

Navigating the Storm: Understanding the Role of Investor Sentiment in Stock Market Bubbles and Crashes for Informed Investment Decision Making

* Dishanth K.S.

** Vanishree K.

Abstract

Understanding the causes that cause stock market bubbles and crashes is a difficult challenge in the dynamic and unpredictable world of finance. Financial markets have traditionally suffered from market bubbles characterized by rapid price inflation and deflation and market crashes which can lead to economic disasters. The causes of these events, however, are still hard to identify. The complex relationship between investor sentiment, as determined by surveys, and stock market dynamics during such volatile times is examined in this study to address this research problem.

This study's research methodology uses a mixed-method approach. It combines quantitative analysis with qualitative insights to comprehensively explore the relationship between investor sentiment and stock market dynamics. Quantitative methods involve the analysis of sentiment indicators and investor behaviour data, through statistical techniques such as regression analysis and Structural Equation Modelling. Qualitative methods include surveys collected from 252 investors from Bangalore and relevant literature to provide additional context and depth to the findings.

The study's findings suggest a complex relationship between investor emotion and stock market bubbles and crashes. Investor attitude during these market events is influenced significantly by psychological factors, risk-related factors, market awareness, and investment decision-making processes, according to research. Market volatility awareness and methodical investment decision-making tend to be related to effective market-navigating tactics. For investors, decision-makers, and financial analysts attempting to manage unpredictable market settings, these findings have real-world applications.

This study sheds light on the connection between market behaviour and investor psychology and advances our understanding of the role of investor sentiment in stock market bubbles and crashes. On the basis of these results, future research can create techniques for risk reduction and well-informed investment choices in volatile markets conditions.

Key words: Investor sentiment, Investment Decision Making, market volatility, market bubbles, market crashes, psychological factors and risk mitigation.

Background theory

This study's foundation is firmly rooted in the study of finance, specifically in the comprehension of stock market dynamics during times of market bubbles and crashes. Traditional financial theories assume that stock prices accurately reflect all available information and that financial markets are efficient. Empirical data, however, reveals that markets can vary from this ideal behaviour, resulting in events like market bubbles and crashes. These differences put the comprehension of investor behaviour and market dynamics to a challenge.

A different viewpoint is offered by behavioural finance theory, which acknowledges that market investors are not always rational. Emotions, psychological factors, and behavioural biases can have an unexpected impact on financial decisions. This theory serves as the theoretical foundation for the investigation as everyone seek to the relationship between market dynamics and investor sentiment during volatility, which is a key idea in behavioural finance.

Introduction

This research project focuses on stock market bubbles and crashes, which involve rapid, unsustainable price increases and sharp declines in asset values. These events have widespread economic implications. While well-documented, their underlying causes are complex and not fully explained by traditional financial theories. Behavioural finance, which delves into psychological aspects of investor decision-making, offers a promising avenue for understanding these phenomena. Investor sentiment, a central concept in behavioural finance, reflects the collective mood of investors, swinging between

* Student, Faculty of Management and Commerce, Ramaiah University of Applied Sciences, Bangalore

** Assistant Professor, Faculty of Management and Commerce, Ramaiah University of Applied Sciences, Bangalore

extreme optimism and pessimism, influencing market dynamics. This study investigates the link between investor sentiment and stock market bubbles and crashes, aiming to provide insights for informed investment decisions and risk management. This research addresses vital questions about market behaviour and the role of psychology in investment outcomes, contributing to both theoretical and practical knowledge by exploring how investor sentiment interacts with market dynamics during times of extreme volatility. Key terms include investor sentiment, market bubbles, market crashes, psychological factors, and risk mitigation.

Literture Review

Supervisor Malena Johnsson Niclas Andrén Henrik Lindblom Peter Platan, 2002. This study investigates how Indian private and institutional investors altered their investment behaviour during and after the speculative bubble in the late 1990s. It highlights the role of irrational behaviour and herd mentality in contributing to market overvaluation and subsequent decline.

Ray, 2009 focusing on the 2008 Indian stock market crash, this empirical study investigates the investment behaviour of student investors. The research identifies factors that influenced their decisions during the crisis, shedding light on the psychology of novice investors. It emphasizes the need for investor education and rational decision-making in turbulent market conditions.

Aronson & Wolberg, 2009 likely focusing on sentiment indicators in the international stock market, this study aims to provide valuable insights for global investors and researchers.

Chiang et al., 2011 investigating the stock performance of construction companies in Taiwan, this research explores the relationship between fundamental indicators, stock return bubbles, and investor sentiment.

Chi et al., 2012, Lixu Chi, Xintian Zhuang, and Dalei Song, 2012, this study analyses the impact of investor sentiment on stock returns and volatility in the Chinese stock market, providing insights into investor behaviour in the context of China.

Jahanzeb, 2012 delves into the influence of behavioural finance on investment decision-making. It identifies behavioural biases such as overconfidence and herding behaviour, emphasizing their impact on stock market choices. The research underscores the importance of investor awareness regarding these biases and how incorporating behavioural insights can enhance decision-making, ultimately contributing to more informed and rational investment strategies.

Chandran & Professor, 2014 examines the factors influencing investor sentiment in the Indian stock market, shedding light on the unique behaviour of Indian investors.

