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Market Volatility and Herding Behaviour: Recent Evidence from India

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Abstract: This study explores whether herding behaviour exists in the Indian stock market over the period January 2022 to December 2024. Using daily sector-level returns and the Cross-Sectional Absolute Deviation (CSAD) approach, we tested whether investors tend to follow market-wide movements, and how volatility shapes this behaviour.

The results show no strong evidence of herding at the aggregate level. While the squared market return term was negative as expected, it was not statistically significant. Instead, investors appeared to act more independently, suggesting that the market has matured in recent years. Interestingly, volatility was found to have a significant positive effect on return dispersion, meaning that during periods of higher uncertainty, investors responded in more diverse ways rather than moving together.

The findings point to a more rational and resilient Indian equity market, where information availability and institutional participation reduce the chances of herd-driven distortions. These insights are useful for investors, fund managers, and regulators seeking to understand behavioural patterns and market efficiency in emerging economies.

Keywords: Herding behaviour, CSAD model, Investor behaviour, Market volatility, Indian stock market, Market efficiency

I. INTRODUCTION

Investor behaviour has long been a central theme in finance research. While traditional theories such as the Efficient Market Hypothesis argue that markets are driven by rational decision-making, behavioural finance shows that psychological factors often influence investment choices. One such phenomenon is **herding**, where investors follow the actions of others rather than relying on their own information or analysis. Herding can destabilise markets, exaggerate price swings, and reduce overall efficiency.

In the context of emerging economies like India, herding is particularly relevant. The Indian stock market has undergone rapid growth, with increasing participation from both retail and institutional investors. Past studies on herding in India have produced mixed results: some found evidence of collective behaviour during crisis periods, while others reported more independent investor responses. These inconsistencies suggest that herding in India may depend on specific time periods, market conditions, or sectors.

This study revisits the question of whether herding exists in the Indian equity market in recent years. Using daily sector-level data from **January 2022 to December 2024**, and applying the Cross-Sectional Absolute Deviation (CSAD) approach, we test for the presence of herding and examine the role of market volatility. By focusing on this more recent period, the study sheds light on whether structural reforms, digitalisation, and greater institutional participation have reduced the tendency of investors to herd.

Objectives

The objectives of this study are threefold:

1. To examine whether herding behaviour exists in the Indian stock market.
2. To test the non-linear relationship between return dispersion (CSAD) and market returns.
3. To analyse whether market volatility significantly influences herding behaviour.

Hypotheses

Based on the above objectives, the following hypotheses are proposed:

- **H1:** There is evidence of herding behaviour in the Indian stock market.
- **H2:** The relationship between return dispersion (CSAD) and market returns is non-linear.
- **H3:** Market volatility significantly influences herding behaviour.

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II. LITERATURE REVIEW

Herding behaviour has been widely examined in financial markets, often explained through informational cascades where investors ignore their own signals and follow the crowd (Banerjee, 1992; Bikhchandani & Sharma, 2000). Empirical studies show that herding is more pronounced in emerging economies than in developed ones. For instance, Chang, Cheng, and Khorana (2000) found strong evidence of herding in South Korea and Taiwan but little in developed markets. Similarly, Lao and Bansal (2010) reported significant herding in India and China, highlighting the role of market maturity. In India, the evidence remains mixed. Some studies confirm herding during crises—such as the global financial crisis (Prasad & Kumar, 2018; Gupta & Bindiya, 2018; Dhuri & Joshi, 2019) and the COVID-19 pandemic (Dhall & Singh, 2020; Bharti & Kumar, 2022). These studies show stronger effects in bearish or uncertain markets. By contrast, others such as Satish and Padmasree (2018) and Patil and Jain (2024) reported little or no evidence of herding in normal times, suggesting growing market efficiency.

Prior research suggests that herding in India is **conditional and event-driven**, with stronger effects during periods of crisis or high volatility. This motivates the present study to revisit herding in the more recent period of 2022–2024, when the market has seen post-pandemic recovery, digitalisation, and greater institutional participation.

III. RESEARCH METHODOLOGY

Data

The study is based on secondary data covering the period from **1 January 2022 to 31 December 2024**. To capture market-wide investor behaviour, daily closing prices were collected for five major sectors of the Indian stock market. Sectoral indices were preferred over individual stocks to reduce firm-specific noise and provide a broader picture of investor behaviour. The final dataset consists of daily observations for each sector, which were used to compute average market returns, cross-sectional dispersions, and volatility measures.

Variables

The key variables employed in the analysis are as follows:

- **Market Return (Rm,t):** The daily average return across the five selected sectoral indices.
- **Cross-Sectional Absolute Deviation (CSAD):** The dependent variable, capturing the average absolute deviation of sectoral returns from the market return on day *t*. A lower CSAD indicates convergence of investor behaviour (possible herding), while a higher CSAD suggests greater dispersion.
- **|Rm,t|:** The absolute value of market return, used to capture the linear effect of market movement on dispersion.
- **$(Rm,t)^2$:** The squared market return, included to test for a potential non-linear relationship between dispersion and market returns, which is a key indicator of herding.
- **Volatility:** Measured as the 22-day rolling standard deviation of market returns, representing approximately one trading month. This variable was included to examine whether market uncertainty influences herding behaviour.

