RESEARCH ARTICLE	The Role of Behavioural Finance in Explaining Stock Price Volatility: A Theoretical Framework
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Doi Serial	https://doi.org/10.56334/sei/8.8.14
Keywords	Stock Price Volatility, Cognitive Biases, Investor Behavior, Market Efficiency, Prospect Theory

Abstract

Stock price volatility has long been a central focus in financial markets, traditionally explained through classical theories that assume rational investor behaviour. However, integrating behavioural finance provides a nuanced understanding of the underlying psychological factors contributing to market fluctuations. This paper presents a comprehensive theoretical framework that elucidates the role of behavioural finance in explaining stock price volatility. By incorporating key behavioural concepts such as overconfidence, herding behaviour, loss aversion, and prospect theory, the framework bridges the gap between investor psychology and market dynamics. The proposed model highlights how cognitive biases and emotional responses can lead to deviations from fundamental values, resulting in increased volatility. Additionally, the framework examines the interplay between institutional factors and individual investor behaviour, offering insights into how these elements collectively influence market stability. This theoretical exploration underscores the significance of behavioural factors in shaping financial markets and provides a foundation for future empirical research aimed at mitigating volatility through behavioural insights.

Citation

Kumar P., Sharma D.N. (2025). The Role of Behavioural Finance in Explaining Stock Price Volatility: A Theoretical Framework. *Science, Education and Innovations in the Context of Modern Problems*, 8(8), 141-149; doi:10.56352/sei/8.8.14. https://imcra-az.org/archive/375-science-education-and-innovations-in-the-context-of-modern-problems-issue-8-vol-8-2025.html

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Received: 21.02.2025 Accepted: 02.06.2025 Published: 28.06.2025 (available online)

Introduction

Stock price volatility has long been a central focus in financial economics, traditionally explained through the lens of classical theories such as the Efficient Market Hypothesis (EMH) and the Capital Asset Pricing Model (CAPM).

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These models posit that stock prices reflect all available information and that price movements are primarily driven by rational responses to new information (Fama, 1970; Sharpe, 1964). However, empirical observations frequently reveal patterns of volatility that these traditional models struggle to explain fully. This gap has led to the emergence and growing prominence of behavioural finance, which integrates psychological insights into economic models to understand investor behaviour and market dynamics better. Behavioural finance challenges the assumption of investor rationality inherent in classical theories by highlighting how cognitive biases, emotions, and social influences can lead to systematic deviations from expected utility maximization (Kahneman & Tversky, 1979; Barberis & Thaler, 2003). These behavioural anomalies, such as overconfidence, loss aversion, herding, and mental accounting, can contribute to excessive volatility in stock prices as investors react irrationally to news, trends, and each other's actions (Shiller, 2000; De Bondt & Thaler, 1985). For instance, overconfident investors may trade excessively, inflating price movements, while herding behaviour can lead to price bubbles and crashes that deviate significantly from fundamental values (Bikhchandani, Hirshleifer, & Welch, 1992). Moreover, behavioural finance provides a framework for understanding phenomena such as momentum and reversal patterns in stock returns, which are difficult to reconcile with the notion of market efficiency (Jegadeesh & Titman, 1993; Daniel, Hirshleifer, & Subrahmanyam, 1998). These patterns suggest that psychological factors and investor sentiment play a crucial role in driving price fluctuations beyond what can be explained by changes in fundamentals alone. This theoretical framework aims to elucidate the role of behavioural finance in explaining stock price volatility by integrating key behavioural concepts with traditional financial theories. By doing so, it seeks to offer a more comprehensive understanding of the underlying mechanisms that drive market fluctuations, accounting for both rational and irrational factors. This approach not only enhances our ability to predict and manage volatility but also provides deeper insights into the complexities of financial markets.