Roopadarshini, 2014 investigates how behavioural finance concepts affect investment decision-making in the stock market. It finds that behavioural biases, such as overconfidence and loss aversion, influence investors and can lead to suboptimal choices. The study emphasizes the significance of recognizing these biases to improve investment strategies. Overall, it underscores the importance of understanding behavioural factors in investment decision-making processes.

Naughton et al., 2019 explores the relationship between investor sentiment and corporate social performance, offering insights into how investor sentiment can influence firms' social responsibility practices. The findings provide valuable information for companies aiming to align their corporate social responsibility efforts with investor sentiment trends.

He et al., 2019. The Role of Investor Sentiment in the Stock Market Investigating the U.S. stock market, this research explores the relationship between investor risk compensation, stock market returns, and the influence of investor sentiment.

Kumari, 2019 investigates the impact of investor sentiment on stock market liquidity in an emerging economy. It finds a significant relationship between investor sentiment and liquidity, indicating that sentiment-driven trading can affect market liquidity. The findings underscore the relevance of considering investor sentiment in understanding liquidity dynamics in emerging markets.

Andraszewicz, 2020 providing an overview of influential scientific work, this paper covers stock markets, bubbles, and crashes. It offers insights into the psychological and economic aspects of financial markets from a global perspective.

P.H & Uchil, 2020 focused on Indian individual investors, this research explores the impact of various factors, including herding behaviour, media influence, advocate recommendations, and social interaction, on investor sentiment and decision-making.

López-Cabarcos et al., 2020 explores the theoretical foundations of behavioural finance, emphasizing the role of investor sentiment. It provides insights into the psychological factors influencing investment decisions. The study's findings

contribute to the behavioural finance literature by highlighting the significance of understanding investor sentiment in explaining market inefficiencies.

Güler, 2021. Examining the impact of investor sentiment on Bitcoin returns and volatility during the Covid-19 era, this study sheds light on how sentiment can influence cryptocurrency markets. The research underscores the significance of understanding investor sentiment, particularly in times of global crises, and its effects on the performance of digital assets like Bitcoin.

Ghalayini & Alkees, 2021. Though set in Lebanon, this study provides insights into how behavioural finance affects the decision-making process of individual investors, including those in India. Key findings identify overconfidence and regret aversion as major behavioural biases influencing investor decisions.

De Grauwe & Grimaldi, 2021 utilizes a behavioural finance model to analyse the dynamics of bubbles and crashes in financial markets. The study provides valuable insights into how behavioural factors, such as overconfidence and herding behaviour, can lead to the formation and bursting of bubbles. The conclusions emphasize the importance of considering behavioural aspects in market modelling and risk management.

Ghalayini and Alkees, 2021. Focused on Lebanese investors, this study explores how behavioural finance concepts influence decision-making. It investigates the role of psychological biases in investment choices and risk perception. The findings underscore the need for investor education and awareness of behavioural factors to enhance investment decision outcomes in Lebanon's financial markets.

Usman, 2022 investigates the Chinese stock market's price efficiency, focusing on the presence of bubbles, crashes, and crash risk. By analysing empirical data, the research sheds light on the dynamics of financial markets, especially their susceptibility to bubbles and crashes. The findings suggest that the Chinese stock market experiences episodes of inefficiency, characterized by the presence of bubbles and elevated crash risk.

Chowdhury et al., 2022 delves into the world of cryptocurrencies, exploring the interplay between bubbles and crashes, and whether they result from interdependence, contagion, or asset rotation. Through empirical analysis, the study uncovers intriguing patterns in cryptocurrency markets, providing insights into the unique dynamics of these digital assets.

Cevik et al., 2022 examines the relationship between investor sentiment and stock markets during the COVID-19 pandemic. The research focuses on the behavioural aspects of finance and finds that investor sentiment played a crucial role in market fluctuations during this period. It concludes that understanding and managing investor sentiment is essential for predicting market behaviour and making informed investment decisions during crises.

Muhammad, 2022 analyzing the impact of investor sentiment on various financial metrics, including returns, cash flows, discount rates, and overall performance, this study highlights the multifaceted role of sentiment in financial markets. The research underscores the importance of considering investor sentiment as a significant factor in financial decision-making processes.

Identification of Research Gap

- Limited understanding of nuanced dynamics driving investor sentiment during stock market bubble formation
- Lack of comprehensive exploration into the specific impacts of psychological biases on investor sentiment during market turbulence
- Inadequate assessment of the effectiveness of risk mitigation strategies used by investors during market bubbles and crashes
- Insufficient development of practical tools for utilizing investor sentiment as an early warning system for identifying stock market bubbles
- Limited practical application of a comprehensive framework for analysing investor sentiment in real-world investment and risk management scenarios

Research questions

1. How does investor sentiment relate to the occurrence and development of stock market bubbles?
2. What psychological factors contribute to changes in investor sentiment during stock market bubbles and crashes?
3. Which specific factors among psychological, risk-related, and market awareness have the most significant impact on sentiment indicators during market bubbles and crashes?

4. How do different investor strategies, including proactive decision-making and risk management, affect sentiment patterns during stock market bubbles and crashes?
5. How can this framework be structured to systematically analyse and interpret the influence of sentiment on stock market dynamics?

Methodology

This study takes a multifaceted approach to investigating the relationship between investor emotion and stock market dynamics during bubbles and crashes. It all starts with a comprehensive literature to identify key factors impacting sentiment. After that, a survey is done to gather actual data on these variables and their effects on strategy effectiveness and sentiment indicators. Based on the findings of the survey collected from 252 respondents, a comprehensive framework is built using Structural Equation Modelling (SEM). The study aims to clarify the complex interactions between investor attitude and market developments, providing important knowledge for risk management and wise decision-making in volatile market conditions.

