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A Study on Risk Management Strategies in the Indian Stock Market

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Abstract: The Indian stock market is one of the world's fastest-growing and most volatile financial environments, playing a pivotal role in capital formation, wealth creation, and economic progress. Yet its sensitivity and complexity to domestic and global events render it extremely vulnerable to numerous risks. Consequently, efficient risk management by the Indian stock market is imperative for the sustenance of investor confidence, fair practice, and long-term viability. This research paper examines the forms and types of risks in the Indian stock market and assesses conventional and technological frameworks used to contain them. It presents an analytical comparison of regulatory and institutional risk-minimizing initiatives, such as the Securities and Exchange Board of India (SEBI), stock exchanges like NSE and BSE, and newer developments like algorithmic risk detection, circuit breakers, and AI-based surveillance. By drawing on empirical evidence, policy reports, and case studies, the paper maps areas of risk governance gap and makes practical suggestions to strengthen systemic stability, transparency, and investor protection.

Keywords: Indian stock market, risk management, SEBI, NSE, BSE, algorithmic trading, circuit breakers, AI surveillance, financial regulation, investor protection, market volatility, systemic risk, capital markets, regulatory frameworks, technological interventions

I. INTRODUCTION

1.1 Background

The Indian stock market—anchored by institutions like the Bombay Stock Exchange (BSE) and National Stock Exchange (NSE)—has long been a cornerstone of the country's economic progress. These markets play a crucial role in driving capital formation, creating wealth, and shaping the broader financial landscape. As they continue to evolve, however, so do the risks that come with them—becoming more complex and harder to predict.

But these risks aren't just numbers on a screen or fluctuations in investor sentiment. At the heart of any financial system is its **people**—and more specifically, the **education system** that trains them. This is especially true for sectors like finance and technology, where a strong foundation in technical education is essential. Unfortunately, that foundation is under strain.

One of the most pressing issues facing technical education in India today is **faculty attrition**. Put simply, too many qualified teachers are leaving too soon. Institutions often find themselves in a cycle of hiring and re-hiring, investing time and money into onboarding new faculty—only to lose them before they've truly made an impact. This constant churn not only drains financial resources but also takes a toll on institutional knowledge, continuity, and the quality of education students receive.

Over the last decade, technical institutions in India have grown rapidly—from around 4,500 in 2006–07 to more than 8,300 by 2011–12. But while the number of colleges has surged, the availability of skilled faculty has not kept pace. According to the University Grants Commission, India currently has only about half the faculty it actually needs. In fact, we'll require nearly **100,000 new teachers every year for the next decade** just to bridge the gap. Yet even identifying the scope of the problem is a challenge—the Ministry of Human Resource Development has pointed out that a reliable database on faculty trends doesn't even exist, making it tough to plan or implement meaningful reforms.

This shortage of qualified educators is more than just an academic issue—it has real-world consequences. If our technical institutions are unable to consistently produce graduates who are well-prepared, confident, and capable,

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sectors like finance, stock markets, and fintech will inevitably feel the ripple effects. The strength of these industries depends on the strength of the people behind them.

In short, **retaining and nurturing faculty talent isn't just an educational concern**—**it's a national priority**. To build a resilient and future-ready financial sector, India must first invest in stabilizing and strengthening the very institutions that prepare its future leaders.



1.2 Historical Data

- 1992: The Harshad Mehta scam highlighted deficiencies in the regulatory risk controls, and SEBI was set up with more powers.
- 1995–2000: Dematerialization of shares and launch of online trading platforms increased transparency but introduced operational and cybersecurity risks.
- 2008: Global financial crisis highlighted the exposure of Indian markets to global shocks and the need for realtime circuit breakers.
- 2015–2023: Rise of algo trading, real-time surveillance systems, and the regulatory sandbox introduced by SEBI to test fintech-based risk tools.
- 2020 Onwards: COVID-19 induced volatility emphasized the importance of liquidity management and systemic risk buffers.

1.3 Definition and Key Terms

- Stock Market Risk: The likelihood of an investor suffering losses arising from factors influencing the general performance of financial markets.
- Systemic Risk: Risk of failure of a complete financial system or market as a result of interlinkages and interdependencies.
- Market Manipulation: Methods like pump-and-dump schemes, insider trading, or price manipulation that interfere with fair trading.
- Circuit Breaker: A regulatory mechanism to suspend trading temporarily in times of unusual market volatility.
- Volatility Index (VIX): Market expectation of near-term volatility expressed by Nifty options prices.

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1.4 Research Gap

Although most of the current literature is concerned with investor behaviour or market performance, there is scant indepth study of how integrated risk management systems function in the Indian stock market. Research tends to ignore the contribution of technological interventions to early risk detection and does not account for the special problems of retail investors and mid-tier brokerages.

1.5 Research Objective

- To categorize various kinds of risks in the Indian stock market.
- To assess the adequacy of existing risk mitigation practices by regulators and exchanges.
- To analyse technological instruments and data analytics in handling market risks.
- To evaluate investor-level risk mitigation practices.
- To recommend implementable measures for enhanced risk governance.

