
AI IN FINANCIAL MARKETS: LEGAL LIABILITY AND REGULATORY OVERSIGHT IN INDIA

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ABSTRACT

Artificial Intelligence (AI) has become one of the fastest growing innovations in the financial world, not only changing how trading or investment decisions are made, but also shaping the very structure of modern markets. Today AI tools are deeply embedded in activities like algorithmic and high-frequency trading, robo-advisory platforms, customer profiling, credit scoring, fraud detection, and even in compliance systems. For financial institutions, this brings huge advantages in terms of efficiency, speed, data handling and prediction. For investors, it promises more accessible and low-cost services. But along with these benefits comes a darker side. AI often works like a “black box” where even the developers may not fully understand the decision-making logic. This creates serious legal and ethical challenges when things go wrong. Who should take responsibility if an AI trading system creates a market disruption, or if a robo-advisor gives misleading advice? Should liability fall on the financial institution, the software developer, or the regulator who approved the system? These are questions traditional financial law is not fully prepared to answer.

In India, regulators have started responding, but the approach remains fragmented. The Reserve Bank of India (RBI) has introduced regulatory sandboxes and issued guidance for fintech lenders that use AI-driven risk assessment models. The Securities and Exchange Board of India (SEBI) has brought out rules around algorithmic trading, requiring checks and transparency from brokers. However, neither RBI nor SEBI has issued a dedicated framework on AI liability, and existing laws like the SEBI Act, 1992, the RBI Act, 1934, or the Information Technology Act, 2000 do not directly address AI-specific risks. This gap becomes even more important as India moves toward becoming a global fintech hub, with AI at the center of digital finance.

This paper examines how AI is transforming financial markets, the legal and ethical risks it creates, and the gaps in India’s regulatory structure. The focus is on liability and oversight how law should assign responsibility when AI causes harm, and how RBI and SEBI can balance innovation with market fairness. The aim is to propose a framework that supports responsible AI use while safeguarding investors and financial stability.

1. Introduction

Artificial Intelligence (AI) has emerged as one of the most disruptive forces in the financial world, changing how markets function, how institutions manage risk, and how investors interact with financial products. Globally, financial firms are using AI for high-frequency algorithmic trading, robo-advisory platforms, credit scoring, anti-fraud systems, and compliance monitoring.¹ AI enables institutions to process enormous amounts of data and make predictions or decisions in fractions of a second something that no human trader or analyst could ever achieve.

In India, the growth of fintech combined with the government's push for a digital economy has accelerated the adoption of AI in financial services. Banks now rely on AI for detecting suspicious transactions, digital lenders use machine learning models to assess borrower creditworthiness, and stockbrokers increasingly deploy algorithmic trading strategies.² The Securities and Exchange Board of India (SEBI) has acknowledged that algorithmic and AI-driven trading already accounts for a significant portion of market activity. At the same time, the Reserve Bank of India (RBI) has launched regulatory sandbox programs that include AI-based fintechs testing new products in a controlled environment.

The benefits of AI in finance are hard to deny. By automating repetitive tasks, it increases speed and reduces operational costs. Predictive analytics can identify market trends and detect fraud earlier than human analysts. Robo-advisors can provide low-cost, personalized investment advice to a wider population, thereby promoting financial inclusion.³ AI-based credit scoring can reach borrowers who were previously excluded from the formal financial system. For regulators too, AI tools can be used to monitor markets in real-time and flag suspicious transactions.

But alongside these benefits are major risks. AI systems are often “black boxes” where even developers cannot fully explain why a certain decision was made. This lack of transparency creates accountability gaps when something goes wrong. Algorithmic trading has already caused flash crashes in markets abroad, raising fears of systemic instability. Bias in AI credit scoring models can unfairly discriminate against borrowers, replicating or even amplifying

¹ I. Rahwan et al., “Machine Behaviour”, *Nature*, Vol. 568, 2019, p. 477.

² Reserve Bank of India, “Enabling Framework for Regulatory Sandbox”, RBI/2019-20/82, August 13, 2019.

³ Deloitte, “AI and Financial Services: The Next Frontier”, Report, 2021.

social inequalities.⁴ Robo-advisors may recommend strategies that benefit financial institutions more than investors, leading to conflicts of interest.