Data source

The data for this study is gathered from credible sources such as academic journals, financial magazines, and established databases such as Google Scholar, Scopus. In addition, primary data will be acquired through surveys distributed to investors and financial professionals. This multi-source strategy ensures a comprehensive and credible dataset for the investigation.

Research design

The research design for "Navigating the Storm: Understanding the Role of Investor Sentiment in Stock Market Bubbles and Crashes for Informed Investment Decision Making" employs a comprehensive approach. It encompasses a mixed-method design, incorporating both quantitative and qualitative research methods. The quantitative aspect involves the analysis of survey data collected from a 252 sample of investors who have experienced market bubbles and crashes.

Analysis

Hypothesis

Hypothesis in a research study are statements or educated guesses that researchers make about the relationships or patterns they expect to find in their data. These hypotheses guide the research process and provide a basis for testing and drawing conclusions.

Market Awareness and Investment decision making

Table 7.1 Correlation 1

		IDMA	MAA
IDMA	Pearson Correlation	1	.584**
	Sig. (2-tailed)		<.001
	N	252	252
MAA	Pearson Correlation	.584**	1
	Sig. (2-tailed)	<.001	
	N	252	252

- Null Hypothesis (H0): MA has no significant effect on IDM (Rejected)
- Alternative Hypothesis (H1): MA has a significant effect on IDM (Accepted)

A correlation coefficient of 0.584 indicates a moderate positive linear relationship between the two variables being studied. This means that as one variable increases, the other variable tends to increase, and as one variable decreases, the other variable tends to decrease, but the relationship is not as strong as in the case of a correlation coefficient of 1.0.

2. Behavioral Bias and Investment decision making

Table 7.2 Correlation 2

IDMA			BBA
IDMA	Pearson Correlation	1	.754**
	Sig. (2-tailed)		<.001
	N	252	252
BBA	Pearson Correlation	.754**	1
	Sig. (2-tailed)	<.001	
	N	252	252

- Null Hypothesis (H0): BB has no significant effect on IDM (Rejected)
- Alternative Hypothesis (H1): BB has a significant effect on IDM (Accepted)

This strong positive correlation suggests that there is a significant and consistent pattern where changes in one variable are associated with corresponding changes in the other variable. When the correlation coefficient is 0.754, it signifies a robust relationship between the two factors being studied.

3. Risk Tolerance and Investment decision making

Table 7.3 Correlation 3

IDMA			RTA
IDMA	Pearson Correlation	1	.805**
	Sig. (2-tailed)		<.001
	N	252	252
RTA	Pearson Correlation	.805**	1
	Sig. (2-tailed)	<.001	
	N	252	252

- Null Hypothesis (H0): RT has no significant effect on IDM (Rejected)
- Alternative Hypothesis (H1): RT has a significant effect on IDM (Accepted)

A correlation coefficient of 0.805 suggests a robust and highly predictable pattern where changes in one variable are closely linked to corresponding changes in the other variable.

4. Performance Evaluation and Investment decision making

Table 7.4 Correlation 4

IDMA		PEA	
IDMA	Pearson Correlation	1	.800**
	Sig. (2-tailed)		<.001
	N	252	252
PEA	Pearson Correlation	.800**	1
	Sig. (2-tailed)	<.001	
	N	252	252

- Null Hypothesis (H0): PE has no significant effect on IDM (Rejected)
- Alternative Hypothesis (H1): PE has a significant effect on IDM (Accepted)

A correlation coefficient of 0.80 suggests a robust and highly predictable pattern where changes in one variable are closely linked to corresponding changes in the other variable. This strong positive correlation implies that when one factor goes up, the other tends to go up as well, and when one factor goes down, the other tends to go down as well.

Factor analysis

Factor analysis is a statistical technique used in research to explore and understand the underlying structure or patterns within a set of correlated variables. It's commonly employed in fields like psychology, sociology, marketing, and finance to identify latent factors or constructs that can help explain the relationships between observed variables.

Principal component analysis (PCA) of the dataset provides critical details on the variance structure. The study found multiple components, with the first one being the most significant and accounting for 38.44% of the total variance. The second and third components came in second and third, accounting for 5.38% and 4.719% of the variance, respectively. The top three elements together explained roughly 48.543% of the variance. Smaller amounts of the variation were gradually explained by subsequent components. The top 10 components collectively explained almost 71.052% of the overall variation, illuminating the major factors influencing data variability.

Indicator reliability

Indicator reliability refers to the level of consistency and accuracy with which a given measurement tool or indicator assesses the construct or concept it is meant to represent. It is a crucial component of research, especially in disciplines like psychology, the social sciences, and market research, where accurate and reliable measurement is necessary for arriving at reliable results.

