IMPACT OF INFLUENCERS, RUMOURS AND HERD BEHAVIOUR ON SHARE MARKET VOLATILITY

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Abstract
The stock market plays a crucial role in the global economy, attracting investors from various backgrounds. Understanding the factors that influence investor behaviour and market dynamics is of paramount importance. This research study aims to explore the relationship between rumours, herd behaviour, and market indicators in the Indian stock market.Through a comprehensive analysis of data collected from a sample of investors, several statistical measures were calculated. Descriptive statistics provided insights into the frequency of stock market transactions, influence of factors on investment decisions, and market volatility. Hypothesis testing using correlation analysis and chi-square tests helped assess the relationships between variables.The findings revealed a significant positive correlation between rumours and investor behaviour, suggesting that rumours have a noteworthy impact on investment decisions. Additionally, herd behaviour was found to have a significant relationship with rumours, indicating that investors tend to follow the decisions of others during market movements. Moreover, herd behaviour was found to have a significant impact on market volatility, liquidity, and other market indicators.These findings contribute to a better understanding of investor behaviour and market dynamics in the Indian stock market. The implications of this research highlight the importance of managing rumours and addressing herd behaviour to ensure efficient and stable market functioning.

Key words:
Digital transformation, Business ,Consumer ,Cyber Law, Consumer Protection.

1. INTRODUCTION

The Indian stock market, one of the largest and fastest-growing in the world, has witnessed tremendous growth and volatility in recent years. With millions of investors participating in this dynamic marketplace, understanding the factors that influence investor behaviour and market outcomes has become crucial. Among these factors, herd behaviour, rumours, and the role of influencers have gained significant attention due to their potential impact on market dynamics and investor decision-making processes.

Herd behaviour, a phenomenon in which investors make decisions based on the actions and opinions of others rather than on fundamental analysis, has been observed to create market inefficiencies and distort stock prices. Numerous studies have highlighted the prevalence of herd behaviour in financial markets and its potential to amplify market volatility and generate irrational price movements (Bikhchandani et al., 1992; Hong and Stein, 1999). In the context of the Indian stock market, understanding and analysing the impact of herd behaviour becomes particularly important due to its potential consequences for market stability and investor wealth.

Research studies have shown that herd behaviour in the Indian stock market can be influenced by various factors such as information cascades, social imitation, and psychological biases. When investors observe others engaging in buying or selling activities, they often perceive it as a signal of valuable information and tend to follow suit. This behaviour can create momentum in stock prices, leading to overvaluation or undervaluation of assets. The presence of herd behaviour can lead to increased market volatility, reduced market efficiency, and increased risk for investors.

One of the key factors that contribute to herd behaviour in the Indian stock market is the influence of rumours. Rumours, often disseminated through social media platforms and informal networks, have emerged as a catalyst for triggering herd behaviour. These rumours can spread rapidly, leading to a surge in trading activities and driving stock prices to levels disconnected from their underlying fundamentals. The impact of rumours on investor behaviour and subsequent market outcomes has been widely discussed in academic literature (Cont and Bouchaud, 2000; Banerjee, 2016). However, the specific influence of rumours on herd behaviour in the Indian stock market warrants further investigation.

In recent years, social media platforms and digital communication channels have played a significant role in shaping investor sentiment and behaviour in the Indian stock market. Influencers, including market commentators, analysts, and social media personalities, possess the ability to shape investor sentiment and impact decision-making processes through their recommendations, market insights, and predictions. Their opinions and recommendations can spread rapidly and profoundly influence market participants, leading to herd behaviour and increased market volatility.

The influence of influencers on investor behaviour has become increasingly relevant in the Indian stock market, particularly with the rise of retail investors. Retail investors, often seeking guidance and information from influencers, may be more susceptible to herd behaviour triggered by influential individuals. This raises questions about the responsibility and ethics of influencers, as their recommendations and market insights can significantly impact the decisions of individual investors and overall market dynamics.

2. REVIEW OF THE LITERATURE

In this section, the existing literature on herd behaviour, rumours, and influencers in financial markets, with a specific

focus on studies conducted in the Indian stock market context will be reviewed. The review aims to provide a comprehensive understanding of the research conducted in this area and identify gaps that this study intends to address. The literature review is organized into subsections based on the key themes and concepts related to herd behaviour, rumours, and influencers.

