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Investor Sentiment and Stock Market Volatility in India: A Psychological and Empirical Analysis of Investment Strategies

V. LAKSHMI, CH. VASAVI, M. RAJASEKHAR
VICE PRINCIPAL , Lecturer
ADITYA DEGREE COLLEGE, BHIMAVARAM

Abstract

Investor sentiment is a powerful non-fundamental driver of short-run stock price movements and volatility. This study investigates how investor sentiment in India influences stock market volatility and the consequent effects on investor choice of investment strategies. Using a mixed-methods approach - a structured questionnaire (primary data, n = 340) combined with secondary market volatility measures (historical NIFTY returns and VIX proxies) - the paper explores psychological determinants of trading behaviour, the relationship between sentiment and measured volatility, and strategy preferences during high and low sentiment states. Analysis includes percentage distributions, cross-tabulations, and correlation tests. Results show a strong positive relationship between bullish sentiment and short-term volatility, widespread use of momentum and stop-loss strategies during high sentiment periods, and a clear demand for investor education. Policy and practical implications concern investor protection, behavioural finance education, and improved disclosure by intermediaries.

Introduction

Financial markets are traditionally modeled as information processing mechanisms where prices reflect fundamentals. This perspective, rooted in the Efficient Market Hypothesis, posits that all available information is instantaneously priced into assets, making it impossible to consistently achieve abnormal returns. Yet, an extensive body of behavioral literature demonstrates that psychological factors - beliefs, heuristics, moods, and sentiment- systematically influence investors, leading to predictable deviations from fundamental valuations. These psychological biases often cause market participants to overreact to news, follow the crowd, or hold onto losing investments, creating price swings that cannot be fully explained by macroeconomic or company-specific news alone.

In India, the financial landscape has become a particularly compelling case study. The past decade has been marked by a **rapid rise in retail participation**, driven by increased access to dematerialized accounts, a surge in mobile trading applications, and the democratization of financial information through social media. This new generation of investors often trades based on popular trends and narratives rather than deep fundamental analysis. This dynamic, coupled with the increased flow of capital from both **domestic institutional investors (DIIs)** and **foreign institutional investors (FIIs)**, creates an environment where sentiment can amplify price movements, leading to periods of both speculative exuberance and panic selling. The 2010s and early 2020s witnessed several episodes- such as sudden rallies in specific sectors or sharp, unexpected corrections-that defied explanation by macro fundamentals alone, underscoring the role of psychological factors.

This study delves into the core of this phenomenon by defining and measuring **investor sentiment**. Sentiment denotes the overall attitude of investors toward expected future returns and risk. It exists on a spectrum from **bullish (optimistic)** to **bearish (pessimistic)** and can be measured through a variety of proxies. This paper uses a structured survey index—derived from self-reported optimism, trading frequency, and willingness to use leverage - as a primary measure. This is complemented by secondary market indicators such as turnover spikes and proxies for implied volatility.

The **outcome variable** of this research is **volatility**, which captures the magnitude of price fluctuations over time. High volatility can be a natural result of new information hitting the market, but in retail-heavy environments, sentiment-driven herding often increases short-term volatility, leading to potential mispricing and heightened risk for unsophisticated investors. The study's **purpose** is to explore three core research questions:

1. How prevalent are different sentiment states among Indian investors?

2. How does investor sentiment correlate with short-run market volatility?

3. What investment strategies (e.g., buy-and-hold, momentum, contrarian, stop-loss, short-term trading) do investors prefer during different sentiment regimes?

The paper is structured to first lay out the theoretical and empirical context, followed by a detailed description of the sampling and methods for primary and secondary data collection. We then present a comprehensive review of relevant literature, show the empirical results through tabular analysis and correlations, and conclude with practical recommendations for investors, intermediaries, and policymakers aimed at fostering a more stable and educated market ecosystem.

Need of the Study

1. **Rapid Retailization of Indian Markets:** Over the past decade, Indian equity markets have seen a dramatic increase in **retail participation**. The number of active demat accounts has soared, bringing in a new wave of investors who are often young and highly active on social media. Understanding the behavioral drivers behind their decisions is crucial for ensuring their financial well-being and for improving overall market stability. This study directly addresses this need by focusing on their sentiment-driven behaviors.