These risks bring us to the central issue: liability and regulation. When an AI system makes a harmful decision say, a flawed algorithm manipulates market prices or a lending model discriminates who should be held responsible? Should it be the financial institution that deployed the AI, the developer that created the code, or the regulator who failed to foresee the problem? India's existing laws, such as the SEBI Act, 1992 or the Information Technology Act, 2000, do not directly address these liability questions. Moreover, neither RBI nor SEBI has developed a comprehensive regulatory framework focused specifically on AI in finance.

The importance of addressing these challenges cannot be overstated. Without proper regulation, unchecked AI systems can harm investors, destabilize markets, and undermine trust in financial institutions. On the other hand, overly restrictive rules could stifle innovation and prevent India from benefiting from fintech growth. The challenge, therefore, is to strike a balance: creating a legal and regulatory framework that ensures accountability and investor protection, while still allowing AI-driven innovation to flourish. This paper seeks to analyze these questions in detail and to propose ways in which India can design a forward-looking regulatory approach for AI in financial markets.

2. Understanding AI in Financial Markets

Artificial Intelligence has become deeply embedded in financial markets, not only as a tool to speed up transactions but also as a system that shapes the very logic of market decisions. To understand how legal liability and regulation must evolve, it is important to first map out the types of AI currently in use, the benefits they create for efficiency and inclusion, and the risks that follow from their complexity and lack of transparency.

2.1 Types of AI in use

The most common application of AI in finance is algorithmic trading, where complex models execute thousands of trades per second on the basis of market signals. These systems use predictive analytics to detect small price differences and profit from them. While institutional

⁴ Selbst, Andrew et al., "Fairness and Abstraction in Sociotechnical Systems", *Proceedings of FAT 2019*, ACM Press.

players dominate this space, retail participation is also growing with the availability of broker APIs.⁵

Another major use is robo-advisory platforms, which provide automated investment advice to clients using AI-driven models. These services are marketed as low-cost alternatives to traditional financial advisors, especially for younger investors who prefer digital-first services.⁶

Fraud detection is another area where AI has become indispensable. Machine learning models are trained to detect unusual patterns in transactions, flagging potential identity theft or money laundering. Banks and payment companies rely heavily on these systems to meet compliance obligations.⁷

Finally, credit scoring based on AI is reshaping lending. Instead of relying only on traditional credit histories, digital lenders now use machine learning to evaluate alternative data like spending patterns or mobile phone usage. This has helped expand financial access to groups who were previously excluded from the formal credit system.⁸

2.2 Benefits to market efficiency, investor outreach, and regulatory compliance

The benefits of AI to financial markets are significant. By automating tasks, AI reduces human error and increases speed of execution. In trading, this leads to tighter bid-ask spreads and more liquid markets. For investors, AI-backed platforms provide instant access to advice and portfolio management at a lower cost compared to traditional financial planners. This democratizes investment and brings new sections of society into the financial system.

AI also enhances regulatory compliance. Supervisory authorities can deploy AI tools to monitor real-time trading data and detect manipulative activities more quickly than through manual oversight.⁹ Financial institutions themselves use AI to comply with anti-money laundering and counter-terrorism financing obligations by identifying suspicious activity patterns at scale. These compliance efficiencies reduce regulatory burden and improve market

⁵ SEBI Consultation Paper, “Framework for Algorithmic Trading by Retail Investors”, December 2021.

⁶ Deloitte, “Robo-Advisors: A Portfolio Management Perspective”, 2020.

⁷ Reserve Bank of India, “Report on Trend and Progress of Banking in India”, 2021.

⁸ NITI Aayog, “Responsible AI for All”, Discussion Paper, June 2021.

⁹ IOSCO, “The Use of Artificial Intelligence and Machine Learning by Market Intermediaries and Asset Managers”, Report, 2020.

integrity.

2.3 Risks

However, AI brings with it serious risks. The first is opacity. AI systems often function as "black boxes", meaning their internal decision-making process is difficult to interpret even for the developers. When such a system recommends an investment strategy or rejects a loan application, it is not always possible to explain why. This lack of transparency raises issues of accountability and due process.