2.1. Herd Behaviour in the Indian Stock Market

Numerous studies have examined the presence and impact of herd behaviour in the Indian stock market. Singh and Sharma (2017) investigated herd behaviour among Indian investors using data from the National Stock Exchange (NSE). Their study found evidence of herd behaviour, particularly during periods of high market uncertainty and limited information availability. They concluded that herd behaviour significantly influences stock prices in the Indian market, leading to increased market volatility and distorted asset valuations. Mohanty and Nandha (2012) examined the presence of herd behaviour among institutional investors in the Indian stock market. They found strong evidence of herd behaviour among mutual funds, particularly during periods of market stress and increased uncertainty. The study highlighted the importance of controlling herd behaviour to ensure market stability and efficient resource allocation.

Similarly, Bhat and Narayan (2014) analysed herd behaviour among individual investors in the Indian stock market. The study utilized survey data and behavioural finance theories to identify the determinants and consequences of herd behaviour. The findings suggested that demographic characteristics, investment experience, and information sources significantly influence herd behaviour among individual investors. Understanding the factors driving herd behaviour among different investor groups is essential for designing targeted interventions to mitigate its negative consequences.

Chakraborty et al. (2018) analysed the role of herding in the Indian stock market during different market phases. Their study examined the herding behaviour of both institutional and individual investors and found evidence of herd behaviour in both groups. The study also highlighted the impact of macroeconomic factors, market liquidity, and stock-specific factors on herd behaviour. The findings suggested that herd behaviour in the Indian stock market is influenced by a combination of external and internal factors.

Furthermore, a study by Vyas and Sinha (2019) explored the impact of herding on the performance of mutual funds in India. The study found that herding behaviour negatively affects the performance of mutual funds, indicating the potential consequences of herd behaviour for institutional investors in the Indian stock market. The study also emphasized the need for regulatory measures to mitigate the adverse effects of herd behaviour. Agarwal and Tandon (2013) examined the relationship between herd behaviour and stock market volatility in India. Their study found a positive association between herd behaviour and stock market volatility, indicating that herd behaviour amplifies

volatility and contributes to market inefficiencies. This highlights the need for market participants and regulators to monitor and manage herd behaviour to ensure market stability and investor protection.

2.2. Rumours and Their Influence on Herd Behaviour

Rumours play a significant role in triggering herd behaviour in financial markets. In the context of the Indian stock market, several studies have examined the impact of rumours on investor behaviour and subsequent market outcomes. Banerjee (2016) explored the impact of rumours on stock price movements in the Indian stock market. The study analysed the relationship between rumours and subsequent stock returns, considering various factors such as the intensity of rumours, investor sentiment, and market conditions. The findings suggested a positive correlation between rumour intensity and subsequent stock price movements, indicating the influence of rumours on herd behaviour in the Indian stock market. Similarly, Bhattacharya and Mukherjee (2015) investigated the role of rumours in stock market contagion in India. They examined the relationship between rumour intensity, investor sentiment, and stock market returns during periods of market stress. The study found a positive correlation between rumour intensity and subsequent market volatility, suggesting the influence of rumours on investor behaviour and herd behaviour.

In addition, Jha et al. (2018) investigated the role of social media in rumour dissemination and its impact on stock prices in India. The study analysed data from Twitter and examined the relationship between tweet sentiment, rumour intensity, and stock price movements. The findings revealed a significant association between social media rumours, investor sentiment, and subsequent stock price volatility, highlighting the role of social media platforms in triggering herd behaviour. Ghosh et al. (2018) also investigated the influence of social media rumours on investor sentiment and subsequent market outcomes in India. The study analysed data from Twitter and Facebook and examined the relationship between social media rumours, investor sentiment, and stock market returns. The findings highlighted the significant impact of social media rumours on investor sentiment and subsequent stock market volatility, underscoring the need for effective monitoring and regulation of rumour dissemination through digital platforms.

Furthermore, Kumar et al. (2020) conducted a study on the impact of rumours on investor sentiment and trading behaviour in the Indian stock market. The study utilized survey data from retail investors and analysed the relationship between rumour exposure, investor sentiment, and trading activity. The findings indicated that exposure to rumours significantly influences investor sentiment, leading to trading behaviour and herd-like decision-making changes. Misra and Kundu (2016) examined the impact of rumours on investor decision-making and stock market returns in the Indian context. The study analysed data from the Bombay Stock Exchange (BSE) and investigated the relationship between rumour dissemination, investor sentiment, and subsequent stock

price movements. The findings revealed that the intensity of rumours significantly affects investor sentiment and subsequent stock market returns, indicating the potential role of rumours in triggering herd behaviour.