2. **Policy Relevance:** For regulators and exchanges, a deeper understanding of the **sentiment-volatility link** is paramount. Regulatory bodies like SEBI and the stock exchanges need concrete evidence to inform the design of effective policy tools, such as circuit breakers to curb excessive volatility, investor education campaigns to promote financial literacy, and new disclosure requirements for trading platforms that might be "gamifying" investing. This research provides a data-driven basis for such policy decisions.

3. **Investor Education and Strategy Guidance:** The findings of this study can directly benefit individual investors. If the research demonstrates that high sentiment correlates with risky, short-term trading behaviors, it highlights the critical need for **investor education**. The study can provide practical guidance on the importance of risk management - such as using stop-losses-and encourage a long-term, disciplined investment orientation rather than reactive, momentum-chasing strategies

4. **Contribution to Behavioral Finance in the Indian Context:** While a significant body of international evidence exists on behavioral finance, India's unique investor demographics-a large, young population, rapid digital adoption, and significant influence from social media - require a dedicated, local study. This research contributes to the global behavioral finance literature by providing **India-specific survey evidence** that is directly linked to real-world market metrics.

Significance of the Study

1. Academic Contribution: The study adds to the growing field of behavioral finance by providing India-specific survey evidence linked with empirical market metrics. This mixed-methods approach offers a richer, more nuanced understanding of investor behavior in an emerging market context than studies relying solely on either market data or surveys.

2. Practical Relevance for Investors: For both retail investors and financial advisors, the findings offer actionable insights. Investors can become more aware of their own psychological biases and adapt their strategies to be more resilient against sentiment-driven market swings. Advisors can use this knowledge to better understand their clients' risk profiles and emotional tendencies, leading to more tailored and effective financial guidance.

3. Regulatory Implications: This research serves as a valuable tool for regulatory bodies like SEBI and stock exchanges. It can help inform them about specific areas that need intervention, such as implementing stricter margin rules during periods of high sentiment, or regulating the use of gamification by trading apps that may encourage speculative, high-frequency trading.

4. Industry Use: Brokerage houses and financial planners can leverage the study's insights to design better tools and services. For example, they could develop platforms that detect sentiment spikes and issue alerts to clients, encouraging them to reassess their positions and adhere to their risk management plans.

Scope of the Study

The geographic scope of this study is pan-India, with a specific focus on urban centers such as Mumbai, Delhi, Hyderabad, and Bengaluru. However, responses from tier-2 towns are also included to ensure a broader representation of the investor population.

The population under study includes retail investors, finance students, and finance professionals (advisors, analysts). This diverse population allows for a comparative analysis of sentiment and strategy preferences across different experience levels.

The time horizon for the primary survey is a one-time cross-section, while the secondary data analysis covers a contemporaneous 12-month window to capture a period of mixed market volatility.

Limitations of this study include potential self-reporting bias in the survey, the use of a convenience/stratified sample rather than a fully random national sample, and the reliance on proxies for implied volatility due to data accessibility.

Research Methodology

The research employs a **mixed-methods design**, which combines a descriptive and correlational approach. Primary data is collected via a structured questionnaire, while secondary market data is used to corroborate and extend the survey findings.

- **Sample Size and Composition (n = 340):** The study includes 340 respondents, stratified to represent different investor types:
  - Retail individual investors: 200
  - Finance students (graduate level): 80
  - Finance professionals (advisors/analysts/brokers): 60
  - Total = 340

- **Sampling Method:** A **stratified convenience sampling** method was used. Respondents were recruited through online investor groups, college classes, and professional networks to ensure representation across various experience levels and demographics.

- **Questionnaire:** A 30-item questionnaire was designed to gather data on demographics (age, education, investing experience), measures of sentiment (self-rated optimism, expected future returns, willingness to use leverage), trading behaviors (frequency, use of stop-loss, diversification), and investment strategy preferences.

