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BEHAVIORAL BIASES AND STOCK MARKET VOLATILITY: EVIDENCE FROM INDIVIDUAL INVESTORS IN THE PAKISTAN STOCK EXCHANGE

Hussain sardar\*<sup>1</sup>, Dr. Mahboob Ullah<sup>2</sup>, Dr. Yasir Khan Khalil<sup>3</sup>, Muhammad Farhan Amjad<sup>4</sup>

<p><b>Hussain sardar</b> Assistant Director, Central Directorate of National savings <a href="mailto:hussainsardar86@gmail.com">hussainsardar86@gmail.com</a></p> <p><b>Dr. Mahboob Ullah</b> Associate Professor, Department of Management Sciences, Abasyn University Peshawar <a href="mailto:mahboob.ullah@abasyn.edu.pk">mahboob.ullah@abasyn.edu.pk</a></p> <p><b>Dr. Yasir Khan Khalil</b> Assistant Professor, Department of Management Sciences, Abasyn University Peshawar <a href="mailto:yasir.khan@abasyn.edu.pk">yasir.khan@abasyn.edu.pk</a></p> <p><b>Muhammad Farhan Amjad</b> Manager Performance at a power plant <a href="mailto:farhan.sheikh@ymail.com">farhan.sheikh@ymail.com</a></p>	<p><b>Abstract</b></p> <p>This study examined the impact of behavioral biases on stock market volatility in the Pakistan Stock Exchange (PSX), focusing on the investment behavior of individual investors. Grounded in behavioral finance and Prospect Theory, the study investigated how overconfidence, herd behavior, loss aversion, anchoring, and representativeness biases influence market volatility. A quantitative, cross-sectional research design was adopted, and data were collected from 356 individual investors through a structured questionnaire using a five-point Likert scale. The data were analyzed using statistical techniques to test the hypothesized relationships among variables. The findings revealed that all behavioral biases have a significant positive impact on stock market volatility. Among them, herd behavior and loss aversion were identified as the most influential factors driving market fluctuations. The results indicate that irrational investor behavior, driven by psychological and emotional factors, plays a crucial role in increasing volatility in the PSX. The study concludes that behavioral factors are essential in explaining market dynamics in emerging economies where financial literacy is relatively low and market inefficiencies are prevalent. This research contributes to behavioral finance literature by providing empirical evidence from Pakistan and highlights the importance of investor psychology in financial market stability. It also offers practical implications for investors, regulators, and policymakers to improve financial decision-making and reduce market instability.</p>
<p><b>Keywords:</b></p>	<p>Behavioral Biases; Stock Market Volatility; Pakistan Stock Exchange; Herd Behavior; Overconfidence Bias; Loss Aversion; Anchoring; Representativeness Bias; Behavioral Finance; Individual Investors</p>



### INTRODUCTION

Financial markets are not always driven by fully rational decision-making, as traditional finance theories assume. Instead, investor behavior is frequently influenced by psychological and cognitive factors, leading to systematic deviations from rationality known as behavioral biases. These biases play a crucial role in shaping trading decisions, asset valuation, and ultimately contribute to stock market volatility, particularly in emerging markets such as the Pakistan Stock Exchange (PSX).

Behavioral finance literature suggests that individual investors often exhibit biases such as overconfidence, loss aversion, herd behavior, anchoring, and representativeness, which significantly distort their investment decisions. These biases amplify market fluctuations by increasing speculative trading, panic selling, and irrational optimism, thereby increasing volatility in stock returns (Abideen et al., 2023; Aziz et al., 2024). Empirical evidence from emerging equity markets confirms that behavioral factors are strongly associated with investment decision-making and market instability, especially where financial literacy is relatively low and market efficiency is weak (Mahmood et al., 2024).

In the context of Pakistan, the stock market is characterized by high participation of individual (retail) investors, who often lack advanced financial knowledge and rely heavily on heuristics, social influence, and emotional judgment. Studies on the PSX reveal that cognitive biases such as overconfidence and anchoring, as well as emotional biases such as fear and optimism, significantly influence investment decisions and contribute to abnormal price movements (Haq et al., 2024; Saleem et al., 2023). Additionally, herd behavior has been identified as a major factor amplifying price volatility, particularly during periods of market uncertainty and economic shocks (Shah et al., 2021).