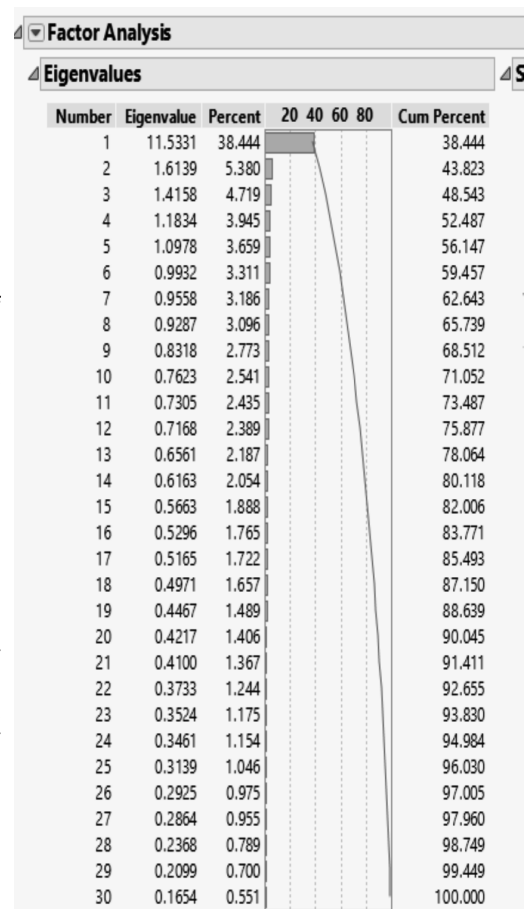


Figure 1.4.2 Factor analysis

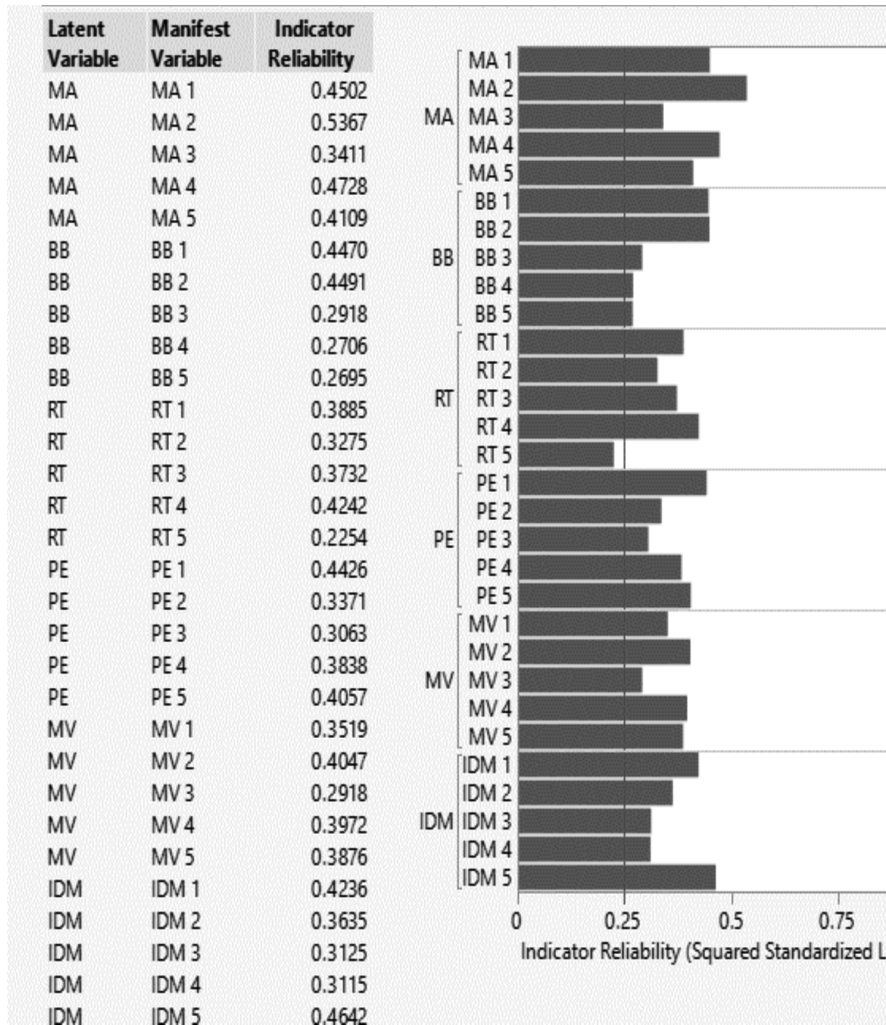


Figure 3.4.3 Indicator Reliability

Latent variable indicator: The reliabilities range from 0.3225 to 0.5138. This means that some of the manifest variables do not measure the latent variables very well. For example, the manifest variable BB 4 has a latent variable indicator reliability of 0.2442, which means that it does not measure the latent variable behavioural bias very well.

Composite reliability

Composite reliability, Omega is a statistical measure that is frequently used in the fields of reliability analysis and psychometrics. It is especially helpful for evaluating the validity of a measurement scale made up of several items or indicators that measure a certain construct or latent variable, such as intellectual ability, personality traits, or work satisfaction.

Omega: the values range from 0.7213 to 0.7750. This means that the latent variables are all reasonably reliable. However, the latent variable behavioral bias (BB) has the lowest omega value, which means that it is the least reliable latent variable.