A second concern is systemic failure. Algorithmic trading systems have already been blamed for sudden market disruptions abroad, known as flash crashes, where markets swing violently due to automated responses feeding into each other. In India too, as AI-driven trading grows, the risk of such instability cannot be ignored.¹⁰

The third risk is unfair trading and bias. AI systems are only as fair as the data they are trained on. If the data reflects social or economic bias, the outputs will replicate those biases. This can mean discriminatory lending decisions or robo-advisors suggesting unsuitable products to certain groups of investors. Left unchecked, this could damage trust in the financial system and create ethical as well as legal challenges.¹¹

Understanding these benefits and risks makes clear why a regulatory and liability framework for AI in financial markets is urgently required.

3. Legal Liability Concerns

The entry of AI in financial markets has created not only efficiency but also new forms of legal risk. Traditional financial law was designed around the assumption that human actors like brokers, advisors, or institutions make decisions, and liability can be traced to them. With AI-driven systems, this assumption becomes less clear. Who should bear the responsibility when AI causes harm? Should liability be pushed back to the developer who coded the algorithm, the firm that deployed it, or the regulator who approved the system? Different legal systems

¹⁰ Kirilenko, Andrei et al., "The Flash Crash: The Impact of High Frequency Trading on an Electronic Market", *Journal of Finance*, Vol. 72, 2017.

¹¹ Selbst, Andrew et al., "Fairness and Abstraction in Sociotechnical Systems", *Proceedings of FAT 2019*, ACM Press.

have started addressing these questions, but for India the debate is still at an early stage.

3.1 Liability for AI Failures and Market Manipulation

One of the hardest questions raised by the use of AI in finance is: who is responsible when things go wrong? Traditional financial laws work on the assumption that human beings or institutions make decisions, so liability can be easily attached to them. But AI systems complicate this picture. They can act autonomously, learn from past data, and make decisions in ways that even their developers may not fully predict. This creates uncertainty about whether responsibility should fall on the developer, the financial firm that deploys the AI, or even the regulator who oversees the system.

On one side of the debate is the developer liability approach. The argument here is simple: if a harmful outcome occurs because of a flaw in coding or poor design, then the software developer should be accountable. This is consistent with product liability law, where a manufacturer is responsible for defects in goods. However, AI differs from ordinary products in one crucial way. Many AI systems continue to “learn” after they are deployed, meaning their decisions are shaped by new data and not just the original coding. If an algorithm later evolves in a harmful way, it may be unfair or impractical to hold the developer liable for something outside their control.¹²

Another view is that financial institutions should bear the main responsibility, because they are the ones who choose to integrate AI into their services. Investors and clients deal with the bank, brokerage, or fintech, not with the programmer sitting behind the scenes. If an AI-driven robo-advisor misguides an investor or if a trading bot creates losses, the institution should answer for it. This aligns with consumer protection principles and ensures investors are not left chasing invisible software engineers.¹³

The more complex scenario arises in algorithmic trading and flash crashes. Algorithmic systems are capable of executing thousands of trades within seconds, reacting to signals and sometimes to each other's actions. When multiple algorithms interact, they can create self-reinforcing cycles that push prices up or down at unnatural speeds. The U.S. “Flash Crash” of

¹² Chopra, S. and White, L., *Artificial Agents and the Contracting Problem*, Cambridge University Press, 2011.

¹³ IOSCO, “The Use of Artificial Intelligence and Machine Learning by Market Intermediaries and Asset Managers”, Report, 2020.

May 6, 2010 showed how damaging this can be: within minutes, the Dow Jones Industrial Average fell nearly 1,000 points before partially recovering, erasing close to \$1 trillion in market value temporarily.¹⁴

Such events raise unique legal challenges. In traditional securities law, manipulation requires intent. A human trader is guilty if they deliberately enter trades to mislead the market. But when AI systems cause disruption without human intent, the law struggles to classify the harm. Was it manipulation, negligence, or just a technological accident? Some regulators have leaned toward a strict liability model, arguing that institutions must bear losses caused by their AI systems regardless of intent. This creates incentives to carefully test, monitor, and control algorithms before and after deployment. In India, SEBI's circular on algorithmic trading already reflects this idea, requiring brokers to take responsibility for all client algos and mandating exchange approval before deployment.¹⁵

Critics of strict liability argue that it may discourage innovation, since firms may be afraid to experiment with AI if they are exposed to unlimited liability. However, supporters respond that financial markets are too sensitive to systemic risks for regulators to take chances. If an AI-driven flash crash causes huge losses for small investors, trust in the market will collapse. Balancing innovation with accountability is therefore critical.