Review of Literature

Theoretical Backdrop:

Behavioural finance has gained prominence in explaining stock price volatility by challenging the traditional Efficient Market Hypothesis (EMH). This field explores how cognitive biases, emotions, and heuristics drive investor behaviour, influencing stock market fluctuations. The theoretical foundation which forms the fundamental of this study is laid down in this section. Initially, the Efficient Market Hypothesis (EMH) proposed by Fama (1970) which posits that stock prices reflect all available information, and that market participants act rationally, leading to fair valuations. While EMH has underpinned much of modern financial theory, persistent anomalies such as bubbles, crashes, and excessive volatility have concluded that there exist limitations in this study. Shifting further, Kahneman and Tversky's (1979) Prospect Theory, laid the psychological groundwork for understanding decision-making under uncertainty. The theory introduced the concept of loss aversion, showing that individuals disproportionately fear losses relative to equivalent gains. This bias affects investor behavior by inducing premature selling during downturns and risk-averse strategies in rising markets, thereby contributing to price distortions. Further expansion into behavioral territory came with Bikhchandani, Hirshleifer, and Welch's (1992) theory of informational cascades and herding behavior, which explained how individuals often follow the actions of others, especially in uncertain environments. Herding leads to self-reinforcing market movements and is central to understanding speculative bubbles and sharp reversals in asset prices. The empirical validation of behavioral biases gained momentum with the work of Barber and Odean (2001) on overconfidence. Their studies demonstrated that overconfident investors trade more frequently and underestimate risk, leading to increased market noise and volatility. Overconfidence, especially prevalent during bull markets or periods of high speculation, has since become a central construct in behavioral finance.

Together, these theories provide a chronological and theoretical foundation for this study's framework. They explain how systematic deviations from rational behavior, through loss aversion, herding, and overconfidence distort market dynamics as a whole, resulting in elevated stock price volatility. This study builds on these theoretical advances to construct a comprehensive model that integrates psychological and market-based perspectives for explaining volatility beyond what traditional models account for.

Review of Previous Studies:

The literature on behavioural finance suggests that stock price movements are not always based on rational decision-making but are influenced by investor psychology, herd behaviour, overreaction, and underreaction to

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the news. This review synthesizes key studies that examine the role of behavioural finance in explaining stock market volatility, with a focus on investor sentiment, market anomalies, and psychological biases.

Earlier empirical work provides foundational insights into this domain. For instance, Daniel, Hirshleifer, and Subrahmanyam (2001) demonstrated how overconfidence and biased self-attribution lead to persistent mispricing, contributing to excess volatility. Similarly, Barberis, Shleifer, and Wurgler (2005) explored how investor sentiment can create comovement in asset prices, suggesting that classification-driven behavior, even in unrelated stocks, can inflate volatility patterns. Tan et al. (2008) provided empirical support for herding behaviour in emerging markets, showing that market participants frequently mimic others under uncertainty, particularly in the Chinese stock market context. These studies confirm the enduring impact of behavioural patterns on price dynamics and offer important precedents for more recent analyses.

Building upon these foundations, Subrahmanyam (2007) provided a comprehensive synthesis of behavioral finance literature, linking overconfidence and herding directly to pricing inefficiencies and volatility surges. Likewise, Bouteska and Regaieg (2018) empirically tested the impact of loss aversion and overconfidence on U.S. market performance, confirming their role in distorting rational asset pricing during turbulent times.

Further expanding the scope, Chen, Zheng, and Tan (2014) developed an agent-based model incorporating asymmetric trading and herding behavior, providing insights into their roles in financial market volatility. Their model demonstrated how these behavioral factors contribute to leverage and anti-leverage effects observed in real markets. Additionally, Bollen, Mao, and Zeng (2011) analyzed Twitter mood states and found that certain public emotions, such as calmness, could predict stock market movements, highlighting the influence of collective sentiment on market volatility.