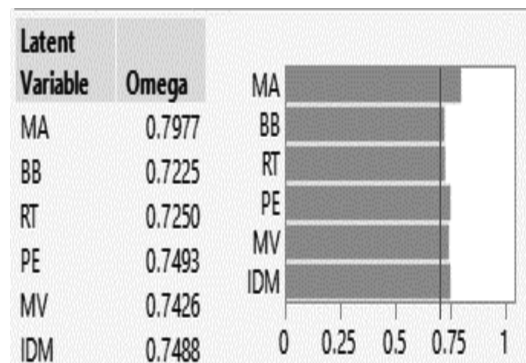


Figure 4.4.4 Composite Reliability

Construct maximal reliability

Maximal reliability (H), also known as the coefficient H, is a statistical metric used to assess the reliability of a measurement scale, especially in the context of psychological testing and the assessment of latent constructs (unobservable variables such as IQ, personality traits, or attitudes). The classic reliability coefficients Cronbach's alpha and composite reliability are alternatives to maximal reliability.

H: the values range from 0.7342 to 0.7750. This means that the latent variables are all reasonably hierarchically reliable. However, the latent variable behavioural bias (BB) has the lowest H value, which means that it is the least hierarchically reliable latent variable.

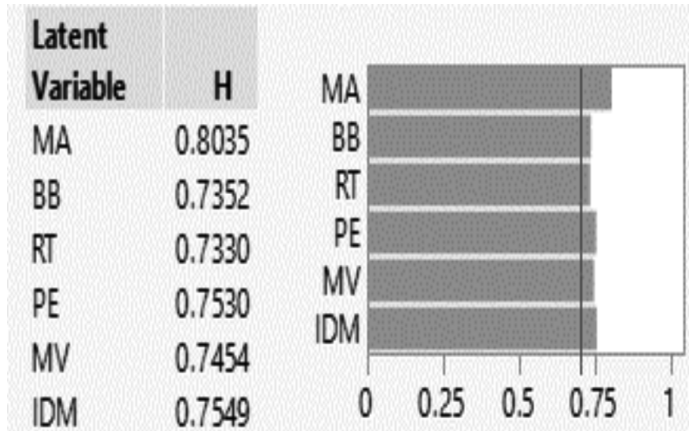


Figure 5.4.6 Construct Maximal Reliability

Confirmatory factor analysis (CFA)

CFA is a useful tool for evaluating the reliability of measurement instruments and putting theoretical models to the test in a variety of fields, including psychology, education, and the social sciences. It enables researchers to make sure that the theoretical models are in line with the empirical data and that the measurement tools accurately capture the relevant constructs.

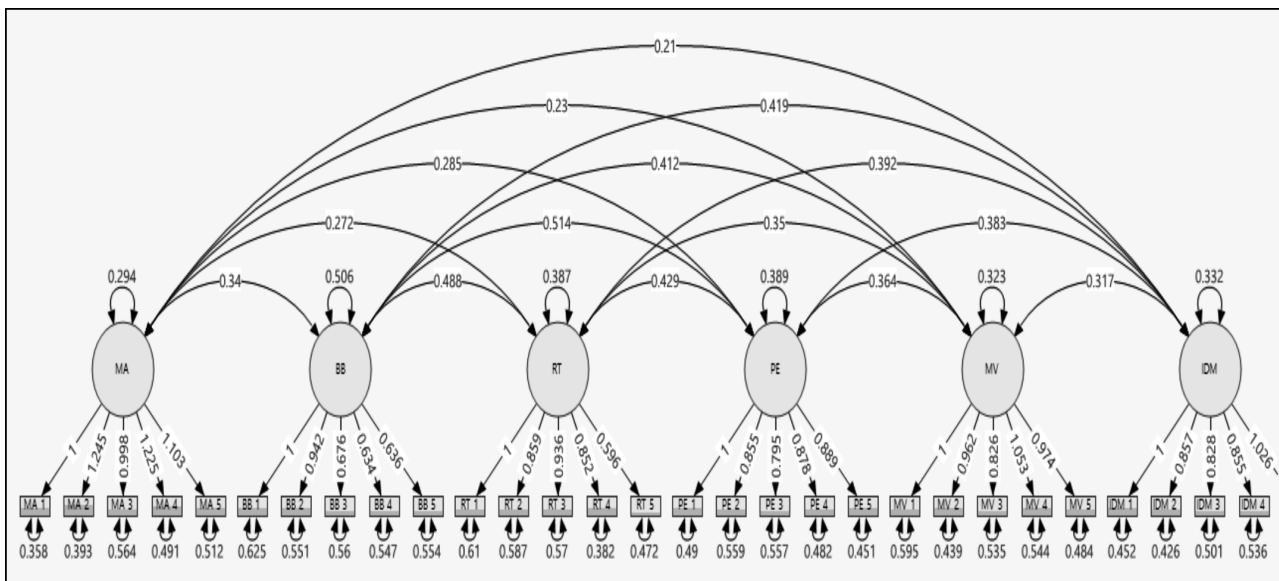


Figure 2.4.6 Confirmatory Factor Analysis

Interpretation: The analysis was performed on a dataset of 252 observations. The analysis is regarded as moderately complicated because there are 85 estimated parameters in total. AICc (13401.229) and BIC (13613.158) are two model selection metrics that seek to balance model fit and complexity. The model's goodness of fit was evaluated using the chi-squared test statistic (505.51477), with a low p-value (3.25e-17) suggesting a considerably better fit than a null hypothesis. The reasonable fit of the model was further confirmed by indicators like CFI (0.9054776) and RMSEA (0.0600133, with a 90% confidence interval of 0.0520401 to 0.0679119). In conclusion, it appears that the analysis has created a model that fits the data well.