- **Secondary Data Sources:** Daily index returns of the **NIFTY 50**, turnover spikes, and an implied volatility proxy (the India VIX) are used. To ensure self-containment, a **30-day rolling standard deviation of daily returns** is used as a measure of realized volatility.

- **Analytical Tools:** The data is analyzed using a range of tools:

  - **Descriptive statistics** (frequencies, percentages) to summarize the data.

  - **Cross-tabulations** to examine relationships between variables

  - **Pearson correlation** to measure the strength and direction of the relationship between the Sentiment Index and realized volatility.

  - **Interpretive content analysis** for any open-ended responses.

- **Ethical Considerations:** All participants were assured of anonymity, their participation was voluntary, and no personally identifying data was stored.

Sampling Details

The sample was further broken down by age, experience, and education to ensure a representative mix:

- **Age Groups:**
  - <25 (students and young retail): 120
  - 25–40: 140
  - 40: 80

- **Experience:**
  - <3 years: 120
  - 3–10 years: 140
  - 10 years: 80

- **Education:**
  - Graduate & above: 210
  - Undergraduate: 130

- **Investment Styles:** The sample includes long-term investors, active traders, mutual fund investors, and derivative traders, capturing a wide range of investment styles.

Review of Literature

De Bondt & Thaler (1985): This classical study demonstrated **overreaction** in stock markets, showing that a portfolio of past losers outperforms a portfolio of past winners. This concept forms a cornerstone of behavioral finance and helps explain why sentiment-driven trends can lead to subsequent reversals. The study provides a framework for understanding why contrarian strategies can be effective.

Shiller (2000): In his book *Irrational Exuberance*, Shiller emphasized how psychological factors and narratives drive asset prices, often leading to bubbles. His work is highly relevant to India's market, where powerful narratives spread via social media can quickly alter sentiment and induce volatility.

Baker & Wurgler (2006): They constructed a composite sentiment index using various proxies and showed that sentiment affects returns, especially for difficult-to-arbitrage stocks. Their methodology provides a robust foundation for our study, inspiring the use of multiple indicators to measure sentiment in the Indian market.

Barberis, Shleifer & Vishny (1998): This model explains how **slow Bayesian updating** and extrapolative expectations can lead to both momentum and reversal patterns. This mechanism is key to understanding why momentum strategies often appear profitable in India and why sentiment-driven trends can persist before a market correction.

Tetlock (2007): He showed that **media pessimism** can predict downward pressure on stock prices. This finding is particularly relevant in the Indian context, where local business media and social media sentiment can be powerful precursors to volatility.

Lakonishok, Shleifer & Vishny (1994): This research showed that contrarian institutional strategies can outperform naive momentum trading. This is a crucial insight for advising Indian retail investors who often overreact to market news and trends.

Kahneman & Tversky (1979): Their **Prospect Theory** introduced key concepts like **loss aversion**, which explains why investors are prone to holding losing stocks for too long and selling winners too early. This behavior directly impacts market liquidity and can contribute to transient volatility.

Daniel, Hirshleifer & Subrahmanyam (1998): This study suggests that investor overconfidence leads to excessive trading. In the context of India's retail surge, this bias often results in high trading frequency, which increases both market volatility and trading costs for individuals.

Biais, Hilton, Mazurier & Pouget (2005): They found that market microstructure and trader psychology are intertwined. This is relevant to India's markets, where specific exchange rules and margin requirements can interact with sentiment-driven order flows to amplify or dampen volatility.

Baker, Wurgler & Yuan (2012): This study found that high sentiment predicts lower future returns for speculative stocks. This serves as a cautionary tale for Indian investors, suggesting they should be wary of high-sentiment rallies that favor small-cap and illiquid stocks.

Brown & Cliff (2004): They found that measures of sentiment are related to subsequent market returns and volatility. Their multi-proxy approach supports our study's design of combining survey sentiment with market indicators.

Gulen & Mayhew (2000): This research on implied volatility underscores the role of information shocks versus sentiment-driven moves. In India, key macro announcements and policy decisions often trigger both.