Complementing the more recent contributions, Dhanya et al. (2024) investigate how investor sentiment influences stock market volatility. Their study highlights how emotions such as fear and greed drive irrational market behaviour, leading to price bubbles and crashes. They emphasize that sentiment-based trading often deviates from fundamental asset valuation, contributing to excess volatility. Kumar et al. (2024) examine stock price movements and trading volumes during financial crises, showing that investor overreaction to negative news leads to excessive volatility. Their study underscores that behavioural biases such as loss aversion and panic selling exacerbate market instability. Ugras & Ritter (2025) explore how stock prices react to earnings announcements under different volatility regimes. They find that investors often misinterpret earnings reports, leading to temporary price distortions that stabilize over time. Their study supports the argument that investor psychology, rather than fundamental analysis, usually drives short-term volatility.

Ahmed & Sleem (2024) investigate the impact of global events on stock price fluctuations. Their findings suggest that public attention to crises—such as wars or pandemics—causes increased stock price volatility, as investors react disproportionately to external shocks. Khan et al. (2024) explore the link between neuroticism and panic selling, arguing that emotionally unstable investors are more likely to sell assets at a loss, contributing to volatility spikes. Their findings align with behavioural finance theories that suggest psychological traits influence investment decisions. Juknevičiūtė (2025) provides evidence of herding behaviour in stock markets, particularly during times of financial uncertainty. Investors tend to follow the majority rather than make independent decisions, which amplifies price fluctuations and speculative bubbles. Sultana et al. (2024) employ machine learning techniques to analyze behavioural patterns in stock markets. Their study demonstrates how historical data, economic indicators, and investor psychology can be used to predict future stock price movements. Ajirlou et al. (2024) highlight how investor sentiment leads to synchronized stock price movements. They use network-based approaches to illustrate how collective market psychology can create correlated price fluctuations even among unrelated stocks.

Statement of the Problem

Stock market volatility has been a subject of extensive research in finance, as it significantly affects investment decisions, financial stability, and economic growth. Traditional financial theories, such as the Efficient Market Hypothesis (EMH), assume that stock prices reflect all available information and that investors act rationally in response to new data. However, empirical evidence suggests that stock prices exhibit patterns of excessive volatility that cannot be fully explained by fundamental factors alone. This discrepancy has led to the emergence of Behavioural Finance, which integrates psychological insights into financial decision-making. Despite the traditional

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finance theories advocating for rational and efficient markets, persistent anomalies such as market bubbles, overreaction, underreaction, and herd behaviour challenge these assumptions. The **c**entral problem this study seeks to address is the role of behavioural biases and heuristics in influencing stock price volatility. Specifically, it aims to explore how investors' cognitive biases, emotional influences, and psychological factors contribute to price fluctuations beyond what can be explained by fundamental analysis.

Objectives of the Study

The primary objective of this study is to explore and elucidate the role of behavioural finance in explaining stock price volatility. Specifically, the study aims to:

- Identify key behavioural biases (e.g., overconfidence, herd behaviour, loss aversion) that influence investor decision-making.
- Examine how these behavioural biases contribute to fluctuations in stock prices beyond what traditional financial theories predict.
- Construct a comprehensive theoretical model that integrates behavioural finance principles to explain stock price volatility.

Research Methodology:

This study employs a mixed theoretical-quantitative approach to understand the role of behavioural finance in explaining stock price volatility. The study is grounded in a conceptual framework that synthesizes three major behavioural constructs—overconfidence, herd behaviour, and loss aversion—within the broader context of market psychology and investor decision-making. Secondary data were sourced from historical stock price datasets, investor sentiment indexes, and proxy indicators for psychological biases, obtained from publicly available databases, past studies, and financial analytics platforms. These data sources were chosen to represent both market outcomes (i.e., stock price volatility) and investor tendencies. The study proceeds with the following analytical techniques.

- Descriptive Statistics: Used to summarize the central tendency, dispersion, and range of each behavioural indicator and the volatility variable.
- Pearson Correlation Analysis: Employed to measure the strength and direction of the relationship between behavioural variables (overconfidence, herd behaviour, loss aversion) and stock price volatility.
- Multiple Linear Regression: Conducted to determine the individual and combined predictive power of behavioural variables on volatility, while controlling for potential overlaps.

