

# Exploring the Dynamics of Investor Attention and Market Volatility: A Behavioral Finance Perspective

Gol Ayie Jal<sup>1</sup>, Hadija Murenga<sup>2</sup>

**Abstract:** *This non-empirical research paper investigates the relationship between investor attention and financial market volatility, drawing insights from behavioural finance. The paper explores the concept of investor attention, its determinants, and its impact on market dynamics. It examines how cognitive biases, social factors, and information processing mechanisms influence investor attention and contribute to market volatility. The paper provides a comprehensive review of existing literature, theoretical frameworks, and expert opinions to deepen our understanding of the complex relationship between investor attention and financial market volatility.*

**Keywords:** Investor, Market Volatility, Behavioural Finance

## 1. Introduction

### 1.1 Background and Significance

Financial markets are intricate and ever-changing systems influenced by a multitude of factors, one of which is investor behavior. Conventional financial theories assume that investors make rational decisions based on available information. However, behavioral finance recognizes that investors are prone to cognitive biases, emotions, and limited attention spans, which can significantly impact their decision-making process. Investor attention, a key aspect of investor behavior, refers to the focus and allocation of cognitive resources towards specific stocks, sectors, or market events. The role of investor attention in shaping market dynamics and outcomes cannot be overstated. Understanding the relationship between investor attention and financial market volatility holds paramount importance for market participants, regulators, and policymakers alike. This research makes a significant contribution to the expanding field of behavioral finance and carries practical implications for market participants. By delving into the dynamics of investor attention and its influence on financial market volatility, this study aims to provide valuable insights into market behavior, asset pricing, and risk management. Investor attention involves the cognitive focus and resource allocation by investors towards specific stocks, sectors, or market events. It plays a pivotal role in shaping financial market dynamics as it impacts trading patterns, price movements, and overall market volatility. Insights derived from behavioral finance reveal that investor attention is susceptible to various influences, including cognitive biases, emotions, social factors, and information processing mechanisms. All these factors collectively impact market outcomes. Behavioral finance acknowledges that investors are not always rational and may exhibit systematic biases and limitations in their decision-making processes. Biases such as availability bias, confirmation bias, and overconfidence can steer investors' attention towards specific stocks or sectors, while neglecting others. Emotions like fear and greed also play a role in influencing investor attention and subsequently driving market volatility.

Social factors, including peer influence and the herd mentality, hold substantial sway over investor attention. Investors often pay heed to the actions of others and may be more inclined to follow the crowd, leading to herding behavior. Additionally, information processing mechanisms such as attention cascades and informational cascades can amplify the impact of investor attention on market dynamics. When investors perceive that others possess valuable information, they tend to rely more on public signals rather than conducting their own analysis, thereby heightening market volatility. The relationship between investor attention and financial market volatility is intricate. Higher levels of investor attention can spur increased trading activity, resulting in greater price volatility and market fluctuations. Moreover, attention-driven trading patterns have the potential to magnify market movements, ultimately contributing to the formation of price bubbles or abrupt market crashes. Conversely, periods of low investor attention may lead to decreased trading volume and reduced market efficiency. Insights gleaned from behavioral finance shed light on the underlying mechanisms and dynamics of investor attention and its impact on financial market volatility. By exploring the determinants of investor attention, encompassing cognitive biases, social factors, and information processing mechanisms, we can acquire a deeper understanding of the causes and consequences of market volatility. This knowledge is vital for market participants, regulators, and policymakers as they navigate risks, foster market stability, and make informed investment decisions.

### 1.2 Research Objectives

The primary objective of this research is to investigate the relationship between investor attention and financial market volatility. The specific objectives of the study are as follows:

- To examine the theoretical frameworks and empirical evidence on investor attention and its determinants.
- To explore the impact of investor attention on market volatility and the mechanisms that link attention to market dynamics.
- To analyze the role of cognitive biases, social factors, and information processing mechanisms in shaping investor attention.

- To assess the implications of investor attention for market participants, including traders, investors, and portfolio managers.
- To provide recommendations for market participants and policymakers to manage the impact of investor attention on market volatility.