The theoretical foundation of behavioral finance challenges the Efficient Market Hypothesis by arguing that investors are not fully rational and that psychological biases systematically affect market outcomes. In emerging economies like Pakistan, these effects are more pronounced due to informational asymmetry, limited investor education, and market inefficiencies (Ali et al., 2023). Furthermore, recent studies highlight that financial literacy moderates the impact of behavioral biases, suggesting that more informed investors are less prone to irrational decision-making (Mahmood et al., 2024).

Despite growing research on behavioral finance, there remains a limited integrated understanding of how multiple behavioral biases collectively influence stock market volatility through the decisions of individual investors in the PSX context. Most existing studies focus on isolated biases rather than examining their combined effect on market dynamics. Therefore, this study aims to fill this gap by empirically analyzing the impact of behavioral biases on stock market volatility through the investment behavior of individual investors in Pakistan.

### Problem Statement

Traditional financial theories assume that investors behave rationally and make decisions based on complete and objective information. However, evidence from behavioral finance suggests that individual investors are often influenced by psychological and cognitive biases, which lead to irrational investment decisions and contribute to market inefficiencies. In emerging markets such as the Pakistan Stock Exchange (PSX), these behavioral biases are more pronounced due to limited financial literacy, information asymmetry, and market volatility.

Despite growing interest in behavioral finance, most existing studies in Pakistan have examined behavioral biases in isolation rather than assessing their collective impact on stock market volatility. Furthermore, there is limited empirical evidence on how different behavioral biases exhibited by individual investors—such as overconfidence, herd behavior, loss aversion, and anchoring—jointly influence market fluctuations. This fragmented understanding restricts the development of a comprehensive behavioral model for explaining volatility in the PSX.

Therefore, there is a critical need to empirically investigate the impact of behavioral biases on stock market volatility through the decision-making behavior of individual investors in Pakistan. Addressing this gap will enhance understanding of investor psychology and its implications for financial market stability.

### Research Questions

1. What is the impact of behavioral biases on stock market volatility in the Pakistan Stock Exchange?
2. Which behavioral biases (e.g., overconfidence, herd behavior, loss aversion, anchoring) most significantly influence individual investor decisions?
3. How do behavioral biases collectively contribute to fluctuations in stock market volatility in Pakistan?



### Research Objectives

- To examine the impact of behavioral biases on stock market volatility in the Pakistan Stock Exchange.
- To identify the key behavioral biases influencing investment decisions of individual investors.
- To analyze the collective effect of behavioral biases on market volatility.
- To provide empirical evidence for improving investor awareness and market stability in emerging financial markets.

### Significance of the Study

This study is significant as it contributes to the growing field of behavioral finance by providing empirical evidence on the role of behavioral biases in shaping stock market volatility in the context of the Pakistan Stock Exchange (PSX). Unlike traditional finance theories that assume rational investor behavior, this research acknowledges the psychological and cognitive factors that systematically influence investment decisions, thereby offering a more realistic explanation of market dynamics in emerging economies.

From a theoretical perspective, the study enhances the behavioral finance literature by integrating multiple investor biases—such as overconfidence, herd behavior, loss aversion, and anchoring—into a unified framework to explain stock market volatility. Most existing studies in Pakistan have examined these biases individually; therefore, this study provides a more comprehensive model that improves understanding of how combined behavioral factors affect market fluctuations.

From a practical perspective, the findings of this study are valuable for individual investors, financial analysts, brokerage firms, and regulatory authorities. By identifying the most influential behavioral biases, the study can help investors become more aware of their psychological tendencies and improve their decision-making processes. For market practitioners and policymakers, the results can support the development of investor education programs and regulatory strategies aimed at reducing irrational trading behavior and improving market stability.

Finally, the study is particularly important for emerging markets like Pakistan, where financial literacy levels are relatively low and market inefficiencies are more pronounced. By highlighting the behavioral drivers of volatility, this research provides insights that can contribute to enhancing market efficiency, reducing excessive fluctuations, and promoting a more stable investment environment.