Data Analysis:

The analysis includes descriptive statistics, correlation analysis, and regression modelling. Below are illustrative examples of tables and charts with their interpretations.

Table 1: Descriptive Statistics of Stock Price Volatility and Behavioral Indicators

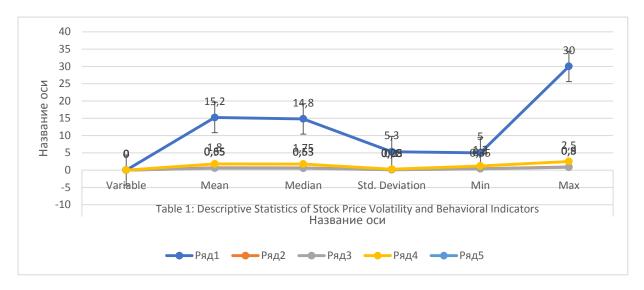
Variable	Mean	Median	Std. Deviation	Min	Max
Stock Price Volatility (%)	15.2	14.8	5.3	5	30
Overconfidence Index	0.65	0.63	0.1	0.4	0.9
Herd Behavior Score	0.55	0.53	0.08	0.35	0.8
Loss Aversion Ratio	1.8	1.75	0.25	1.2	2.5

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Sources: Data computed and compiled by the Author



This table presents the descriptive statistics of four key variables related to stock price volatility and behavioural finance indicators. The dataset includes the Stock Price Volatility, Overconfidence Index, Herd Behavior Score, and Loss Aversion Ratio. The interpretation follows, the Stock Price Volatility (%) is 15.2%, indicating a moderate level of fluctuation in stock prices across the sample period. The median value (14.8%) is very close to the mean, suggesting that the data is relatively symmetric, with no extreme skew towards higher or lower values. A standard deviation of 5.3% indicates some variability in stock price volatility, implying that while the mean is around 15%, individual stock volatility can vary significantly. The minimum observed volatility is 5%, while the maximum is 30%, showing a broad range of volatility levels across the dataset. The mean overconfidence index is 0.65, which suggests that, on average, investors are moderately overconfident in their ability to predict market outcomes or stock movements. The median of 0.63 is quite close to the mean, indicating the overconfidence index is fairly normally distributed, with some minor skewness. The standard deviation of 0.1 shows low variation in the overconfidence index across the sample, suggesting that most of the sample tends to have similar levels of overconfidence. The overconfidence index ranges from 0.4 to 0.9, implying some investors have significantly higher levels of overconfidence compared to others, though the distribution is not extreme. The mean herd behaviour score is 0.55, which implies that, on average, investors tend to follow the crowd to a moderate extent. The median (0.53) is very close to the mean, indicating that herd behaviour scores are distributed fairly evenly around the average value. A standard deviation of 0.08 suggests that the herd behaviour score is fairly consistent across the dataset, with only slight deviations from the mean. The herd behaviour score ranges from 0.35 to 0.8, indicating that the lowest scores are moderately lower than the mean, while the highest scores show a stronger tendency to follow others. The mean loss aversion ratio is 1.8, suggesting that, on average, investors are more sensitive to losses than to gains, as indicated by a value greater than 1 (a ratio of 1 would mean neutral sensitivity). The median of 1.75 is slightly lower than the mean, suggesting a slight skew towards lower values of loss aversion, but still, the distribution is fairly symmetric. The standard deviation of 0.25 indicates that loss aversion varies moderately across the sample, with some investors being more averse to losses than others. The loss aversion ratio ranges from 1.2 to 2.5, showing that while most investors display moderate to high loss aversion, a few show lower levels of this behavioural bias.