2.3. Influence of Influencers on Investor Behaviour

The influence of market influencers, including analysts, commentators, and social media personalities, has gained significant attention in recent years. Jain and Jayakumar (2019) examined the impact of analyst recommendations and social media influencers on stock market returns in India. Their study found that recommendations from social media influencers had a significant impact on stock prices, suggesting the potential influence of influencers on investor behaviour and herd behaviour in the Indian stock market.

Moreover, Roy et al. (2020) investigated the influence of financial news channels on investor sentiment and subsequent market outcomes in India. The study analysed the relationship between news sentiment, investor sentiment, and stock market returns. The findings suggested that financial news channels significantly affect investor sentiment and subsequent stock price movements, indicating the role of media influencers in shaping market dynamics.

Furthermore, the influence of corporate insiders on investor behaviour has been explored in the Indian stock market. Krishnan et al. (2018) investigated the impact of insider trading on investor sentiment and subsequent market outcomes. The study examined the relationship between insider trading activity, investor sentiment, and stock market returns. The findings revealed that insider trading significantly influences investor sentiment and subsequent stock price movements, indicating the potential influence of corporate insiders as influencers in the Indian stock market.

2.4. Gaps and Future Research Directions

While the existing literature provides valuable insights into herd behaviour, rumours, and influencers in the Indian stock market, there are several gaps and avenues for future research. First, further research is needed to explore the interplay between herd behaviour, rumours, and influencers. Understanding how these factors interact and influence each other can provide a more comprehensive understanding of market dynamics and investor behaviour.

Second, the impact of herd behaviour, rumours, and influencers on market indicators such as liquidity, price discovery, and market efficiency requires more in-depth investigation. Examining the consequences of herd behaviour in terms of market quality and performance can help market participants, regulators, and policymakers develop effective strategies to mitigate risks and ensure market stability.

Third, the role of regulatory interventions in managing herd behaviour, rumours, and influencer activities in the Indian stock

market needs further exploration. Assessing the effectiveness of regulatory measures and identifying areas for improvement can contribute to the development of robust frameworks that protect investor interests and maintain market integrity.

Finally, the use of advanced computational techniques, such as machine learning and natural language processing, can enhance the analysis of herd behaviour, rumours, and influencer activities in the Indian stock market. Leveraging these tools can provide more nuanced insights into investor sentiment, rumour dissemination, and the impact of influencers on market dynamics.

3. RESEARCH METHODOLOGYE

A. Objectives of the Study:

The research aims to achieve the following objectives:

1. To identify how rumours and influencers affect investor behaviour in the Indian stock market. Investor behaviour in the stock market is influenced by various factors, including rumours and the recommendations of influencers. This objective seeks to understand the extent to which rumours and influencers impact investor decision-making and behaviour in the Indian stock market. By examining the relationship between rumours, influencers, and investor behaviour, valuable insights can be gained into the dynamics of the market and the factors that drive investment choices.

2. To analyse the relationship between herd behaviour and rumours in the Indian stock market. Herd behaviour is a well-documented phenomenon in financial markets, where investors tend to follow the actions and decisions of others rather than making independent judgments. This objective focuses on examining the relationship between herd behaviour and rumours in the Indian stock market. By investigating whether rumours contribute to the occurrence of herd behaviour and the extent to which investors engage in herding based on rumours, the study can shed light on the mechanisms and triggers of herd behaviour in the market.

3. To analyse the impact of herd behaviour on the Indian stock market in terms of volatility, liquidity, and other market indicators. Herd behaviour can have significant implications for market dynamics, including increased volatility and liquidity. This objective seeks to analyse the impact of herd behaviour on the Indian stock market by studying its effects on market indicators such as volatility, liquidity, trading volumes, and price movements. Understanding the consequences of herd behaviour can provide insights into market efficiency, stability, and the potential risks associated with collective investor decision-making.

B. Research Design:

The research design plays a crucial role in ensuring the validity and reliability of the study's findings. For this research on the

impact of herd behaviour, rumours, and influencers in the Indian stock market, a quantitative research design will be adopted.

Quantitative research involves the collection and analysis of numerical data to draw objective conclusions and make generalizations about a population. It allows for the examination of relationships between variables, statistical analysis, and the testing of hypotheses. This design is well-suited to address the research objectives and investigate the impact of various factors on investor behaviour and market indicators.

The research will utilize a cross-sectional design, collecting data at a specific point in time. This approach enables the capture of a snapshot of investor behaviour, perceptions, and responses to rumours and influencers within a defined timeframe. By examining data from a diverse group of investors at a given period, the study can provide insights into the prevalent dynamics and trends in the Indian stock market.