Models

To test the hypotheses, the following regression models were estimated:

Model 1 (Base herding test):

$$CSAD_t = \alpha + \beta_1 |Rm,t| + \beta_2 (Rm,t)^2 + \epsilon t$$

Model 2 (With volatility):

$$CSAD_t = \alpha + \beta_1 |Rm,t| + \beta_2 (Rm,t)^2 + \beta_3 Volatilityt + \epsilon t$$

In both models, a significantly negative coefficient for $(Rm,t)^2$ would provide evidence of herding behaviour. In Model 2, the coefficient of volatility (β3) captures whether periods of higher uncertainty strengthen or weaken herding.

Procedure

The methodology followed four main steps:

1. Daily returns were calculated from sectoral index prices.
2. Market return was derived as the average of the five sectoral daily returns.
3. CSAD was computed for each day as the mean absolute deviation of sectoral returns from the market return.
4. A 22-day rolling standard deviation of market returns was calculated to represent volatility.
5. Finally, regression analysis was conducted using the CSAD as the dependent variable and |Rm,t|, $(Rm,t)^2$, and Volatility as explanatory variables. The models were estimated using Excel's Data Analysis ToolPak.

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IV. ANALYSIS AND DISCUSSION

Table 1: Regression Results for Herding Behaviour (2022–2024)

Variable	**Model 1 (Base)**	**Model 2 (With Volatility)**
Intercept (α)	0.00448*** (0.00018)	0.00388*** (0.00029)
	Rm,t	(β1)
$(Rm,t)^2$ (β2)	-0.197 (1.389)	-0.504 (1.384)
Volatility (β3)	—	0.077** (0.031)
R^2	0.108	0.116
Adj. R^2	0.106	0.113
F-statistic	43.75***	31.56***
Observations	723	723

*Note: Standard errors in parentheses. ***, **, * *denote significance at 1%, 5%, and 10% levels.*

The regression results for the period January 2022 to December 2024 are reported in Table 1. In Model 1, the coefficient of the absolute market return (|Rm,t|) is positive and statistically significant ($\beta1 = 0.175$, $p < 0.01$), indicating that market return movements are associated with increased return dispersion. However, the squared market return term (Rm,t^2) is negative as expected ($\beta2 = -0.197$) but statistically insignificant ($p > 0.10$). This suggests that herding behaviour is not evident at the aggregate market level.

In Model 2, volatility was added as an explanatory variable. The results show that volatility has a positive and significant effect on return dispersion ($\beta3 = 0.077$, $p < 0.05$). This indicates that during periods of higher volatility, dispersion among stock returns increases, implying that investors act more independently rather than following herd behaviour. The overall explanatory power of the model improved slightly ($R^2 = 0.116$ compared to 0.108 in Model 1).

Taken together, the findings suggest that herding behavior is absent in the Indian stock market during the study period (2022–2024). Instead, evidence points to rational investor behavior, particularly during volatile periods, where return dispersion widens.

V. DISCUSSION

The empirical analysis conducted for the period January 2022 to December 2024 does not provide support for the presence of herding behavior in the Indian stock market. Although the coefficient of the squared market return term (Rm,t2)(R_{m,t}^2)(Rm,t2) was negative as expected, it was statistically insignificant across all model specifications. This suggests that investors did not consistently converge towards collective behaviour but rather made decisions that were independent of market-wide movements.

These findings are consistent with prior studies that report mixed evidence of herding in emerging markets. The absence of significant herding could be attributed to increased market maturity, greater access to information, and the growing participation of institutional investors who tend to follow rational strategies rather than herd instincts.

Interestingly, the results show that volatility has a significant positive effect on return dispersion. Instead of intensifying herding, higher volatility was associated with greater divergence in stock returns, indicating that investors reacted differently to uncertain conditions. This may reflect risk-averse behaviour, where market participants evaluate information independently and adopt heterogeneous trading strategies to manage risk exposure.

The findings imply that during the study period, the Indian equity market demonstrated signs of efficiency and rational decision-making rather than irrational collective behaviour. This has important implications for policymakers and regulators, as it highlights the stabilising role of information dissemination and market transparency in mitigating herd-driven distortions.

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VI. CONCLUSION

This study examined the presence of herding behaviour in the Indian stock market during the period January 2022 to December 2024, using sector-level daily returns and the CSAD methodology. The primary objective was to test whether investors tend to follow collective market movements, particularly during periods of high volatility.

The results provide no evidence of herding behaviour at the aggregate market level. Although the squared market return term was negative, it was statistically insignificant, indicating that investors did not systematically mimic the market consensus. Instead, the findings suggest that individual and institutional investors in India acted largely independently during the sample period.

The analysis further revealed that volatility had a significant positive effect on return dispersion, implying that investors became more heterogeneous in their decision-making during periods of heightened uncertainty. This behaviour points to rational responses rather than irrational herding, and highlights the role of improved market infrastructure, increased institutional participation, and greater information availability in shaping investor behaviour.

The study contributes to the literature by showing that recent years in the Indian equity market are 11haracterized more by rationality than herding, contrasting with some earlier periods where herding was more prominent. For policymakers and regulators, the results underline the importance of maintaining transparency and robust information channels, as these factors help reduce the likelihood of herd-driven distortions.

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