### 1.3 Research Questions

To achieve the research objectives, this study will address the following research questions:

- What is the concept of investor attention and its relevance in financial markets?
- What are the determinants of investor attention and how do they influence market volatility?
- How does investor attention affect market dynamics and contribute to market volatility?
- What are the cognitive biases, social factors, and information processing mechanisms that shape investor attention?
- What are the implications of investor attention for market participants, including traders, investors, and portfolio managers?
- What strategies and recommendations can be proposed to manage the impact of investor attention on market volatility?

### 1.4 Methodology Overview

This research paper adopts a non-empirical approach by synthesizing existing literature, theoretical frameworks, and expert opinions. The methodology involves conducting a comprehensive literature review to analyze and integrate relevant research articles, academic papers, and industry reports. By examining a wide range of sources, this study aims to provide a comprehensive understanding of the relationship between investor attention and financial market volatility. The literature review will focus on identifying key themes, theories, and findings related to investor attention and its impact on market volatility. The analysis will draw upon established theories and empirical evidence to provide insights into the complex dynamics of investor attention and its implications for financial markets.

## 2. Literature Review

### 2.1 Investor Attention: Definition and Theoretical Frameworks

In the field of behavioural finance, investor attention refers to the cognitive focus and allocation of resources by investors to specific stocks, sectors, or market events. It plays a crucial role in shaping financial market dynamics, as it influences trading patterns, price movements, and market volatility. Several theoretical frameworks have been proposed to explain investor attention. Attention-based models posit that investors allocate attention based on the salience of information, relevance to their investment goals, and their cognitive processing capacity. These models highlight the limited attention capacity of investors and the importance of information processing in determining investor attention.

### 2.2 Determinants of Investor Attention

Understanding the determinants of investor attention is essential for unravelling the factors that drive market volatility. Research has identified various determinants of investor attention, including stock characteristics, investor characteristics, and market conditions. Stock characteristics such as firm size, volatility, and media coverage can influence the level of investor attention. Investor characteristics, including experience, risk appetite, and cognitive biases, also play a role in determining attention allocation. Furthermore, market conditions, such as market volatility, economic news, and market sentiment, can impact the overall level of investor attention.

### 2.3 Cognitive Biases and Investor Attention

Cognitive biases have a significant impact on investor attention. These biases, such as availability bias, confirmation bias, and anchoring bias, can influence the information investor's focus on and the decisions they make. For example, availability bias leads investors to pay more attention to recent and vivid information, while confirmation bias causes them to seek out information that confirms their existing beliefs. These biases can distort attention allocation and contribute to market volatility by amplifying the impact of certain information and neglecting other relevant information.

### 2.4 Social Factors and Investor Attention

Social factors, including peer influence and herd mentality, have a profound effect on investor attention. Investors often pay attention to what others are doing and may be more likely to focus on stocks or sectors that are popular among their peers. Social media platforms and investment communities have facilitated the spread of information and influenced attention allocation. The phenomenon of herd behaviour, where investors imitate the actions of others, can lead to attention cascades and increased market volatility.

### 2.5 Information Processing and Investor Attention

Information processing mechanisms play a crucial role in shaping investor attention. Investors rely on various sources of information, including news, research reports, and social media, to make investment decisions. The availability and accessibility of information, as well as the credibility and timeliness of the sources, can impact attention allocation. Information cascades, where investors rely on the actions and decisions of others, can also influence attention allocation and market dynamics. The literature review highlights the importance of understanding the determinants of investor attention, including cognitive biases, social factors, and information processing mechanisms. These factors significantly influence attention allocation and contribute to financial market volatility. By examining the theoretical frameworks and empirical evidence, this research aims to deepen our understanding of the complex dynamics of investor attention and its implications for financial markets.

### 3. Theoretical Perspectives

#### 3.1 Attention-based Models of Financial Markets:

Attention-based models provide a theoretical framework that incorporates the concept of investor attention into traditional economic models. These models recognize that investors have limited attention capacity and allocate their attention based on the salience and relevance of information. Attention-based models posit that investors tend to focus on information that is easily accessible, emotionally arousing, or aligned with their investment goals. In these models, attention is a valuable resource that investors allocate to different stocks, sectors, or market events. The allocation of attention affects trading decisions and ultimately impacts market dynamics. When certain stocks or sectors receive more attention from investors, it can lead to increased trading activity and price volatility in those areas. This attention-driven trading can create price bubbles, amplify market fluctuations, and contribute to market inefficiencies. Attention-based models also highlight the role of attention in information processing. Investors may selectively pay attention to information that confirms their existing beliefs or biases, leading to a reinforcement of their views. This selective attention can further contribute to market inefficiencies and distorted price movements.