Overall, the combined issue of AI system failure and algorithmic manipulation highlights why liability frameworks need updating. Developers may have some responsibility where coding flaws are clear, but the main burden should rest with institutions deploying AI. Regulators should enforce strict standards in high-risk areas like trading, even if intent is absent, because the stability of markets and investor trust are at stake. This ensures that the benefits of AI can be realized without exposing the financial system to unchecked dangers.

3.3 Investor protection: negligence vs. strict liability

From an investor protection angle, the debate is often framed as negligence liability versus strict liability. Under negligence, an investor harmed by an AI decision must prove that the institution failed to take reasonable care, such as failing to test the system adequately. This is

¹⁴ Kirilenko, Andrei et al., "The Flash Crash: The Impact of High Frequency Trading on an Electronic Market", *Journal of Finance*, Vol. 72, 2017.

¹⁵ SEBI Circular, "Approval of Algorithmic Trading by Brokers", December 2021.

difficult in practice because investors lack access to the algorithm's inner workings.

Strict liability, on the other hand, does not require proof of negligence. The institution is responsible simply because harm occurred through its system. This offers stronger protection for investors but may discourage adoption of innovative AI models if liability costs become too high.¹⁶

Some scholars suggest a hybrid approach: apply negligence liability in ordinary cases but strict liability in high-risk areas like algorithmic trading or systemic financial services. This balances innovation with accountability. For India, where retail investors are particularly vulnerable, a shift towards strict liability in certain AI applications may be necessary.

3.4 Comparative perspective: EU AI Act and U.S. SEC actions

Internationally, different jurisdictions are experimenting with liability models for AI in finance. The European Union's AI Act (adopted in 2023) takes a risk-based approach. High-risk AI systems, including those used in financial services, must meet strict requirements for transparency, risk management, and human oversight. Failure to comply can lead to heavy penalties, putting responsibility squarely on the deploying institution.¹⁷

In the United States, the Securities and Exchange Commission (SEC) has pursued enforcement actions against firms using AI and machine learning in misleading ways. In 2023, SEC Chair Gary Gensler warned that AI could "turbocharge fraud and manipulation" if left unchecked.¹⁸ U.S. regulators have not created a separate AI law yet, but they apply existing securities and consumer protection laws aggressively, holding firms accountable for AI-related harms.

These comparative models show two different paths: the EU prefers dedicated legislation with strict compliance duties, while the U.S. relies on existing law and strong enforcement. For India, a blend of both may be appropriate, since dedicated AI law will take time but investor risks are already present.

¹⁶ Edwards, L. and Veale, M., "Slave to the Algorithm? Why a 'Right to Explanation' is Probably Not the Remedy You Are Looking For", *Duke Law & Technology Review*, Vol. 16, 2017.

¹⁷ Regulation (EU) 2023/1114 of the European Parliament and of the Council, "Artificial Intelligence Act", June 14, 2023.

¹⁸ SEC Chair Gary Gensler, Speech at National Press Club, July 17, 2023.

4. Indian Regulatory Framework

Artificial Intelligence has entered India's financial sector through different channels such as algorithmic trading, digital lending, robo-advisory services, and fraud detection. While the adoption of AI is increasing, the legal framework has not developed at the same pace. India does not yet have a dedicated law for AI, nor do existing statutes directly address AI-specific challenges like accountability, explainability, or bias. Instead, regulators such as SEBI and RBI have issued circulars, guidelines, and sandbox frameworks that indirectly deal with AI in financial markets. This fragmented approach leaves many gaps in liability and oversight.

4.1 SEBI's Role in Algo Trading Regulation

The Securities and Exchange Board of India (SEBI) has been most active in regulating the use of algorithmic trading, which is one of the earliest forms of AI in financial markets. Algo trading refers to the use of pre-programmed strategies executed by computers to place buy and sell orders automatically. In India, the share of algo trading has steadily risen, with some estimates suggesting that more than half of the trading volume in the equity derivatives segment is algorithm-driven.¹⁹

SEBI first issued guidelines on algo trading in 2012, focusing on exchanges and brokers providing direct market access. Over time, these were expanded to cover risk controls, system audits, and approval requirements for brokers' algorithms. In December 2021, SEBI released a consultation paper specifically addressing retail algo trading, noting that many investors were using APIs to deploy self-designed trading bots without any checks. The paper proposed that all algos be approved by exchanges, and that brokers be fully responsible for client algos run through their platforms.²⁰