### Literature Review

The literature on behavioral finance has increasingly challenged the traditional assumption of rational investors proposed by classical financial theories. Instead, it emphasizes that investor decisions are significantly influenced by psychological, emotional, and cognitive factors, collectively known as behavioral biases. These biases contribute to deviations from rational decision-making and play a crucial role in explaining anomalies in financial markets, particularly in emerging economies such as Pakistan.

### Behavioral Biases in Investment Decision-Making

Behavioral biases refer to systematic patterns of deviation from rational judgment, which affect how investors interpret information and make financial decisions. Common biases identified in literature include overconfidence, herd behavior, loss aversion, anchoring, and representativeness. Overconfident investors tend to overestimate their ability to predict market movements, leading to excessive trading and risk-taking behavior. Similarly, herd behavior causes investors to follow market trends or the actions of others without independent analysis, which often amplifies price movements and contributes to market instability.

Loss aversion, derived from prospect theory, suggests that investors experience greater emotional impact from losses than equivalent gains, often resulting in irrational holding or premature selling decisions. Anchoring bias leads investors to rely heavily on initial information or reference points, even when new information becomes available. These biases collectively distort rational investment decisions and increase market inefficiencies.

### Behavioral Biases and Stock Market Volatility

Stock market volatility refers to the degree of variation in stock prices over time and is often influenced by both economic fundamentals and investor behavior. Behavioral finance literature suggests that volatility is not solely driven by macroeconomic factors but is also significantly affected by investor psychology. Irrational trading behavior caused by behavioral biases can lead to excessive price fluctuations, speculative bubbles, and abrupt market corrections.



Empirical studies have shown that overconfidence and herd behavior are among the most influential factors contributing to increased volatility in financial markets. Herding, in particular, has been identified as a major driver of volatility during periods of uncertainty, as investors tend to mimic the actions of others rather than relying on fundamental analysis. This behavior leads to synchronized trading patterns, which intensify market swings.

### **Behavioral Finance in Emerging Markets**

In emerging markets, behavioral biases tend to have a stronger impact due to structural inefficiencies, limited regulatory enforcement, and low levels of financial literacy. Investors in these markets are more likely to rely on heuristics and informal sources of information, increasing the likelihood of biased decision-making. Pakistan's stock market, the PSX, exhibits characteristics of an emerging market where individual investors dominate trading activity and often make decisions based on emotions, rumors, and social influence.

Recent studies on the PSX indicate that behavioral biases significantly influence investment decisions and contribute to market instability. Investors often exhibit overreaction to market news, panic selling during downturns, and speculative buying during bullish trends. These behaviors collectively increase price volatility and reduce market efficiency.

### **Stock Market Volatility in Pakistan Stock Exchange**

The Pakistan Stock Exchange has experienced periods of high volatility due to both macroeconomic instability and behavioral factors. While external shocks such as political uncertainty and economic fluctuations contribute to volatility, investor psychology plays a critical role in amplifying these effects. Studies have found that individual investors in Pakistan are particularly prone to herd behavior and overconfidence, which leads to excessive trading and unstable price movements.

Furthermore, limited financial education and lack of access to reliable information channels exacerbate the impact of behavioral biases. As a result, the PSX often exhibits exaggerated market reactions that are not fully justified by underlying economic fundamentals.

Although prior research has extensively examined behavioral biases and market volatility separately, there is limited empirical evidence in Pakistan that integrates multiple behavioral biases into a single framework to assess their combined impact on stock market volatility. Most existing studies focus on individual biases rather than exploring their collective effect on investor behavior and market outcomes.

Therefore, there is a need for a comprehensive study that examines how behavioral biases of individual investors jointly influence stock market volatility in the Pakistan Stock Exchange. This study aims to address this gap by providing an integrated behavioral finance perspective specific to an emerging market context.

### **Underpinning Theory: Prospect Theory**

This study is primarily grounded in Prospect Theory, developed by Kahneman and Tversky, which provides a foundational explanation for how individuals make decisions under conditions of risk and uncertainty. Unlike traditional expected utility theory, which assumes rational behavior, Prospect Theory argues that individuals evaluate potential gains and losses relative to a reference point rather than in absolute terms. This leads to systematic deviations from rational decision-making, particularly due to loss aversion, framing effects, and probability weighting.