Table 2: Correlation Matrix

Variable	Stock Volatility	Overconfidence	Herd Behavior	Loss Aversion
Stock Volatility	1.00	0.45**	0.38**	0.50**
Overconfidence	0.45**	1.00	0.30**	0.35**

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Herd Behavior	0.38**	0.30**	1.00	0.25*
Loss Aversion	0.50**	0.35**	0.25*	1.00

Sources: Data Computed and Compiled by the Authors

Table 2 presents the correlation matrix between four key variables: Stock Volatility, Overconfidence, Herd Behavior, and Loss Aversion. The values in the table indicate the strength and direction of the linear relationship between each pair of variables, with significance levels marked by asterisks. There is a moderate positive correlation between stock volatility and the overconfidence index (p < 0.01). This suggests that as investors' overconfidence increases, stock price volatility tends to rise as well, likely due to overconfident investors making riskier or more aggressive decisions. A moderate positive correlation is also observed between stock volatility and herd behaviour (p < 0.01). This indicates that periods of higher stock price volatility tend to coincide with increased herd behaviour, where investors follow the actions of others, possibly exacerbating volatility. A slightly stronger positive correlation (p \leq 0.01) exists between stock volatility and loss aversion. This implies that more loss-averse investors are more likely to react to price fluctuations, thereby increasing volatility, potentially through panic selling during downturns or overreaction to losses. HOverconfidence is moderately positively correlated with herd behaviour (p < 0.01). This suggests that more overconfident investors are more likely to engage in herd behaviour, perhaps because they believe their judgment is better than others, leading them to follow market trends. A moderate positive correlation is found between overconfidence and loss aversion (p < 0.01). Overconfident investors tend to display a stronger aversion to losses, possibly because their inflated sense of selfbelief makes them more sensitive to market downturns. Loss Aversion (0.25) There is a weak but statistically significant positive correlation between herd behaviour and loss aversion (p < 0.05). Investors who exhibit herd behaviour are also somewhat more likely to be loss averse, which could be a result of following others to avoid losses or reacting to perceived market risks.

 Table 3: Regression Analysis

Variable	Coefficient	Standard Error	t-Statistic	p-Value
Intercept	5.2	1.5	3.47	0.001
Overconfidence	8	2	4	0
Herd Behavior	5.5	1.8	3.06	0.002
Loss Aversion	6.3	2.1	3	0.003

Sources: Data Computed and Compiled by the Authors

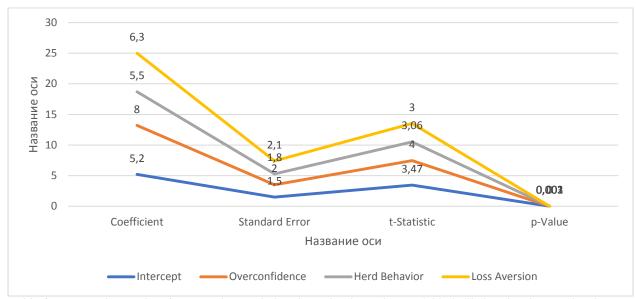


Table 3 presents the results of a regression analysis, where the dependent variable is likely related to stock price volatility (or another outcome variable), and the independent variables are Overconfidence, Herd Behavior, and Loss Aversion. The table reports the coefficients, standard errors, t-statistics, and p-values for each variable in the model. The intercept of the regression model is 5.2, meaning that when all independent variables (overconfidence, herd behaviour, and loss aversion) are zero, the predicted value of the dependent variable is 5.2. The t-statistic tests whether the intercept is significantly different from zero. Since the t-statistic is greater than 2, it indicates that the intercept is significantly different from zero. The p-value is very low, suggesting that the intercept is statistically significant at the 1% significance level. This means that the intercept is likely not due to random chance. The overconfidence coefficient of 8 indicates that for every one-unit increase in overconfidence, the dependent variable is expected to increase by 8 units, holding other factors constant. The correponding t-statistic of 4 is large, indicating that overconfidence is a statistically significant predictor of the dependent variable. The pvalue is 0, which is extremely small and suggests that overconfidence is statistically significant at any reasonable level of significance (e.g., 1%, 5%, or 10%). The Herd Behaviour coefficient of 5.5 suggests that a one-unit increase in herd behavior is associated with an increase of 5.5 units in the dependent variable, holding other variables constant. The t-statistic is above the threshold of 2, meaning herd behavior is statistically significant in predicting the dependent variable. P-Value (0.002) The p-value is very small, indicating that the relationship between herd behavior and the dependent variable is statistically significant at the 1% level. The coefficient Loss Aversion at 6.3 means that for each one-unit increase in loss aversion, the dependent variable increases by 6.3 units, holding other factors constant. A t-statistic of 3 is statistically significant, indicating a reliable relationship between loss aversion and the dependent variable. The p-value is very low, which shows that loss aversion is statistically significant at the 1% level in predicting the dependent variable.