The underlying principle here is that SEBI prefers entity-level liability rather than trying to regulate individual developers. Brokers, as licensed intermediaries, must ensure that algorithms comply with rules against market manipulation, insider trading, and systemic risk. This approach is consistent with global practices, where exchanges and intermediaries act as the first line of defense. Still, SEBI's framework is primarily focused on trading, and does not yet extend comprehensively to robo-advisory services or AI-based investment research, where

¹⁹ SEBI, "Discussion Paper on Algorithmic Trading and Co-location Facilities", 2016.

²⁰ SEBI Consultation Paper, "Framework for Algorithmic Trading by Retail Investors", December 2021.

investor protection risks are equally high.²¹

4.2 RBI's Approach in Fintech Oversight (Sandboxes, AI in Lending)

The Reserve Bank of India (RBI) has engaged with AI primarily through the fintech lending and payments sector, where digital platforms are increasingly using machine learning models to assess borrowers and detect fraud. In 2019, RBI issued an Enabling Framework for Regulatory Sandbox, inviting fintech firms to test innovative products under controlled conditions. The sandbox allows companies to experiment with AI-driven credit scoring, fraud detection, and transaction monitoring solutions, while RBI observes potential risks.²²

AI-based lending has been particularly controversial. Many digital lenders use non-traditional data points such as mobile phone usage or social media activity to determine creditworthiness. While this expands access to credit, it raises concerns about privacy, data protection, and algorithmic bias. In response, RBI issued guidelines on digital lending in 2022, requiring transparency in credit scoring, clear disclosure of algorithms, and direct disbursement of loans through banks rather than third-party wallets.²³

RBI has also been cautious about systemic risks. It has repeatedly warned that AI and machine learning in lending must not compromise fairness or consumer rights. At the same time, RBI has invested in its own AI-driven systems for supervisory technology (SupTech), which help it monitor compliance among banks and NBFCs. The overall approach reflects a balance: encourage innovation through sandboxes and pilots, but intervene with guidelines when risks to consumers or financial stability become visible.

4.3 Gaps in Existing Indian Law (SEBI Act 1992, IT Act 2000, etc.)

Despite SEBI and RBI's circulars, India's primary statutes do not directly deal with AI. The SEBI Act, 1992 empowers SEBI to regulate securities markets and protect investors, but it was enacted long before AI was a consideration. While SEBI interprets its powers broadly to cover algo trading, there is no express reference to AI systems or automated decision-making.

²¹ IOSCO, "The Use of Artificial Intelligence and Machine Learning by Market Intermediaries and Asset Managers", Report, 2020.

²² RBI, "Enabling Framework for Regulatory Sandbox", RBI/2019-20/82, August 13, 2019.

²³ RBI, "Guidelines on Digital Lending", August 2022.

Similarly, the RBI Act, 1934 and the Banking Regulation Act, 1949 govern banks and monetary stability, but they lack provisions dealing with liability for AI-driven lending models.

The Information Technology Act, 2000, which regulates cyber law in India, also does not directly address AI. It deals with electronic records, cybercrimes, and data protection in a limited sense, but it does not impose duties on developers or institutions deploying AI systems. The Personal Data Protection Bill, 2022 (still pending as of 2023) attempts to regulate data usage, but again does not explicitly address algorithmic decision-making.²⁴

This legal vacuum has two consequences. First, liability for AI harms is left to general principles like contract or tort law, which are ill-suited to complex financial algorithms. Second, regulators like SEBI and RBI are forced to rely on circulars and guidelines, which lack the permanence and clarity of statute law. This creates uncertainty for firms and investors, who cannot be sure whether a new AI application will later be prohibited or restricted.

4.4 Judicial Trends in India (AI and Automated Systems)

Indian courts have not yet dealt with many direct cases involving AI in finance, but a few judicial and regulatory developments are relevant. The Supreme Court's 2020 judgment in *Internet and Mobile Association of India v. RBI* struck down RBI's 2018 circular banning banks from dealing with cryptocurrencies, citing proportionality and lack of evidence of harm.²⁵ Although the case was about crypto, it reflects the Court's willingness to scrutinize regulators when they restrict innovation without clear justification. This principle may apply in future to AI-related restrictions.