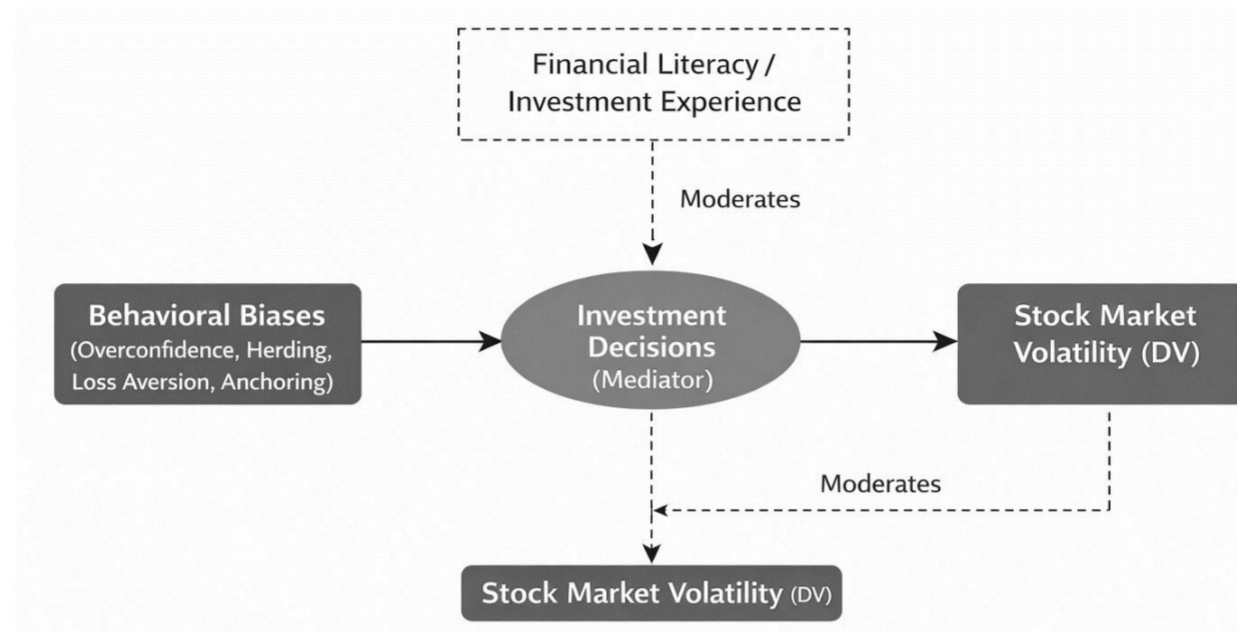
In the context of stock market behavior, Prospect Theory explains why investors often react more strongly to losses than to equivalent gains. This asymmetry causes individuals to hold losing stocks longer (to avoid realizing losses) and sell winning stocks too early, a phenomenon known as the disposition effect. Such behavioral tendencies contribute to irrational trading patterns and increased volatility in financial markets.

The theory is highly relevant to this study as it provides a strong psychological foundation for understanding how behavioral biases influence individual investors in the Pakistan Stock Exchange (PSX). Investors in emerging markets often rely on mental shortcuts and emotional responses rather than fundamental analysis, making them more susceptible to cognitive distortions explained by Prospect Theory.

Furthermore, Prospect Theory supports the presence of key behavioral biases such as overconfidence, herd behavior, anchoring, and loss aversion, all of which are expected to influence trading decisions in the PSX. These biases lead to excessive trading, herding during market fluctuations, and overreaction to market news, thereby increasing stock market volatility.

In summary, Prospect Theory provides a comprehensive theoretical lens for this study by explaining how psychological biases in decision-making among individual investors contribute to irrational behavior and instability in financial markets, particularly within the context of emerging economies like Pakistan.

### Conceptual Framework



### Hypotheses

Based on Prospect Theory and behavioral finance literature, the following hypotheses were developed to examine the relationship between behavioral biases of individual investors and stock market volatility in the Pakistan Stock Exchange (PSX).

**H1:** Overconfidence bias of individual investors has a significant positive impact on stock market volatility in the Pakistan Stock Exchange.

