regulation. They contend that requiring pre-approval of the multitude of algorithmic strategies activated via application programming interfaces would pose an onerous administrative burden. They note that third-party vendors can design and deploy limitless customised algorithms tailored to discrete client needs, making algorithm-by-algorithm ratification an impractical proposition and less viable than alternate models of accountability. With growing retail participation in online investment platforms, clarity around appropriate regulatory classification is imperative.<sup>14</sup> This issue was highlighted in the action instituted by SEBI against Mr. Amit Mohan Jeswani, the proprietor of Stallion Asset. A settlement order against Mr. Jeswani, a research analyst offering model portfolios seemingly categorised such activities as portfolio management.<sup>15</sup> This is confusing given research reports may cover securities generally. Similarly, the lack of guidance on whether third-party algorithm providers are investment advisers muddies obligations. As evinced by this enforcement action, in the absence of transparent rule-making, reactive settlements can engender regulatory uncertainty, allow mislabelling of services, and disadvantage retail investors reliant on fintech innovation. Hence, as retail participation accelerates, proactive steps by SEBI to delineate regulatory perimeters and disclosure requirements for business models like online research, model portfolios, and algorithmic trading tools are needed to enable sustainable growth under proper oversight. It was largely accepted that the regulator's proposed framework had issues because categorising all API trades as algorithmic trades was imprecise and unjust. While the proposal was well-meaning, it risked hampering the thriving API sector. Additionally, the framework would have placed a large burden on stock brokers without considering the essence of algorithmic approaches.

It appears that SEBI's primary worry with algorithmic trading is the misleading marketing of algo services and strategies through touting past returns, predicting future gains, and assigning ratings. While such promotional tactics can undoubtedly entice unaware investors in an undesirable way, SEBI seems to disregard that publicising historical performances is commonplace in securities markets. For example, mutual funds routinely cite previous returns as an indicator of fund success. Another perspective is about how else an investor determines if a particular algo strategy or service suits their needs, without performance parameters. SEBI's move will

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<sup>13</sup> The Securities and Exchange Board of India, 'SEBI Circular dated March 16, 2023' (Circular No. SEBI/HO/MIRSD/MIRSD-PoD-1/P/CIR/2023/37, 16 March 2023).

<sup>14</sup> Reghu Balakrishnan, 'SEBI comes out with guidelines for stock brokers providing algorithmic trading services' (The Hindu BusinessLine, 12 May 2022). <<https://www.thehindubusinessline.com/markets/sebi-comes-out-with-guidelines-for-stock-brokers-providing-algorithmic-trading-services/article65842716.ece>> accessed 11 December 2023.

<sup>15</sup> Securities and Exchange Board of India, Settlement Order No. SO/GR/BM/2022-23/6631, 'In the Matter of Mr. Amit Mohan Jeswani (Proprietor of Stallion Asset)- Research Analyst' (Application No. 6631/2021), 6 May 2022.

likely hinder the algo industry since investors have been stripped of a viable metric for judging appropriate algo services or strategies. Without effectively evaluating the benefits of an algo offering or comparing different algos, investors may avoid algorithmic trading services altogether. Algo strategies provided by brokers via third parties or directly would already be approved by exchanges with necessary risk controls in place. By barring brokers from advertising algos' track records, SEBI may inadvertently push investors towards unregulated players that still provide performance markers. Also, past success may not guarantee future gains. This is precisely why such indicators have accompanying disclosures and disclaimers, as with mutual funds.

## V. ALTERNATIVES

Some alternatives for the regulation of algo trading are the Voluntary Code of Conduct for Algorithmic Trading Advisors and the creation of a Segregated Regulatory Sandbox for Retail Algo Products.

A voluntary industry code of conduct can promote best practices without heavy-handed regulation. Such a code would enshrine principles around qualifications, transparency, testing protocols, and investor safeguards for algorithmic strategy developers sans formal eligibility criteria or penalties. The code could crystallise norms around robust back testing, informative disclosures, ethical advertising, risk management, and grievance mechanisms. The code has been developed in consultation with key stakeholders like SEBI and investor associations, and administered via an industry consortium, it would signify adherence to client-centric product development and commerce. Such a compact would organise the nascent algo advisory space and offer standards for evaluation before potential issues necessitate stern policymaking. It empowers advisors' commitment to equitable, prudent practices. Progressive entities adopting the code gain reputational advantages and client trust.

The success of such a framework can be assessed from some global examples. The UK Financial Conduct Authority maintains a voluntary set of good practice standards for algorithmic trading in wholesale markets. These norms emphasise governance, development processes, operational resilience and fair market access. Adherence is assessed annually.<sup>16</sup> Hong Kong's Securities and Futures Commission instituted a voluntary Code of Conduct for automated trading services. The principles-based code covers risk management, transparency, conflict handling and technology usage. Periodic disclosure of compliance is mandated.<sup>17</sup>

There are certain ways in which the execution for the same can be undertaken. Development can happen via industry working groups consisting of algo developers, advisor platforms, exchanges, SEBI and investor associations. Extensive discussions are critical. The code's

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<sup>16</sup> Financial Conduct Authority, 'Algorithmic Trading Compliance in Wholesale Markets - Multi-firm reviews' (2018) <<https://www.fca.org.uk/publications/multi-firm-reviews/algorithmic-trading-compliance-wholesale-markets>> accessed 1 December 2023.