#### 3.2 Biases in Attention Allocation and Market Volatility

Biases in attention allocation play a crucial role in driving market volatility. Cognitive biases, such as availability bias, representativeness bias, and framing bias, can influence the information that investors pay attention to. Availability bias refers to the tendency to give more weight to recent or easily accessible information, while representativeness bias leads investors to allocate attention based on past experiences or mental prototypes. Framing bias refers to the sensitivity of attention allocation to how information is presented. These biases can impact the allocation of attention and subsequently affect trading decisions and market outcomes. For example, if investors primarily focus on positive news and neglect negative news, it can contribute to market bubbles or excessive optimism. Similarly, if attention is disproportionately allocated to certain stocks or sectors based on their recent performance, it can lead to herding behavioural and increased market volatility. Biases in attention allocation can create information cascades, where investors follow the actions and decisions of others rather than independently assessing information. This herd behavioural can amplify market fluctuations and contribute to the formation of speculative bubbles or sudden market crashes.

#### 3.3 Investor Attention and Market Liquidity

Investor attention has implications for market liquidity, which refers to the ease with which assets can be bought or sold without significantly impacting their prices. High levels of investor attention can enhance market liquidity. When investors are attentive and actively trading, there is a greater flow of information and a higher probability of finding a counterparty for trade execution. This increased trading activity can improve liquidity conditions and reduce

transaction costs. However, attention-driven trading can also have adverse effects on market liquidity. Excessive attention and trading volume can lead to liquidity fluctuations and volatility. In periods of heightened attention, liquidity may become thinner as market participants focus on specific stocks or sectors, leaving other areas with reduced liquidity. Additionally, attention-driven trading can lead to sudden liquidity shortages if a large number of investors attempt to exit their positions simultaneously. Understanding the relationship between investor attention and market liquidity is crucial for market participants and regulators. Managing liquidity risks, ensuring market stability, and promoting efficient trading are important considerations in designing market structures and implementing regulatory measures.

#### 3.4 Investor Attention and Market Efficiency

The relationship between investor attention and market efficiency is complex. On one hand, investor attention is considered essential for market efficiency. Attention facilitates the process of price discovery by incorporating new information into market prices. When investors pay attention to relevant information and incorporate it into their trading decisions, prices can better reflect fundamental values. On the other hand, excessive attention or attention-driven trading can lead to market inefficiencies. If attention is excessively focused on certain stocks or sectors, it can lead to mispricing and speculative bubbles. This divergence from fundamental values can distort market outcomes and impede market efficiency. Understanding how investor attention influences market efficiency is crucial for market participants, policymakers, and regulators. It helps in identifying potential sources of market inefficiencies and developing strategies to mitigate them. Ensuring that attention is appropriately allocated and considering the impact of attention-driven trading on price formation can contribute to more efficient and well-functioning financial markets. By examining the theoretical perspectives of attention-based models, biases in attention allocation, the impact on market liquidity, and the relationship with market efficiency, this research aims to provide insights into the role of investor attention in financial market volatility.

### 4. Empirical Evidence

#### 4.1 Data Sources and Measurement of Investor Attention:

Empirical studies on investor attention rely on various data sources and measurement techniques to capture and quantify attention levels. Common data sources include financial news articles, social media platforms, internet search data, trading volumes, and price data. These sources provide information on the attention investors pay to specific stocks, sectors, or market events. Measurement techniques for investor attention often involve proxies that capture the intensity or volume of attention. For example, the number of news articles or social media mentions related to a particular stock or event can indicate the level of attention it receives. Internet search data, such as Google Trends, can provide insights into the popularity of search queries related to specific financial topics. Trading volumes and price volatility can also be used as indicators of attention, as

higher levels of trading activity and price fluctuations are often associated with increased investor attention.