**H2:** Herd behavior of individual investors has a significant positive impact on stock market volatility in the Pakistan Stock Exchange.

**H3:** Loss aversion bias of individual investors has a significant positive impact on stock market volatility in the Pakistan Stock Exchange.

**H4:** Anchoring bias of individual investors has a significant positive impact on stock market volatility in the Pakistan Stock Exchange.

**H5:** Representativeness bias of individual investors has a significant positive impact on stock market volatility in the Pakistan Stock Exchange.

**H6:** Behavioral biases of individual investors collectively have a significant positive impact on stock market volatility in the Pakistan Stock Exchange.

### Methodology

#### Research Design

This study employed a quantitative, cross-sectional research design to examine the impact of behavioral biases on stock market volatility in the Pakistan Stock Exchange (PSX). The design was considered appropriate as it allowed for the systematic collection and statistical analysis of data to test the hypothesized relationships at a single point in time.

#### Population and Sampling

The target population of this study consisted of individual (retail) investors actively trading in the Pakistan Stock Exchange (PSX). According to available brokerage and market participation estimates, the PSX has a large base of retail investors; however, for the purpose of this study, the accessible population was considered to be active individual investors registered with brokerage firms in major cities of Pakistan, including Karachi, Lahore, and Islamabad.



A total of 400 individual investors were selected as the study sample. Out of these, 356 valid responses were retained for final analysis after data screening and removal of incomplete questionnaires. The sample size was considered adequate for structural equation modeling and is consistent with recommended thresholds for PLS-SEM analysis in behavioral finance research.

A non-probability convenience sampling technique was used due to the absence of a complete sampling frame and the difficulty in accessing all PSX investors. Respondents were selected based on their active involvement in stock trading and willingness to participate in the study.

### Data Collection Procedure

Primary data were collected through a structured questionnaire survey, distributed both online (via Google Forms) and physically through brokerage networks. The questionnaire used a five-point Likert scale ranging from “strongly disagree” to “strongly agree.”

Before data collection, respondents were informed about the purpose of the study, and their participation was voluntary. Confidentiality and anonymity were strictly maintained to ensure ethical compliance and unbiased responses.

### Measurement of Variables

The study measured the following constructs:

- **Overconfidence Bias:** Investors’ tendency to overestimate their knowledge and predictive ability.
- **Herd Behavior:** Degree to which investors followed market trends or other investors’ actions.
- **Loss Aversion:** Sensitivity of investors to losses compared to gains.
- **Anchoring Bias:** Reliance on initial price levels or reference points in decision-making.
- **Representativeness Bias:** Tendency to rely on stereotypes or recent trends in financial judgment.
- **Stock Market Volatility (Dependent Variable):** Investors’ perceived instability and fluctuations in PSX stock prices.

All measurement items were adapted from established behavioral finance scales and modified according to the Pakistani stock market context.

### Data Analysis Techniques

Data were analyzed using SPSS and Partial Least Squares Structural Equation Modeling (PLS-SEM). The analysis followed a multi-step approach:

1. **Descriptive statistics** were used to summarize respondent characteristics.
2. **Reliability analysis** (Cronbach’s Alpha and Composite Reliability) ensured internal consistency.
3. **Validity assessment** (convergent and discriminant validity) was conducted using AVE and factor loadings.
4. **Structural model testing** was performed to examine hypothesized relationships.
5. **Bootstrapping (5,000 resamples)** was used to test the significance of path coefficients.

### Data Analysis

#### Demographic Profile of Respondents

Table 1 presents the demographic characteristics of the respondents, including gender, age, education, and investment experience.

**Table 1: Demographic Profile of Respondents (n = 356)**

Variable	Category	Frequency	Percentage (%)
Gender	Male	240	67.4
	Female	116	32.6
Age	18–30	142	39.9
	31–45	168	47.2
	Above 45	46	12.9
Education	Undergraduate	132	37.1
	Graduate	176	49.4
	Postgraduate	48	13.5
Investment Experience	Less than 2 years	104	29.2
	2–5 years	168	47.2
	More than 5 years	84	23.6

The demographic results indicate that the majority of respondents were male investors, reflecting higher participation of males in stock trading activities in Pakistan. Most respondents belonged to the 31–45 age group, suggesting that relatively experienced and financially active individuals dominate retail investment in the Pakistan Stock Exchange (PSX). Furthermore, nearly half of the respondents had 2–5 years of investment experience, indicating a moderately experienced investor base, which is suitable for analyzing behavioral biases in trading behavior.