Results

Structural Equation Model (SEM)

Structural Equation Modelling (SEM) is a powerful and versatile statistical technique used in research to analyse complex relationships among multiple variables simultaneously. SEM combines elements of both factor analysis and multiple regression analysis to provide a comprehensive understanding of the relationships between observed and latent variables within a hypothesized model.

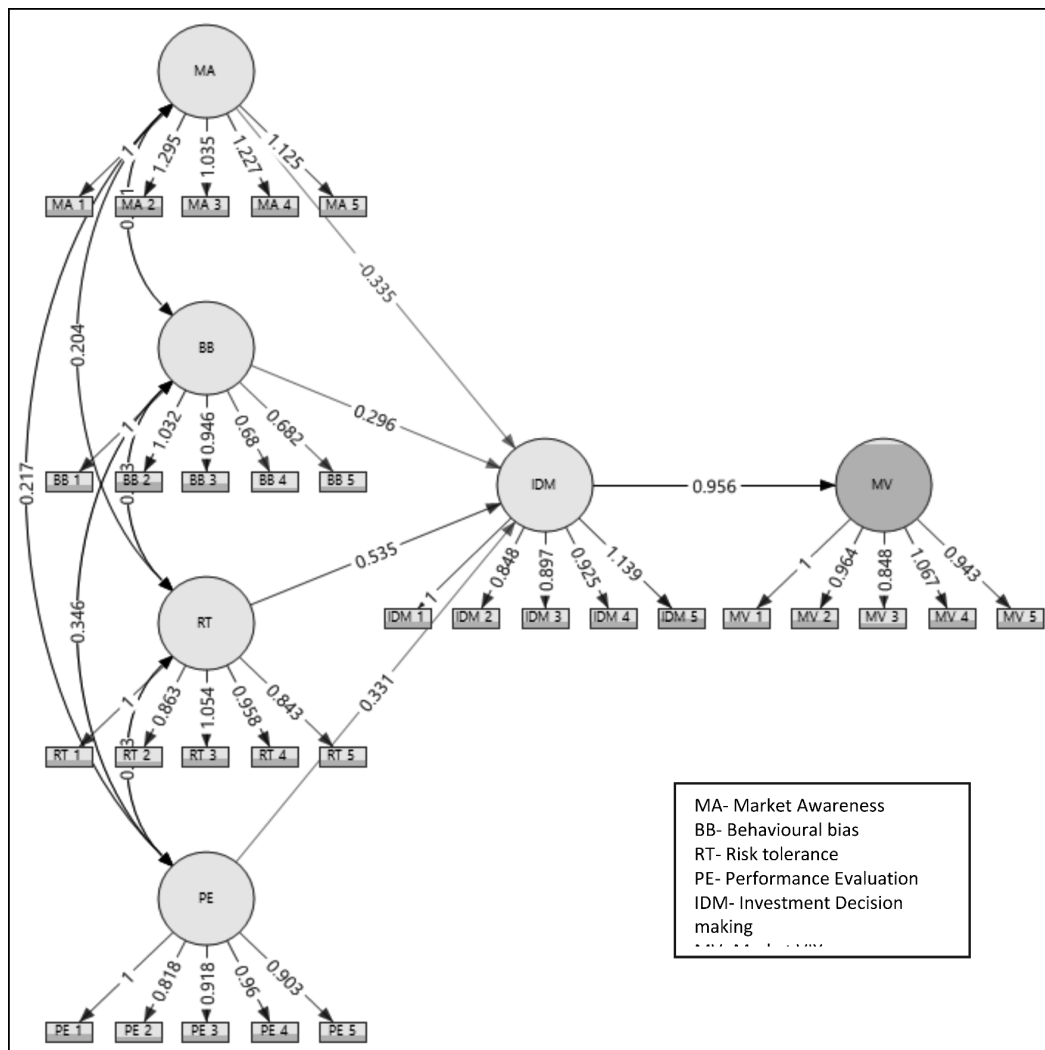


Figure 7.5.1 SEM Model

Result of SEM Model:

The analysis using the structural equation model (SEM) reveals strong relationships between important variables. However, there is a negative connection of 0.335 between "Market Awareness" and "Investment Decision Making" (IDM). This shows that people who are highly conscious of market dynamics generally take a more cautious approach to their investment plans, depending more on market data and trends than on active decision-making. On the other hand, psychological traits like "behavioural bias," "risk tolerance," and "performance evaluation" have a positive correlation 0.296, 0.535 and 0.331 with Investment decision making respectively. This suggests that those who score more on these psychological attributes make more active decisions about their investments. They might evaluate their investing selections effectively, exhibit a higher risk tolerance, and actively manage their investments.

Additionally, the SEM demonstrates a strong positive correlation of 0.956 between IDM and "Market VIX," an indicator of market volatility. This suggests that active investors frequently adjust their investing strategies in reaction to shifting market conditions, particularly during times of increased volatility.

In conclusion, the SEM analysis highlights the complex connections between these variables. It emphasizes that market awareness may result in a more circumspect approach, whereas specific psychological traits enhance active decision-making when it comes to investments. Additionally, the positive link between IDM and the Market VIX underlines the adaptability of active investors in reaction to market volatility, changing their actions tactically.