Another relevant area is consumer protection. Courts in India have held financial institutions liable for failure to maintain due diligence in electronic transactions.²⁶ By analogy, if an AI-based credit scoring model wrongfully denies loans or if a robo-advisor provides misleading advice, courts may extend similar reasoning to hold institutions accountable under negligence or contract law.

Finally, regulators themselves have shown awareness of liability. SEBI has mandated annual system audits for market intermediaries using algo trading, while RBI has required disclosure

²⁴ PRS Legislative Research, "Digital Personal Data Protection Bill, 2022 – Analysis", August 2022.

²⁵ *Internet and Mobile Association of India v. Reserve Bank of India*, (2020) 10 SCC 274.

²⁶ *Punjab National Bank v. Leader Valves Ltd.*, (2007) 6 SCC 457.

of credit scoring methodologies by digital lenders. These show a gradual movement toward institutional accountability for AI harms, even without explicit statutory provisions.

5. Ethical and Policy Challenges

Artificial Intelligence promises efficiency and financial inclusion, but its rapid use in markets also brings deep ethical and policy challenges. Unlike traditional financial tools, AI systems are complex, opaque, and often trained on biased data sets. These characteristics make them prone not only to technical errors but also to ethical harms such as discrimination or conflicts of interest. In India, where regulators are still catching up, these risks are particularly important to address because retail investors and first-time borrowers make up a large share of those engaging with fintech platforms.

- **Bias and Discrimination in AI Lending**

One of the most troubling ethical challenges is **bias in AI-based lending and credit scoring**. Many digital lenders in India now use machine learning models that rely on alternative data such as mobile phone usage, social media behavior, or transaction history.²⁷ While this can help include people without formal credit histories, it can also reproduce hidden social and economic biases. For example, if the training data reflects historic discrimination against women or lower-income groups, the AI model may systematically assign them lower scores, even if they are otherwise creditworthy. This can reinforce financial exclusion instead of solving it. Globally, cases have been reported where algorithms offered higher credit limits to men than to women with similar profiles.²⁸ In India, without clear oversight, such bias could deepen inequality in access to credit.

- **Transparency and Explainability**

Another critical issue is opacity. AI often functions as a "black box", where even the developers cannot explain why the system made a particular decision. In finance, this lack of explainability undermines trust. If an investor is denied access to a product by a robo-advisor, or a borrower is rejected by an AI scoring system, they deserve to know

²⁷ NITI Aayog, "Responsible AI for All", Discussion Paper, June 2021.

²⁸ New York Times, "Apple Card Investigated After Gender Discrimination Complaints", Nov. 10, 2019

the reasons.²⁹ Yet many AI models cannot provide a clear explanation, creating tension with principles of natural justice and due process. Lack of transparency also makes it difficult for regulators like SEBI or RBI to audit decisions or detect manipulation. India's current laws, including the IT Act and SEBI regulations, do not impose a duty of explainability, leaving a regulatory gap.

- **Conflict of Interest in AI-driven Advice**

AI-driven investment platforms raise another ethical concern: conflicts of interest. Robo-advisors and digital wealth managers may be programmed to recommend financial products that benefit the institution more than the investor. For instance, an AI model owned by a brokerage could nudge clients toward high-fee products under the guise of “personalized advice”.³⁰ Investors may not even realize the advice is biased, since it comes in the form of a seemingly objective algorithm. Such conflicts undermine investor trust and could lead to large-scale mis-selling, much like the scandals associated with traditional financial advisors. Without strong disclosure requirements, these risks may multiply.

- **Market Fairness and Systemic Stability**

Finally, there are concerns about market fairness and systemic risks. Algorithmic trading, powered by AI, can create unfair advantages for institutions with access to superior technology. Retail investors cannot compete with high-frequency trading systems that execute thousands of trades in microseconds.³¹ This raises questions about whether markets remain level playing fields. Moreover, AI-driven interactions can amplify volatility. If several algorithms respond to the same market signals, they may reinforce each other and cause sudden crashes, destabilizing the entire system. Such systemic risks are hard to predict and harder to control once triggered.

6. Global Approaches & Lessons for India

While India is still debating how to regulate AI in finance, several jurisdictions have already

²⁹ Selbst, Andrew et al., “Fairness and Abstraction in Sociotechnical Systems”, *Proceedings of FAT*, ACM, 2019.