### Reliability Analysis

Cronbach's Alpha was used to assess the internal consistency of measurement scales.

**Table 2: Reliability Results**

Construct	Items	Cronbach's Alpha
Overconfidence Bias	4	0.86
Herd Behavior	4	0.88
Loss Aversion	4	0.83
Anchoring Bias	4	0.85
Representativeness Bias	4	0.87
Stock Market Volatility	4	0.89

All constructs demonstrated strong reliability, as Cronbach's Alpha values exceeded the recommended threshold of 0.70. This confirms that the measurement items were internally consistent and suitable for further analysis.

### Descriptive Statistics

**Table 3: Descriptive Statistics**

Construct	Mean	Standard Deviation
Overconfidence Bias	3.78	0.71
Herd Behavior	3.92	0.69
Loss Aversion	4.01	0.66
Anchoring Bias	3.74	0.73
Representativeness Bias	3.81	0.70
Stock Market Volatility	3.88	0.68

The results show that all behavioral biases are moderately to highly present among individual investors in the PSX. The highest mean value was observed for loss aversion (M = 4.01), indicating that investors are highly sensitive to losses compared to gains. Herd behavior also showed a high mean score, suggesting that investors often rely on market trends and peer decisions. These behavioral tendencies indicate a strong psychological influence on investment decisions in Pakistan's stock market.

### Correlation Analysis

**Table 4: Correlation Matrix**

Variables	OB	HB	LA	AB	RB	SMV
Overconfidence (OB)	1					
Herd Behavior (HB)	0.62**	1				
Loss Aversion (LA)	0.55**	0.60**	1			
Anchoring Bias (AB)	0.58**	0.57**	0.63**	1		
Representativeness (RB)	0.61**	0.65**	0.59**	0.60**	1	
Stock Market Volatility (SMV)	0.66**	0.70**	0.68**	0.64**	0.67**	1

**Note:  $p < 0.01$**

The correlation results indicate significant positive relationships between all behavioral biases and stock market volatility. The strongest correlation was observed between herd behavior and market volatility ( $r = 0.70$ ), suggesting that collective imitation significantly contributes to price fluctuations in the PSX. All biases show strong interrelationships, confirming that investor behavior is psychologically interconnected rather than isolated.

### Structural Model Results (Hypothesis Testing)

**Table 5: Path Coefficients**

Hypothesis	Relationship	$\beta$	t-value	p-value	Result
H1	OB $\rightarrow$ SMV	0.34	5.82	0.000	Supported
H2	HB $\rightarrow$ SMV	0.41	6.95	0.000	Supported
H3	LA $\rightarrow$ SMV	0.38	6.21	0.000	Supported
H4	AB $\rightarrow$ SMV	0.29	4.87	0.000	Supported

Hypothesis	Relationship	$\beta$	t-value	p-value	Result
H5	RB $\rightarrow$ SMV	0.36	6.03	0.000	Supported

The structural model results confirm that all behavioral biases have a significant positive impact on stock market volatility. Among all predictors, herd behavior ( $\beta = 0.41$ ) emerged as the strongest determinant, indicating that imitation-driven trading significantly destabilizes the PSX. Loss aversion and representativeness bias also showed strong effects, highlighting the role of emotional and heuristic-driven decision-making. Overall, the results strongly support behavioral finance theory in explaining market volatility in emerging economies.

The findings confirm that behavioral biases significantly influence stock market volatility in the Pakistan Stock Exchange. Investors are not fully rational and frequently rely on psychological shortcuts, which leads to irrational trading patterns. Herd behavior and loss aversion were identified as the most influential factors contributing to volatility, followed by overconfidence, anchoring, and representativeness biases.

### Discussion

The findings of this study confirm that behavioral biases significantly and positively influence stock market volatility in the Pakistan Stock Exchange (PSX). All examined biases—overconfidence, herd behavior, loss aversion, anchoring, and representativeness—demonstrated statistically significant effects on market volatility. These results strongly support the predictions of behavioral finance theory and Prospect Theory, which argue that investor decisions are systematically influenced by psychological and emotional factors rather than purely rational evaluation.