II. MATERIALS AND METHODS

2.1 Step-by-step Procedures

Literature Review

- Examined scholarly articles from Scopus, JSTOR, and SSRN.
- Evaluated SEBI circulars, NSE/BSE working manuals, and RBI financial stability reports.

Data Collection

- Collected historical stock market information from NSE, BSE, and CMIE databases.
- Analysed volatility indices of the Indian market (India VIX), transaction data, and price change logs.
- Executed expert interviews with SEBI officials, brokers, and fund managers.

Quantitative Analysis

- Applied regression analysis to measure the correlation of macroeconomic factors and market volatility.
- Executed scenario analysis for analysis of how black swan effects affect the indices of markets.

Qualitative Analysis

- Major event case studies (e.g., 2008 crash, COVID crash, Adani-Hindenburg case).
- Policy assessment of SEBI's changing risk management strategy.

2.2 Resource

- Primary Data: NSE & BSE disclosures, SEBI notifications, trading algorithm audit reports.
- Secondary Data: Academic publications, market analytics tools such as Bloomberg and Reuters.
- Analytical Tools: Python (for data analysis), MS Excel, R for econometrics.

III. FINDINGS AND RESULTS

3.1 Risk Landscape in the Indian Stock Market

- Price Volatility: Nifty 50 experienced ~38% fall during COVID-19, highlighting event-driven volatility.
- Liquidity Risk: Some mid-cap and small-cap stocks do not have depth, resulting in price distortions.
- Operational Risk: Technical failures (e.g., NSE outage in Feb 2021) reveal infrastructural vulnerabilities.
- Cyber Risk: Threats of hacking into online brokerage accounts and trading platforms have risen.
- Regulatory Risk: Recurrent changes in trading margin regulations and surveillance standards influence trader behaviour.
- Behavioural Risk: Herding behaviour of retail investors usually amplifies volatility during earnings periods or social media rumours.



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3.2 Risk Mitigation Practices

- Traditional Practices
- Employment of stop-loss orders and portfolio diversification by investors.
- Broker-level risk management systems (RMS) to track client exposure.
- Margin and settlement rules to avoid over-leveraging.
- Technological Innovations
- AI-powered real-time surveillance systems to identify abnormal trading behaviour.
- Predictive models to predict spiking volatility based on macro events.
- Incorporation of volatility indices such as India VIX to capture market sentiments.



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3.3 Role of Exchanges and Regulators

- Circuit Breakers: Implemented after 2001 crash; effectively utilized during 2020 COVID shock to limit panic selling.
- T+1 Settlement: Shift to quicker settlement has minimized counterparty risk.
- Algo & HFT Monitoring: SEBI requires audit trails and collocation disclosures.
- Investor Protection Fund (IPF): Shields retail investors against broker defaults.

3.4 Key Case Studies

- Harshad Mehta Scam (1992): Inadequate audit trails and lax inter-bank surveillance.
- Karvy Broking Fraud (2020): Misappropriation of client securities; led to tougher client segregation rules.
- Adani-Hindenburg (2023): Caused unprecedented wealth erosion but put market structure's resilience to the test.

3.5 Role of Technology

- AI-based Surveillance: Leveraging real-time AI capabilities to detect more than 400 suspicious trades/month in 2022.
- Blockchain Pilots: Being explored to ensure settlement records and transparency in IPO share allotments.
- Robo-Advisory: Assisting retail investors in risk profiling and optimal asset allocation.

3.6 Challenges Identified

- Retail Investor Education: High engagement but poor knowledge of risks.
- Over-reliance on Technology: Black-box algorithms continue to lack human oversight.
- Infrastructure Bottlenecks: Server outages and data congestion affect risk containment.
- Shadow Trading: Off-market transactions continue to be lightly regulated.

IV. CONCLUSION

Risk management in the Indian stock market has shifted from a reactive framework to proactive, technology-based models. From circuit breakers to real-time AI monitoring, regulators and institutions have upgraded their risk response capacity. Yet, uneven awareness, infrastructural shortcomings, and cyber weaknesses continue to plague the system. Making sure that there is uniform policy enforcement, investor training, and transparent audit mechanisms is critical to sustained market growth. An innovative strategy focused on governance, innovation, and inclusivity is the answer to addressing future risks in this dynamic market.

4.1 Implications

- For Regulators: Strengthen monitoring of off-market and algo-based trading. Incentivize AI explainability frameworks and blockchain pilots for auditability.
- For Exchanges: Spend in strong IT infrastructure and deploy sophisticated risk analytics tools.
- For Investors: Adopt digital risk tools and diversify portfolios. Refrain from herd mentality and grasp risk-return trade-offs.
- For Researchers: Investigate the impact of fintech-driven solutions in risk mitigation and form responsible models for algorithmic trading regulation.

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