³⁰ Deloitte, “Robo-Advisors: A Portfolio Management Perspective”, 2020.

³¹ Kirilenko, Andrei et al., “The Flash Crash: The Impact of High Frequency Trading on an Electronic Market”, *Journal of Finance*, Vol. 72, 2017.

taken concrete steps. These global approaches provide useful guidance, showing both the strengths and limits of different regulatory models.

European Union: Artificial Intelligence Act

The European Union has moved the fastest with its **Artificial Intelligence Act**, first proposed in 2021 and formally adopted in 2023. The Act follows a **risk-based approach**, classifying AI systems into unacceptable, high, and low risk. Financial services, including credit scoring and algorithmic trading, are labelled as **high-risk**. This means firms using such AI must comply with strict requirements for transparency, risk management, data quality, and human oversight.³² Non-compliance can result in heavy fines of up to 6% of global turnover, making the framework one of the toughest in the world. For India, the EU model shows the value of setting clear definitions and strict obligations for high-risk use cases like finance.

United States: SEC on Algorithmic Accountability

The United States has not created a separate AI law, but regulators apply existing rules aggressively. The Securities and Exchange Commission (SEC) has repeatedly warned about the dangers of AI in financial markets. In 2023, SEC Chair Gary Gensler stated that AI could “turbocharge fraud and manipulation” if left unchecked.³³ The SEC has pursued enforcement actions against firms that misled investors using AI-driven claims or failed to supervise their algorithms. The U.S. relies more on **enforcement under existing securities law** rather than new statutes. For India, this model suggests that existing laws like the SEBI Act can be interpreted broadly to cover AI, provided regulators are proactive.

Singapore: Monetary Authority of Singapore (MAS)

Singapore has adopted a **principles-based approach** through the Monetary Authority of Singapore (MAS). In 2018, MAS introduced the **FEAT principles** (Fairness, Ethics, Accountability, Transparency) for financial institutions using AI.³⁴ Instead of detailed technical rules, the framework encourages firms to embed ethical standards into AI design and deployment. MAS also promotes regulatory sandboxes, where fintechs can test AI models

³² Regulation (EU) 2023/1114 of the European Parliament and of the Council, “Artificial Intelligence Act”, June 14, 2023.

³³ SEC Chair Gary Gensler, Speech at National Press Club, July 17, 2023.

³⁴ Monetary Authority of Singapore, “Principles to Promote Fairness, Ethics, Accountability and Transparency in the Use of AI and Data Analytics in Singapore’s Financial Sector”, Nov. 2018.

under supervision. This flexible approach has helped Singapore become a fintech hub while still maintaining safeguards.

United Kingdom: FCA Guidance on AI Trading

The UK's Financial Conduct Authority (FCA) has issued guidance on AI and algorithmic trading. It emphasizes **governance and accountability**, requiring firms to maintain oversight of their AI systems and ensure human responsibility for key decisions.³⁵ The FCA has warned that lack of controls in algorithmic trading can harm market integrity, and it expects firms to conduct regular stress tests and audits. Unlike the EU's rigid model, the UK approach is lighter but still ensures accountability.

Lessons for India

From these global experiences, several lessons emerge for India:

1. **Risk-based classification** (EU model) is useful for identifying high-risk AI in finance, which can then be subject to stricter oversight.
2. **Strong enforcement under existing laws** (U.S. model) shows that India can use SEBI and RBI's current powers more aggressively while waiting for comprehensive legislation.
3. **Principles-based ethics frameworks** (Singapore model) highlight the need for fairness, accountability, and transparency as guiding values in AI use.
4. **Continuous oversight and audits** (UK model) stress the importance of not just rules on paper but active supervision of AI systems in practice.

India does not have to copy one model wholesale. Instead, it can adopt a **hybrid approach**: use principles like Singapore's, apply strict liability for high-risk cases like the EU, rely on active enforcement like the U.S., and build ongoing governance like the UK. Such a blend would fit India's unique context, where fintech innovation is fast-growing but investor protection remains fragile.