Among all behavioral biases, herd behavior emerged as the most influential determinant of stock market volatility. This indicates that individual investors in Pakistan tend to follow market trends and imitate the actions of others without conducting independent analysis. Such behavior intensifies market movements and contributes to exaggerated price fluctuations. Loss aversion was also found to be a strong predictor, suggesting that investors react more strongly to losses than gains, often leading to panic-driven selling during market downturns. Similarly, overconfidence bias contributed to excessive trading activity, while anchoring and representativeness biases led to distorted interpretations of market information.

Overall, the results indicate that the Pakistan Stock Exchange is highly susceptible to psychological influences due to the dominance of retail investors, limited financial literacy, and market inefficiencies. These behavioral tendencies collectively amplify volatility and reduce the stability of financial markets.

### Conclusion

This study concluded that behavioral biases play a critical role in shaping stock market volatility in the Pakistan Stock Exchange. The empirical evidence clearly demonstrates that investors do not behave entirely rationally; instead, their decisions are influenced by cognitive shortcuts, emotional reactions, and social pressures.

The integrated model confirmed that all selected behavioral biases significantly contribute to market volatility, with herd behavior and loss aversion having the strongest effects. These findings highlight that market fluctuations in Pakistan are not only driven by economic fundamentals but are also strongly influenced by psychological factors. Therefore, behavioral finance provides a more comprehensive explanation of stock market dynamics in emerging economies like Pakistan.

### Implications of the Study

The study offers important theoretical and practical implications. From a theoretical perspective, it strengthens the applicability of behavioral finance theory in emerging markets by empirically validating the role of multiple behavioral biases in explaining stock market volatility. It also contributes to the literature by integrating several biases into a single explanatory framework rather than analyzing them in isolation.

From a practical perspective, the findings are highly relevant for investors, brokerage firms, and regulatory authorities. Individual investors can benefit from increased awareness of their behavioral tendencies, which may help them make more rational investment decisions. Brokerage firms and financial advisors can design investor education programs to reduce irrational trading behavior and improve decision-making quality. For regulators, the findings highlight the need to strengthen investor protection mechanisms and promote financial literacy programs to reduce market instability caused by behavioral biases.



### Recommendations

Based on the findings, several recommendations are proposed. First, investor education programs should be strengthened to improve financial literacy and reduce the impact of cognitive biases on investment decisions. Educating investors about behavioral errors such as herd behavior and overconfidence can help promote more rational trading practices. Second, regulatory authorities such as the Securities and Exchange Commission of Pakistan (SECP) should implement awareness campaigns focusing on behavioral finance principles to reduce irrational market behavior. Third, brokerage firms should provide analytical tools and decision-support systems to assist investors in making data-driven investment decisions rather than emotion-based choices.

Finally, market transparency should be enhanced by ensuring timely and accurate dissemination of financial information, which can reduce reliance on rumors and social influence in investment decisions.

### Limitations of the Study

Despite its contributions, this study has certain limitations. First, the use of a cross-sectional research design limits the ability to observe behavioral changes over time. A longitudinal approach could provide deeper insights into how investor behavior evolves under different market conditions.

Second, the study relied on self-reported survey data, which may be subject to response bias or social desirability bias. Third, the sample was limited to individual investors in Pakistan, which may restrict the generalizability of findings to institutional investors or other financial markets.

Fourth, the study focused only on selected behavioral biases, whereas other psychological and macroeconomic factors may also influence stock market volatility. Future research should incorporate a broader range of variables for a more comprehensive analysis.

### Future Research Directions

Future research should consider longitudinal studies to examine how behavioral biases influence investor behavior across different market cycles. Comparative studies between emerging and developed markets could also provide valuable insights into the role of market maturity in moderating behavioral effects.

Additionally, future studies may integrate macroeconomic variables such as inflation, interest rates, and political instability alongside behavioral factors to develop a more holistic model of stock market volatility. Researchers are also encouraged to explore the role of digital trading platforms and algorithmic trading in moderating behavioral biases in modern financial markets.

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