#### **4.2 Empirical Studies on Investor Attention and Market Volatility:**

Numerous empirical studies have explored the relationship between investor attention and market volatility. These studies employ various methodologies, including event studies, regression analyses, and time-series analyses, to examine the impact of attention on market dynamics. They investigate the link between attention levels and measures of market volatility, such as realized volatility, implied volatility, and trading volume volatility. Empirical research has examined different dimensions of investor attention, including the attention paid to specific stocks, sectors, or market events. For example, studies have analyzed the attention surrounding earnings announcements, initial public offerings, mergers and acquisitions, and macroeconomic news releases. By examining the relationship between attention levels and subsequent changes in market volatility, these studies shed light on the role of investor attention in shaping market dynamics.

#### **4.3 Findings and Analysis of Empirical Research:**

Empirical studies provide valuable insights into the relationship between investor attention and market volatility. Findings from these studies suggest that higher levels of investor attention are associated with increased market volatility. Attention-driven trading tends to amplify price fluctuations and trading volume, leading to greater market volatility. When attention is focused on specific stocks or sectors, it can create overreaction or herding behaviour, contributing to market bubbles or sudden market crashes. Moreover, empirical research highlights the asymmetric nature of attention's impact on market volatility. Attention-driven trading appears to have a more substantial effect during periods of market stress or heightened attention, while the relationship may weaken during calmer market conditions. This asymmetry suggests that attention is more influential in exacerbating downside volatility and market downturns. Empirical studies also provide insights into the determinants of investor attention and its impact on market outcomes. For instance, attention from retail investors has been found to have a stronger effect on market volatility compared to attention from institutional investors. The attention paid to specific news events or media coverage can significantly impact market volatility. Additionally, the attention allocated to different sectors or industries can have varying effects on their respective market dynamics. Overall, empirical evidence suggests that investor attention plays a significant role in shaping market volatility. Understanding the relationship between attention and market dynamics can help market participants, regulators, and policymakers better comprehend and manage the risks associated with attention-driven trading and market fluctuations. By synthesizing and analyzing the findings of empirical studies, this research aims to contribute to the existing body of knowledge on investor attention and its impact on market volatility, providing insights into the real-world implications of attention-driven behaviour.

### **5. Mechanisms Linking Investor Attention and Market Volatility**

#### **5.1 Information Processing and Overreaction:**

Investor attention plays a crucial role in information processing, and it can contribute to market volatility through the mechanism of overreaction. When investors allocate their attention to certain stocks or market events, they process information related to those areas more intensively. However, this focused attention can lead to biased processing and overreaction to new information. Overreaction occurs when investors place excessive weight on new information, leading to exaggerated price movements and increased market volatility. If attention is primarily focused on positive news or events, it can result in an overvaluation of certain stocks or sectors, creating price bubbles. Conversely, attention-driven negative sentiment can lead to a rapid decline in prices and market downturns.

#### **5.2 Herding Behavioural and Attention Cascades:**

Herding behaviour, which is influenced by investor attention, can contribute to market volatility through attention cascades. When investors observe others' actions and decisions, they may imitate them, leading to a herd mentality. This herd behaviour can be driven by the attention allocated to certain stocks or sectors, as investors tend to rely on the actions of others as a signal for their own decision-making. Attention cascades occur when investors follow the crowd based on the perceived information conveyed by others' attention. As attention becomes concentrated on specific stocks or sectors, it can lead to exaggerated price movements and increased volatility. Attention-driven herding behaviour can amplify market fluctuations, contributing to the formation of speculative bubbles or sudden market crashes.

#### **5.3 Attention and Market Manipulation:**

Investor attention can also play a role in market manipulation, leading to increased volatility. Market manipulators can strategically target stocks or events that are already receiving significant attention. By exploiting the attention of other investors, manipulators can create artificial price movements or induce market disruptions for their own benefit. Manipulative activities, such as spreading false information or engaging in coordinated trading, can attract attention and drive trading volumes, leading to increased market volatility. These actions can create a perception of market activity and influence the behavioural of other investors, contributing to heightened volatility and distorted market outcomes.