Summary of fit

Table 7.5 Summary of Fit

Sample Size	252
Rows with Missing	6
-2 Log Likelihood	13143.157
Iterations	160
Number of Parameters	85
AICc	13401.229
BIC	13613.158
ChiSquare	505.51477
DF	265
Prob>ChiSq	3.25e-17
CFI	0.9054776
RMSEA	0.0600133
Lower 90%	0.0520401
Upper 90%	0.0679119

The model produced a reasonably excellent fit to the data, as demonstrated by the -2 Log Likelihood value, despite its moderate complexity and 85 estimated parameters, according to the study of a dataset of 252 observations. The model greatly outperforms a null model, as shown by the chi-squared test, which is supported by a very small p-value. Additionally, the AICc and BIC model selection criteria balanced fit and complexity, while the CFI and RMSEA criteria showed that the model was fit adequately. The RMSEA's 90% confidence interval added to the evidence for the model's validity. Overall, the study showed a good fit.

Findings

This study provides understanding on the complex relationship between investor sentiment and stock market occurrences and is structured around four main objectives.

The relationship between investor sentiment and stock market bubbles and crashes

The study discovered a strong correlation between stock market fluctuations and investor sentiment. It was found that high investor sentiment is positively connected with the probability of stock market bubbles, indicating that bubbles defined by sharp stock price increases are more likely to arise when sentiment is high. The research also revealed an inverse association between poor investor mood and stock market crashes, indicating that markets are more vulnerable to crashes during times of low sentiment marked by abrupt and significant drops in asset prices. These findings demonstrate the complex relationships that exist between investor sentiment and market trends, particularly in the context of bubbles

and crashes, and they highlight how investor sentiment can serve as a leading indication for spotting market upswings or downturns.

The factors influencing investor sentiment

The study identified a number of significant variables influencing investor sentiment during bubbles and crashes. It highlighted the crucial part played by psychological elements in influencing investor sentiment, including behavioural bias, risk tolerance, and performance evaluation. Investors that have particular behavioural characteristics frequently respond to market changes in a distinctive way. The study also emphasized the significance of understanding and managing these psychological biases in order to make rational investment decisions in volatile market conditions. For investors and financial professionals looking to navigate market volatility efficiently, this information offers invaluable advice.

Comparing the factors affecting sentiment indicators and strategy's effectiveness

The study explains the variations in investment decisions and strategy effectiveness during market volatility. It is discovered that people who are more informed of the market invest more cautiously and rely more on market information and patterns than on active decision-making. Behavioural bias, risk tolerance, and performance evaluation were all psychological characteristics that were positively connected with active investing decision-making. These findings suggest that proactive investors are more likely to choose investments and adjust to changing market circumstances, particularly during times of high volatility. The study highlights the significance of adaptation and proactive investment techniques for successfully managing portfolios in volatile market situations.

A comprehensive framework for evaluating investor sentiment

The study came to the conclusion through the development of a comprehensive framework for assessing investor sentiment in the wake of market bubbles and market crashes. This framework takes into account a number of variables, such as market awareness, psychological characteristics, and market volatility adaptability. It gives analysts and decision-makers a methodical way to evaluate how investor mood affects market dynamics. This comprehensive methodology improves the capacity to systematically assess and comprehend the impact of emotion on market events, providing a useful resource for risk management and the formulation of investment strategy. Overall, the study's findings offer helpful advice and insights for managing unpredictable financial markets and making wise investing choices.

Conclusion

This comprehensive study explores the complex link between investor attitude and stock market bubbles and crashes with the main objective of guiding investing choices in uncertain market conditions. The study reveals important features of investor sentiment and how it affects market behaviour using a mixed-method approach that included survey collected from 252 sample size and data analysis. The results highlight the complexity of investor attitude, which is influenced by elements such as risk tolerance, market awareness, and investment decision-making processes. Market bubbles and crashes have a history of occurring frequently in the financial markets, but their exact causes and dynamics are still unknown. A key role in escalating or reducing these market events is investor sentiment.

The study also highlights the importance of proactive investing choices and awareness of the market effective strategies for navigating market volatility. It emphasizes how crucial it is to be aware of one's behavioural biases and risk tolerance, especially in times of financial volatility. The study reveals a complex link between investor sentiment and stock market swings, offering light on the variables affecting investor sentiment and how it affects market dynamics. These findings are important for investors, and investment professionals attempting to understand and manage market risks efficiently. However, the study is aware of some restrictions, including sample size restrictions and data collection procedures. These limitations present opportunities for future research to explore the complexities of investor sentiment and its function in market occurrences. As a result, this research adds significant knowledge about investor attitude, offering a foundation for wise investment choices in the always changing financial world and a starting point for additional research in this area.

Suggestions for future work

- **Longitudinal Analysis:** Conduct longitudinal research to track market activity and investor sentiment over an extended period of time. This will allow for a more thorough analysis of trends and changes in sentiment throughout various market scenarios.

- **Experiment Studies:** Construct carefully controlled studies in which particular elements affecting investor mood are changed, and the effects on decision-making and market outcomes are assessed.
- **Behavioural Economics Insights:** Gaining a deeper understanding of this area of economics can help you understand the psychological factors that affect investor attitudes and behaviour. In the context of investment decision-making, this could involve carrying out study on heuristics, emotions, and cognitive biases.
- **High-Frequency Data:** Use high-frequency market data along with sentiment indicators to examine how quickly shifting sentiments connect to short-term market fluctuations, maybe discovering early bubble warning indications or Machine Learning Models: Using sentiment indicators and other variables, develop predictive machine learning models that predict market bubbles or crashes.