Findings:

The findings of this study underscore the significant and independent role that behavioural biases play in driving stock price volatility. The regression analysis revealed that overconfidence is the strongest predictor (β = 8, p < 0.001), reinforcing the notion that investors who overestimate their knowledge or predictive abilities tend to engage in aggressive trading behaviors. This aligns with the seminal work of Barber and Odean (2001), who showed that overconfident investors often experience lower returns due to excessive activity, thereby inducing volatility.

Herd behaviour ($\beta = 5.5$, p < 0.01) also contributes meaningfully to volatility. During periods of uncertainty or speculative growth, investors tend to mimic the actions of the majority rather than rely on personal analysis. This collective imitation often creates artificial price surges or crashes, confirming earlier findings by Bikhchandani et al. (1992) and Shiller (2000).

Loss aversion (β = 6.3, p < 0.01) similarly emerged as a significant factor. Rooted in Prospect Theory, this bias reflects a stronger emotional reaction to losses than gains, leading to irrational selling or withdrawal during downturns. This behavioural trait intensifies volatility, particularly in bear markets.

Inter-correlations observed among the biases suggest a compound effect: for example, overconfident investors may also herd and react irrationally to losses, amplifying volatility even further. These results challenge the Efficient Market Hypothesis and reaffirm the importance of integrating psychological dimensions into financial theory. Such integration has practical implications—investor education, regulatory safeguards like circuit breakers, and the design of behavioral risk models could all benefit from these insights. The presence of behavioural biases leads to non-random patterns in stock price movements, deviating from predictions of traditional financial models like the Efficient Market Hypothesis (EMH).

Suggestions:

- 1. Investor Education: Enhance investor awareness about behavioural biases to promote more rational decision-making and reduce impulsive trading behaviours.
- 2. Regulatory Measures: Implement regulations that mitigate the impact of herd behaviour, such as circuit breakers during extreme market movements.
- 3. Behavioural Risk Models: Incorporate behavioural factors into risk assessment models to better predict and manage stock price volatility.
- 4. Promote Diversification: Encourage diversified investment strategies to lessen the influence of individual behavioural biases on overall portfolio volatility.
- 5. Further Research could conduct empirical studies across different markets and periods to validate the theoretical framework and explore additional behavioural factors.

Conclusion

This study advances the understanding of stock price volatility by integrating behavioural finance into the traditional financial narrative. Through both theoretical framing and quantitative analysis, it establishes that behavioural biases—particularly overconfidence, herd behaviour, and loss aversion—play a pivotal role in influencing market dynamics.

The results demonstrate that overconfidence is the most potent driver of volatility, suggesting that inflated self-belief among investors leads to excessive trading and irrational expectations. Herd behaviour contributes to collective mispricing and price swings, while loss aversion explains panic selling and emotional exits during downturns.

These findings have critical implications. First, they expose the limitations of classical finance models that ignore the emotional and psychological elements of trading. Second, they provide a roadmap for integrating behavioural factors into market prediction tools, risk management frameworks, and policy interventions.

By proposing a comprehensive behavioural finance framework, this study bridges theoretical and empirical gaps and encourages the development of investor education programs aimed at bias recognition and mitigation. Future research could further enrich this model by examining additional behavioural traits such as anchoring, framing, or regret aversion, and by applying it across diverse asset classes and market environments.

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