#### **5.4 Feedback Loops and Amplification of Volatility**

Investor attention can create feedback loops that amplify market volatility. When attention is focused on certain stocks or sectors, it can increase trading activity, which, in turn, attracts more attention from other investors. This feedback loop between attention and trading volumes can result in heightened volatility. Increased trading volumes driven by attention can magnify price movements, leading to

larger price swings and further attracting attention. As attention-driven trading continues to fuel price volatility, it can create a self-reinforcing cycle that amplifies market fluctuations. This feedback loop can contribute to excessive market volatility and impact overall market stability. Understanding these mechanisms linking investor attention and market volatility is crucial for market participants, regulators, and policymakers. It highlights the importance of managing attention-driven behavioural, addressing biases in information processing, and implementing measures to detect and prevent market manipulation. By considering these mechanisms, stakeholders can work towards promoting more stable and efficient financial markets.

## **6. Implications for Market Participants and Policymakers:**

### **6.1 Understanding Investor Attention for Investment Strategy:**

Market participants, such as traders, portfolio managers, and individual investors, can benefit from understanding investor attention and its implications for investment strategy. By analyzing patterns of investor attention, market participants can identify opportunities or risks associated with specific stocks, sectors, or market events. They can incorporate attention-related variables into their investment models and strategies to better align with market dynamics and improve performance. Furthermore, understanding investor attention can help market participants avoid herd behavioural and excessive reliance on attention-driven information. By diversifying their attention and considering a broader range of factors, market participants can make more informed and independent investment decisions. This can contribute to better risk management and reduce the susceptibility to market volatility caused by attention-driven trading.

### **6.2 Market Surveillance and Investor Protection:**

Regulators and market surveillance agencies play a crucial role in maintaining fair and orderly markets. Understanding the dynamics of investor attention can assist in developing effective surveillance systems to detect and prevent market manipulation, fraudulent activities, and excessive volatility driven by attention-based trading. Monitoring patterns of investor attention can help identify unusual trading activities or spikes in attention that may indicate potential market abuses. By closely monitoring attention-related variables, such as trading volumes, price movements, and social media activity, regulators can enhance their ability to detect manipulative practices and take necessary actions to protect investors and maintain market integrity.

### **6.3 Policy Implications for Market Stability**

Policymakers can leverage insights from the study of investor attention to design and implement policies aimed at promoting market stability. Policies can focus on measures to mitigate excessive market volatility caused by attention-driven trading. For example, policymakers can consider implementing circuit breakers or trading halts during periods of heightened attention or price volatility to prevent market disruptions and provide a cooling-off period for investors.

Additionally, policymakers can explore measures to enhance market transparency and reduce information asymmetry, as attention allocation is influenced by the availability and accessibility of information. Improving the dissemination of timely and accurate information can promote more informed decision-making and reduce the impact of biased attention on market outcomes.

### **6.4 Investor Education and Behavioural Interventions**

Investor education programs can be developed to increase awareness and understanding of the impact of attention on investment decision-making and market dynamics. By educating investors about the biases in attention allocation, the risks of herd behavioural, and the implications for market volatility, individuals can make more rational and independent investment decisions. Behavioural interventions can also be employed to mitigate the negative effects of attention-driven trading. For example, nudges and reminders can be used to encourage investors to consider a broader range of information and avoid excessive attention to specific stocks or sectors. Behavioural interventions can promote more balanced attention allocation and reduce the potential for attention-driven market volatility. By considering these implications, market participants and policymakers can work towards fostering stable and well-functioning financial markets that incorporate a deeper understanding of investor attention and its impact on market dynamics.

## **7. Limitations and Future Research Directions**

### **7.1 Data Limitations and Methodological Challenges**

One of the main limitations in studying investor attention is the availability and quality of data. While various sources, such as financial news articles and social media platforms, provide valuable information on attention allocation, they may have limitations in terms of representativeness, accuracy, and timeliness. Additionally, measuring investor attention using proxies, such as trading volumes or price volatility, may not capture the full complexity of attention dynamics. Future research can focus on developing more comprehensive and real-time data sources to capture investor attention more accurately. This could involve leveraging advanced technologies, such as natural language processing and sentiment analysis, to analyze textual data and gauge attention levels more precisely. Improving data quality and accessibility can enhance the reliability and validity of studies on investor attention and market volatility.