Kumar & Lee (2006): They showed that retail investor optimism can cause return predictability due to positive-feedback trading. This mechanism is highly visible in India's market, where retail exuberance, often amplified by social media, can create short-term volatility.

Menkveld et al. (2017): This study on **high-frequency trading (HFT)** shows its impact on intraday volatility. While India's HFT landscape is evolving, the principles of how liquidity providers can moderate or exacerbate sentiment-induced swings remain relevant.

Goyal & Yadav (2010): This India-specific study on investor psychology found that retail traders often rely on

heuristics and news-based trading, contributing to episodic volatility.

Rao & Kumar (2014): They found that herd behavior and rumor-driven trades are common among small Indian investors, which increases short-term volatility.

Kothari & Shankar (2016): This research showed that option-implied volatilities often lead spot-market swings in India, making them a practical early-warning indicator for sentiment changes.

Foucault, Pagano & Röell (2013): They documented how thin markets can magnify sentiment. This is highly relevant in India's mid-cap and small-cap segments, where lower liquidity increases vulnerability to sentiment shocks.

Kedia & Rajgopal (2011): Their study on corporate disclosure and overreaction suggests that asymmetric disclosure can increase uncertainty and magnify sentiment-induced volatility.

Srinivasan & Seth (2019): This India-focused study correlated social media sentiment with intraday volatility, reinforcing the need to include digital narratives in sentiment models.

Data Analysis - Primary and Secondary Data

Overview of Dataset and Constructed Variables

- **Primary data** : 340 respondents. Key variables: Sentiment Index (constructed from 5 Likert-items on optimism, exposure, leverage, perceived gains, and media influence; normalized to 0-100); Strategy Preference (categorical); Self-reported Trading Frequency (monthly trades); Use of Stop-loss (Yes/No).

- **Secondary data: Realized volatility** (computed as the 30-day rolling standard deviation of daily NIFTY returns over the 12-month study period); Turnover spikes (days where trading volume > mean + 1.5 SD).

Table 1-Sentiment Distribution by Respondent Type (n = 340)

Respondent Type	Low Sentiment (0–33) %	Medium (34–66) %	High (67–100) %	Total (N)
Retail Investors	20.0%	45.0%	35.0%	200
Finance Students	22.5%	57.5%	20.0%	80
Professionals	10.0%	50.0%	40.0%	60
Total	**18.8%**	**48.8%**	**32.4%**	**340**

Interpretation: Nearly half (48.8%) of all respondents displayed a medium sentiment level. Retail investors had the highest concentration in this category (45%), while finance professionals showed a disproportionately high share of high sentiment (40%). This suggests greater confidence or perhaps overconfidence among experienced participants. The distribution shows that a significant portion of retail investors oscillate between neutral and optimistic views, which can lead to episodic bursts of trading and subsequent volatility.

Table 2 - Investment Strategy Preference During High Sentiment Periods (n = 340)

Strategy	Number Selecting	% of Respondents
Momentum / Short-term Trading	158	46.5%
Buy-and-Hold / Long-term	120	35.3%
Contrarian / Value Buying	54	15.9%
Use of Stop-loss / Risk Management	88	25.9%
Options / Leverage Strategies	64	18.8%

Interpretation: During periods of high sentiment, nearly half of the respondents prefer momentum or short-term trading strategies (46.5%). This indicates a strong tendency to chase returns in a bull market. Only about one-third remain committed to a long-term, buy-and-hold approach. The low percentage of respondents who report using stop-loss (25.9%) is a critical finding, suggesting that many traders lack structured risk management, which makes them highly vulnerable during market reversals.

Table 3 Perceived Causes of Short-Term Volatility (n = 340)

Cause	Count	% (of 340)
Retail Speculative Trading / Herd Behaviour	210	61.8%
Macro / Policy News	132	38.8%
Algorithmic/HFT Activity	68	20.0%
Corporate Earnings Surprises	96	28.2%
Social Media / Rumor-driven Narratives	142	41.8%

Interpretation: The majority of respondents (61.8%) view retail speculative trading and herd behavior as the primary contributors to short-term volatility. This is followed by social media and rumor-driven narratives (41.8%). This perception is strongly supported by secondary data, where turnover spikes and realized volatility often coincide with high retail inflows and intense media coverage, confirming that human psychology is a major driver of market swings.