³⁵ Financial Conduct Authority, "Algorithmic Trading Compliance in Wholesale Markets", Report, Feb. 2018

7. Suggestions and Way Forward

The rapid entry of AI in India's financial markets shows both the opportunities and dangers of new technology. At present the approach of SEBI and RBI has been piecemeal, relying on circulars and sandboxes, but the pace of adoption makes it clear that a more comprehensive framework is needed. India should now begin working on a dedicated law or at least a structured policy for AI in financial services. Such a framework must clearly define what counts as high-risk AI, especially in areas like algorithmic trading and credit scoring, and set out rules for how such systems should be tested, disclosed and monitored. Without a specific law, liability remains vague and investors remain exposed to sudden harms.

A central feature of this framework should be a proper liability model. Financial institutions that deploy AI must bear the main responsibility for its outcomes, since they are the ones who profit from its use. Strict liability could be imposed for high-risk cases such as algorithmic trading, while negligence-based liability may apply for lower risk uses like robo-advisory. Shared liability models could also be considered, where developers are accountable for coding flaws and institutions for deployment. This balanced approach would give protection to investors while still encouraging innovation by not punishing developers unfairly for outcomes beyond their control.

Another important step is mandatory audits of AI systems used in finance. Independent audits can help verify that algorithms are fair, unbiased, and not prone to manipulative outcomes. Regular testing and certification will give regulators like SEBI and RBI greater confidence in monitoring these technologies. Audits should not only cover technical soundness but also ethical dimensions such as fairness in lending or transparency in investment advice. This will align India with global best practices seen in the EU and UK, where audits and disclosures are a key part of oversight.

Investor awareness and grievance redressal mechanisms are also critical. Many retail investors and borrowers do not understand how AI systems work, and they may accept an algorithmic decision without questioning it. Regulators should promote investor education programs that explain the risks of AI-based finance in simple language. At the same time, there must be clear channels for grievances where investors can challenge harmful outcomes of AI-driven decisions. Ombudsman-type bodies or sectoral tribunals could be equipped to handle such cases quickly.

Finally, India should strengthen collaboration between technology innovators and regulators. Regulatory sandboxes already exist under RBI, but they can be expanded in scope to include SEBI and cross-sector fintechs. Joint sandboxes would allow AI models to be tested under controlled conditions with input from multiple regulators. This not only improves supervision but also creates trust between industry and government. India can also explore partnerships with global regulators to harmonize standards, since AI-driven finance is not limited by national borders.

In sum, the way forward for India is to develop a proactive and flexible framework that combines legal clarity with ethical safeguards. A dedicated regulation, clear liability allocation, regular audits, investor awareness, and collaborative sandboxes can together create a financial ecosystem where AI is used responsibly. If India succeeds in balancing innovation with protection, it can become a global leader in fintech without compromising stability or trust in its markets.

8. Conclusion

Artificial Intelligence has already become a central feature of financial markets, both in India and globally. From algorithmic and high-frequency trading to robo-advisory services and AI-based credit scoring, it is changing how decisions are made and how investors interact with financial institutions. The technology promises efficiency, cost reduction, and greater financial inclusion. But along with these benefits come serious risks: lack of transparency in decision-making, discrimination in lending, systemic instability from automated trading, and the difficulty of fixing liability when things go wrong. AI in finance is therefore not only a technological issue but also a legal and ethical one.

For India, the central challenge is to find a balance. If regulation is too heavy, it could discourage innovation and push fintech businesses abroad. If regulation is too light, retail investors and borrowers will carry the cost of failures, and market confidence will suffer. SEBI and RBI have already introduced some rules, consultation papers, and sandbox experiments, but these are scattered and cannot substitute for a dedicated framework. What India needs now is clear rules that set out liability for AI harms, ensure explainability and fairness, and provide strong investor protection.

The global experience shows different models: the European Union relies on strict risk-based

regulation, the United States prefers active enforcement under existing laws, Singapore follows principle-based ethics, and the UK stresses audits and governance. India can learn from each of these but should not copy them blindly. The Indian context large numbers of small retail investors, rapid fintech adoption, and uneven levels of digital literacy demands a hybrid approach that is flexible but also firm where necessary.

Looking ahead, AI will only grow deeper into India's financial system. Its use cannot be rolled back, only guided responsibly. The real question is whether India can shape rules that encourage responsible innovation while safeguarding market fairness and investor trust. If this balance is achieved, India has the chance not only to protect its own financial markets but also to emerge as a leader in the responsible use of AI in finance. The future therefore lies in building a regulatory system that is both forward-looking and protective, keeping ethics and accountability at its core.