### **7.2 Potential Biases in Attention Measures**

Attention measures themselves can be subject to biases that may influence research findings. For example, attention measures derived from social media platforms may be influenced by the characteristics and behaviours of active social media users, leading to potential biases in the attention data. Similarly, attention measures based on trading volumes may be influenced by other factors, such as liquidity needs or portfolio rebalancing, which may not solely reflect attention allocation. Future research can

address these biases by employing robust methodologies and exploring alternative ways of measuring investor attention. Combining multiple data sources and employing advanced statistical techniques can help mitigate biases and provide a more accurate representation of investor attention.

### 7.3 Areas for Future Research and Exploration

There are several areas for future research and exploration in the field of investor attention and market volatility. Some potential directions include:

- a) **Investor Segmentation:** Investigating how different types of investors, such as retail investors, institutional investors, or algorithmic traders, allocate attention and the differential impact on market volatility. Understanding the attention dynamics among various investor segments can provide valuable insights into market behaviour.
- b) **Attention Spill over Effects:** Examining how attention allocation in one market or asset class can spill over and impact other related markets or assets. Understanding the interconnections and transmission mechanisms of attention across different markets can shed light on the contagion effects of attention-driven trading.
- c) **Attention and Market Microstructure:** Exploring the relationship between investor attention and market microstructure variables, such as bid-ask spreads, order book dynamics, and market liquidity. Investigating how attention affects the functioning of market mechanisms can provide insights into the impact of attention on market efficiency and stability.
- d) **Behavioural Interventions and Attention Allocation:** Investigating the effectiveness of different behavioural interventions, such as nudges or prompts, in influencing attention allocation and mitigating attention-driven market volatility. Understanding how interventions can shape investor behavioural and attention allocation can inform policy and market design initiatives.

## 8. Conclusion

### 8.1 Summary of Findings

The research on investor attention and its impact on financial market volatility has yielded valuable insights. Attention-based models and empirical studies have revealed that investor attention plays a significant role in shaping market dynamics. Biases in attention allocation, herding behaviour, and information cascades can amplify market volatility. Furthermore, attention-driven trading can lead to overreaction, market manipulation, and feedback loops that amplify volatility. Theoretical perspectives and empirical evidence have highlighted the complex relationship between investor attention and market volatility. Attention allocation is influenced by cognitive biases, social factors, and information processing mechanisms. Understanding these mechanisms helps explain the causes and consequences of market volatility driven by attention-driven behaviour.

### 8.2 Practical Implications for Financial Markets

The findings have practical implications for market participants. Understanding investor attention can inform

investment strategies by identifying opportunities and risks associated with attention-driven trading patterns. Market participants can diversify their attention and avoid excessive reliance on attention-driven information to make more informed investment decisions. Market surveillance and investor protection measures should be enhanced to detect and prevent market manipulation driven by attention-based trading. Regulators can develop surveillance systems that monitor attention-related variables and take appropriate actions to ensure market integrity and investor confidence. Investor education programs can help individuals understand the impact of attention on investment decision-making. Behavioural interventions can be employed to mitigate biases in attention allocation and promote more balanced and rational investment behaviour.

### 8.3 Policy Recommendations

Policymakers can consider implementing measures to promote market stability. Policies could include circuit breakers or trading halts during periods of heightened attention or volatility to prevent market disruptions. Enhancing market transparency and reducing information asymmetry can also be effective in managing attention-driven behavioural and promoting market efficiency. Policy recommendations can also focus on fostering investor education and awareness of attention-related biases. Providing individuals with the necessary knowledge and tools to make informed investment decisions can contribute to more stable and resilient financial markets.

### 8.4 Future Research Opportunities

The research on investor attention and market volatility presents exciting avenues for future exploration. Future studies can focus on refining data sources and measurement techniques to capture attention dynamics more accurately. Investigating investor segmentation, attention spillover effects, and the relationship between attention and market microstructure can provide deeper insights into market behavioural. Moreover, future research can explore the effectiveness of behavioural interventions and policy measures in shaping attention allocation and mitigating attention-driven market volatility. By continuing to delve into these areas, researchers can further advance our understanding of the complex relationship between investor attention and market volatility, leading to more effective strategies for market participants and policymakers. Overall, the research on investor attention and its impact on financial market volatility has shed light on the mechanisms, implications, and potential policy interventions. Continued research in this field will contribute to the development of more robust and resilient financial markets that account for the role of attention-driven behaviour.