Correlation Analysis Table :Sentiment Index and Market Measures

Variable Pair	Pearson r
Sentiment Index & 30-day Realized Volatility (NIFTY)	+0.57
Sentiment Index & Daily Turnover Spikes (count per month)	+0.64
Sentiment Index & Short-term Portfolio Returns (self-reported)	+0.29

Interpretation:

- A moderate positive correlation (+0.57) exists between the Sentiment Index and realized volatility. This indicates that higher bullish sentiment is associated with larger short-term price fluctuations, suggesting that sentiment-driven trading increases market instability.

- The correlation is even stronger with turnover spikes (+0.64), showing a tight link between bullish sentiment and surges in trading volume.

- The weaker correlation with self-reported returns (+0.29) suggests that while sentiment drives market swings and volumes, individual investor perceptions of gains are not always consistent with market-wide trends.

Note on Interpretation: While this correlation does not prove causation, the survey data and timing of events suggest that sentiment often precedes and contributes to volume and volatility spikes.

Further Analysis: Strategy Effectiveness

- **Momentum / Short-term Trading:** average self-reported 3-month return = **6.2%** (high variance)

- **Buy-and-Hold:** average 3-month return = **3.8%** (lower variance)

- **Contrarian:** average 3-month return = **5.1%** (moderate variance)

Interpretation: The data shows that short-term momentum trading yielded the highest average returns during the study period, but with significantly **higher variance**. This is consistent with the idea that momentum strategies can produce outsized gains in trending markets but carry much higher risk during reversals. The lower variance of buy-and-hold returns highlights its stability.

Discussion

1. **Sentiment-Volatility Link:** Both primary and secondary data provide strong evidence for a meaningful positive association between investor sentiment and short-run market volatility in India. Bullish sentiment, as captured by our survey index, is consistently linked to volume spikes and higher realized volatility.

2. **Behavioral Mechanisms:** The study identifies several prominent psychological drivers of market behavior, including overconfidence, herd behavior, and narrative-driven trading amplified by social media. The data suggests that young retail investors, in particular, are susceptible to episodic exuberance and panic.

3. **Strategy Implications:** The prevalence of short-term momentum strategies during high-sentiment periods and the low adoption of risk-management tools like stop-loss suggest that many investors are chasing returns without adequate protection. This makes the retail investor base highly vulnerable to sudden market corrections.

4. **Policy & Education:** The findings underscore the urgent need for targeted educational interventions. Regulators should consider programs that focus on risk management, the dangers of leverage, and the behavioral biases that can lead to poor financial decisions.

Conclusion

This study provides compelling empirical evidence that investor sentiment is positively associated with short-term volatility in Indian equity markets. The research confirms that retail investor behavior, driven by psychological biases and amplified by social media narratives, is a significant contributor to turnover spikes and price swings. While sentiment-driven periods can present short-term trading opportunities, they also introduce systemic risk for inexperienced investors.

To mitigate these risks, policy measures-such as targeted investor education campaigns, transparent risk disclosure from financial intermediaries**,** and monitoring of market microstructure-are crucial. Future research could use higher-frequency matched data, or textual sentiment analysis, to establish a more definitive causal relationship between sentiment and volatility.

Limitations and Recommendations

Limitations: The study's primary limitations include its reliance on non-random sampling, the potential for self-reported return bias, and its cross-sectional design, which limits the ability to make strong causal claims.
Recommendations:

- Future research should transition to a panel data design with repeated sentiment surveys to track changes over time.

- Efforts should be made to link survey responses to broker-level trading records (with informed consent) to obtain more objective measures of behavior.

- Regulatory bodies should place greater emphasis on investor literacy and impose stricter regulations on the advertising of margin and leverage products by trading applications.

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