Limitations

- **Sample Size and Selection:** Due to practical considerations, the study's sample size may be constrained, which could affect how broadly applicable the results are. Additionally, if the sample technique utilized does not adequately represent the entire investor community, selection bias may be introduced.
- **Data collection:** The use of self-reported information from surveys may create response bias because individuals may give information that is socially acceptable or forget their own experiences.
- **Generalization:** The study's findings may not be universally relevant to all market conditions, as investor mood and market dynamics vary across settings and time periods.
- **External Factors:** The study might not fully take into account external factors that affect investor sentiment, such as macroeconomic circumstances, changes in government regulations, or geopolitical events.
- **Limited Historical Data:** If historical market data are not thoroughly analysed, it may be difficult to compare the results of the current study with past market occurrences.

References

- Andraszewicz, S. (2020). Stock markets, market crashes, and market bubbles. In *Psychological Perspectives on Financial Decision Making*. https://doi.org/10.1007/978-3-030-45500-2_10
- Aronson, D. R., & Wolberg, J. R. (2009). Purified sentiment indicators for the stock market. *Direct*, 66.
- Cevik, E., Kirci Altinkeski, B., Cevik, E. I., & Dibooglu, S. (2022). Investor sentiments and stock markets during the COVID-19 pandemic. *Financial Innovation*, 8(1). <https://doi.org/10.1186/s40854-022-00375-0>
- Chandran, A.S., & Professor, A. (2014). A study on factors influencing investor sentiment in Indian stock market. In *International Journal of Management*. 5(1).
- Chi, L., Zhuang, X., & Song, D. (2012). Investor sentiment in the Chinese stock market: An empirical analysis. *Applied Economics Letters*. 19(4). <https://doi.org/10.1080/13504851.2011.577003>
- Chiang, M.C., Tsai, I.C., & Lee, C.F. (2011). Fundamental indicators, bubbles in stock returns and investor sentiment. *Quarterly review of economics and finance*, 51(1). <https://doi.org/10.1016/j.qref.2010.11.001>
- Chowdhury, M.S.R., Damianov, D.S., & Elsayed, A.H. (2022). Bubbles and crashes in cryptocurrencies: Interdependence, contagion, or asset rotation? *Finance Research Letters*, 46. <https://doi.org/10.1016/j.frl.2021.102494>
- De Grauwe, P., & Grimaldi, M. (2021). Bubbles and crashes in a behavioural finance model. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.553961>
- Ghalayini, Pr. L., & Alkees, S.Z. (2021). The impact of behavioral finance on Lebanese investors' decision making. *International Journal of Progressive Sciences and Technologies*, 25(1). <https://doi.org/10.52155/ijpsat.v25.1.2758>.
- Güler, D. (2021). The impact of investor sentiment on bitcoin returns and conditional volatilities during the era of covid-19. *Journal of Behavioral Finance*. <https://doi.org/10.1080/15427560.2021.1975285>
- He, Z., He, L., & Wen, F. (2019). Risk compensation and market returns: The role of investor sentiment in the stock market. *Emerging Markets Finance and Trade*, 55(3). <https://doi.org/10.1080/1540496X.2018.1460724>
- Jahanzeb, A., & . S.-R. (2012). Implication of behavioral finance in investment decision-making process. *Information Management and Business Review*, 4(10). <https://doi.org/10.22610/imbr.v4i10.1009>

- Kumari, J. (2019). Investor sentiment and stock market liquidity: Evidence from an emerging economy. *Journal of Behavioral and Experimental Finance*, 23. <https://doi.org/10.1016/j.jbef.2019.07.002>
- López-Cabarcos, M.Á., Pérez-Pico, A.M., Vázquez-Rodríguez, P., & López-Pérez, M.L. (2020). Investor sentiment in the theoretical field of behavioural finance. *Economic Research-Ekonomska Istrazivanja*, 33(1). <https://doi.org/10.1080/1331677X.2018.1559748>
- Muhammad, A. ur R. (2022). The impact of investor sentiment on returns, cash flows, discount rates, and performance. *Borsa Istanbul Review*, 22(2) <https://doi.org/10.1016/j.bir.2021.06.005>
- Naughton, J.P., Wang, C., & Yeung, I. (2019). Investor sentiment for corporate social performance. *Accounting Review*, 94(4). <https://doi.org/10.2308/accr-52303>
- P.H, H., & Uchil, R. (2020). Influence of investor sentiment and its antecedent on investment decision-making using partial least square technique. *Management Research Review*, 43(11). <https://doi.org/10.1108/MRR-06-2019-0254>
- Ray, K.K. (2009). Investment behavior and the Indian stock market crash 2008: An empirical study of student investors. *IUP Journal of Behavioral Finance*, 6(3/4).
- Roopadarshini, S. (2014). A study on implication of behavioral finance towards investment decision making on stock market. *Asia Pacific Journal of Management & Entrepreneurship Research*, 3(1).
- Supervisor Malena Johnsson Niclas Andrén Henrik Lindblom Peter Platan, A. (2002). *Behavioral Finance-And the Change of Investor Behavior during and After the Speculative Bubble At the End of the 1990s*.
- Usman, M. (2022). Price efficiency, bubbles, crashes and crash risk: evidence from Chinese stock market. *Prague Economic Papers*, 31(3–4). <https://doi.org/10.18267/j.pep.804>