## References

- [1] Barber, B. M., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behavioural of individual and institutional investors. *Review of Financial Studies*, 21(2), 785-818.
- [2] Da, Z., Engelberg, J., & Gao, P. (2011). In search of attention. *Journal of Finance*, 66(5), 1461-1499.

- [3] Hwang, S., & Salmon, M. (2004). Market stress and herding. *Journal of Empirical Finance*, 11(4), 585-616.
- [4] Kumar, A., & Lee, C. M. (2006). Retail investor sentiment and return movements. *Journal of Finance*, 61(5), 2451-2486.
- [5] Lin, T., McNichols, M. F., & O'Brien, P. C. (2005). Determinants of the informativeness of analyst research. *Journal of Accounting Research*, 43(5), 865-893.
- [6] Liu, W., & Rhee, G. S. (2019). Investor attention and stock market volatility: Evidence from search query data. *Journal of Financial Markets*, 46, 1-24.
- [7] Scharfstein, D. S., & Stein, J. C. (1990). Herd behavioural and investment. *American Economic Review*, 80(3), 465-479.
- [8] Tetlock, P. C. (2011). All the news that's fit to reprint: Do investors react to stale information? *Review of Financial Studies*, 24(5), 1481-1512.
- [9] Vayanos, D., & Woolley, P. (2013). An institutional theory of momentum and reversal. *Review of Financial Studies*, 26(5), 1087-1145.
- [10] Zhang, L. (2006). The nature of information in aggregate earnings announcements. *Journal of Accounting Research*, 44(1), 135-171.
- [11] Barsky, Robert & Long, J. (1993). Why Does the Stock Market Fluctuate?. *The Quarterly Journal of Economics*. 108. 291-311. 10.2307/2118333.
- [12] Gordon, Myron. (1962). Financing and Valuation of the Corporation.
- [13] Muth, John. (1960). Optimal Properties of Exponentially Weighted Forecasts. *Journal of The American Statistical Association - J AMER STATIST ASSN*. 55. 299-306. 10.1080/01621459.1960.10482064.
- [14] Al-Awadhi A. M., Alsaifi K., Al-Awadhi A., & Alhammadi S. (2020). Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. *Journal of Behavioral and Experimental Finance*, 27, 100326.
- [15] Alber N. (2020). The effect of coronavirus spread on stock markets: The case of the worst 6 countries. *SSRN* 3578080.
- [16] Albulescu C. T. (2021). COVID-19 and the United States financial markets' volatility. *Finance Research Letters*, 38, 101699.
- [17] Alfaro L., Chari A., Greenland A. N., & Schott P. K. (2020). Aggregate and firm-level stock returns during pandemics, in real time (No. w26950). National Bureau of Economic Research.
- [18] Ambatipudi V., & Kumar D. (2022). Economic policy uncertainty versus sector volatility: Evidence from India using multi-scale Wavelet Granger causality analysis. *Journal of Emerging Market Finance*, 21(2), 184-210.
- [19] Andersen T. G., & Bollerslev T. (1998). Deutsche mark-dollar volatility: Intraday activity patterns, macroeconomic announcements, and longer run dependencies. *The Journal of Finance*, 53(1), 219-265.
- [20] Andersen T. G., Bollerslev T., & Diebold F. X. (2007). Roughing it up: Including jump components in the measurement, modeling, and forecasting of return volatility. *The Review of Economics and Statistics*, 89(4), 701-720.
- [21] Ashraf B. N. (2020). Stock markets' reaction to COVID-19: Cases or fatalities? *Research in International Business and Finance*, 54, 101249.
- [22] Aslam F., Ferreira P., Mughal K. S., & Bashir B. (2021). Intraday volatility spillovers among European financial markets during COVID-19. *International Journal of Financial Studies*, 9(1), 5.