<sup>17</sup> Securities and Futures Commission (SFC), 'SFC supports and sponsors the development of an industry-led voluntary code of conduct for ESG ratings and data products providers' (31 October 2023) <<https://apps.sfc.hk/edistributionWeb/gateway/EN/news-and-announcements/news/doc?refNo=23PR126>> accessed 31 October 2023.

administration could be undertaken by recognized self-regulatory bodies like the Association of National Exchanges Members of India (“ANMI”)<sup>18</sup> or the Association of Investment Advisors (“AIA”).<sup>19</sup> SEBI will play a critical role in issuing guidance on qualified investor eligibility, given the associated complexity risks. Basic awareness programs for retail investors seem imperative too.

Certain limitations can pose some challenges. Sans formal oversight processes, violations may elicit limited consequences, thereby making the code more symbolic. Client awareness of the code can be low, diluting impact. An industry body administering the code risks conflicts of interest and needs heavyweight sector participation to be credible. However, with proper collaboration among various stakeholders and extensive deliberations, the limitations can be diluted and increase the code's provisions to balance advisor flexibility with investor protection.

Secondly, SEBI could demarcate a supervised regulatory space where only algorithms intended for retail consumption undergo simulated testing before controlled rollout. Rigorously vetted products launched successfully from this sandbox would be certified as “Retail Algo” strategies. The Sandbox would facilitate the easing of restrictions around past performance advertising and rating assignments for certified products, given their governance. The Specialised Sandbox allows customised oversight aligned to risks in complex retail algo strategies - protecting investors while supporting innovation. Products proving robust performance and conduct within the Sandbox can be offered flexibilities unattainable normally to aid transparency. Priority Sandbox Access for strategies adhering to specified developmental guardrails could be granted. The Retail Algo label boosts advisor accountability and client trust. The UK FCA pioneered the concept of regulatory sandboxes in Project Innovate. Its framework supervises innovative propositions in a customised environment and extends certain relaxations to vetted products.<sup>20</sup> ASIC’s Regulatory Sandbox for fintech facilitates product piloting before public licensing applications. Extensive consumer data access aids curated testing and oversight.<sup>21</sup>

Executive guidelines that can be proven to be helpful are that rigorous pre- and post-market simulations should mimic segments of the live market ecosystem. Controlled exposures to genuine clients will fine-tune safeguard mechanisms and performance. Real-time risk monitoring capabilities are imperative too. Entry criteria must establish safety thresholds, like ethical track records, financial cover and investor protection protocols. Assured Sandbox Access for public-good innovations could promote inclusion. Exit norms must cover certification terms for retail launch after stringent evaluations of resilience, conduct and return through sandbox testing phases.

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<sup>18</sup> Association of National Exchanges Members of India, estb. 1996.

<sup>19</sup> Association of Investment Advisors, estb. 2013.

<sup>20</sup> Financial Conduct Authority (FCA), 'Regulatory Sandbox' (First published: 27/03/2022; Last updated: 01/08/2023) <<https://www.fca.org.uk/firms/innovation/regulatory-sandbox>> accessed 29 October 2023.

<sup>21</sup> Australian Securities and Investments Commission (ASIC), 'Enhanced Regulatory Sandbox' <<https://asic.gov.au/for-business/innovation-hub/enhanced-regulatory-sandbox/>> accessed 29 October 2023.

It is to be kept in mind that demanding technological and human capital investments are needed to design the bespoke sandbox supporting simulation, surveillance and certification functionalities. Criteria for sandbox entry and certified product advantages need balanced, consultative policymaking. Extensive monitoring is essential along with deterrence mechanisms for violations by certified products. Retail investor awareness regarding the Sandbox and brand value of the Retail Algo label warrants nurturing.

## VI. CONCLUSION

As algorithmic trading gains dominance globally, India has witnessed proliferating adoption with algos accounting for over half of equity transaction volumes as per recent estimates. In response, SEBI has enacted important regulations around systemic safeguards, governance and access to harness the liquidity and efficiency benefits of algos while improving oversight. However, concerns remain around opacity in performance marketing for retail offerings and lack of supervision for third-party API strategies. Hence, fresh approaches are needed to enable balanced innovation aligned with market risks.

This analysis suggests two targeted regulatory alternatives custom-fit for India's maturing algo landscape - a voluntary Code of Conduct underscoring ethical product design alongside transparent disclosures, and a specialised Regulatory Sandbox to rigorously stress-test retail algos before controlled rollout. The principles-based code will promote accountability in the nascent algo advisory space without legalistic prohibitions that can constrain participation. The tailored sandbox allows intensive simulations to evaluate retail algo resilience, with only vetted strategies earning flexibility around access and promotion unavailable normally. This attempts to balance stability and growth by curtailing investor risks from unvetted offerings through tiered evaluations rather than outright bans.

Together, these customised mechanisms recognise the need for consultative governance encouraging industry collaboration to supplement rule-based directives, helping regulation keep pace with relentless disruption. As India charts an ambitious, technology-powered future for her capital markets, agile regulation around algo trading will determine balanced advancement.