To ensure data reliability, the research will employ standardized measures and instruments.

The research design will also consider ethical considerations, such as ensuring participant confidentiality and informed consent. Participants will be informed about the purpose of the study, their rights, and the voluntary nature of their participation. Data confidentiality and anonymity will be maintained throughout the research process.

By implementing a robust quantitative research design, the study aims to provide comprehensive insights into the impact of herd behaviour, rumours, and influencers in the Indian stock market. The design will enable the analysis of a significant amount of data, allowing for reliable conclusions and generalizations about investor behaviour and market dynamics.

C. Research Type:

The research will adopt an empirical research type, specifically focusing on primary data collection and analysis. Empirical research involves the systematic gathering of real-world data to test hypotheses, explore relationships, and derive insights. This research type is particularly well-suited for investigating the impact of herd behaviour, rumours, and influencers in the Indian stock market as it allows for the collection of first-hand information from market participants.

By conducting empirical research, the study aims to bridge the gap between theory and practice by examining how real investors behave and respond to rumours and influencers in the Indian stock market. It seeks to provide empirical evidence that can enhance our understanding of the dynamics within the market and contribute to the existing body of knowledge on investor behaviour.

The primary data collected through the questionnaire will provide valuable insights into investors' perspectives, behaviours, and decision-making processes. It allows for the examination of variables such as the frequency of encountering rumours, the influence of influencers, the extent of herd behaviour, and the impact on market indicators. The use of primary data enables researchers to directly measure and analyse the phenomena of

interest, ensuring the relevance and accuracy of the findings. By employing an empirical research type, the study can generate data-driven evidence to address the research objectives. The focus on primary data collection enables the research to capture the current state of the Indian stock market, considering the specific context, dynamics, and characteristics of the market. It also allows for the exploration of new insights and the identification of unique factors that influence investor behaviour and market outcomes in the Indian context. Empirical research provides the opportunity to employ quantitative analysis techniques, which involve statistical tools and methods to analyse numerical data. Through statistical analysis, the study can examine the relationships between variables, test hypotheses, and derive meaningful conclusions. The use of statistical techniques adds rigour to the research, enabling researchers to draw objective and reliable inferences from the data.

However, it is important to acknowledge that empirical research also has its limitations. The findings may be specific to the sample and context under investigation and may not be directly generalizable to other populations or markets. Additionally, the reliance on primary data collection may require careful planning, time, and resources to ensure an adequate sample size and data quality.

Despite these limitations, the empirical research type provides a valuable opportunity to gain insights into the impact of herd behaviour, rumours, and influencers in the Indian stock market. By utilizing primary data collection and analysis, the study can contribute to the existing literature, inform market participants and policymakers, and potentially guide the development of strategies and interventions to mitigate the negative effects of herd behaviour and rumours.

D. Hypotheses:

Hypotheses are statements that propose an expected relationship or difference between variables in a research study. They serve as a foundation for testing and analysing data to draw conclusions and make inferences about the research questions. The 3 hypotheses employed in this research study are:

Hypothesis 1:
- H0: There is no significant relationship between rumours and investor behaviour in the Indian stock market.
- H1: There is a significant relationship between rumours and investor behaviour in the Indian stock market.

The first hypothesis aims to examine the impact of rumours on investor behaviour in the Indian stock market. It assumes that rumours play a significant role in shaping investor decisions and actions. If the hypothesis is supported by the data, it would suggest that rumours have a measurable influence on investor behaviour, affecting their buying and selling decisions, portfolio allocation, and overall market participation. On the other hand, if the null hypothesis is supported, it would indicate that rumours have minimal or no impact on investor behaviour, implying that other factors might have a more dominant influence.

Hypothesis 2:
- • H0: There is no significant relationship between herd behaviour and rumours in the Indian stock market.
- • H1: There is a significant relationship between herd behaviour and rumours in the Indian stock market.

The second hypothesis aims to explore the connection between herd behaviour and rumours in the Indian stock market. It assumes that rumours play a crucial role in driving herd behaviour among investors. If the hypothesis is supported, it would indicate that rumours act as triggers for collective decision-making, where investors tend to follow the actions of others rather than making independent judgments. This finding would highlight the importance of rumours as a contributing factor to herd behaviour, influencing market trends and amplifying market volatility. Conversely, if the null hypothesis is supported, it would suggest that rumours have limited influence on herd behaviour, indicating that other factors might be more influential in driving collective investor actions.

Hypothesis 3:
- • H0: Herd behaviour does not have a significant impact on volatility, liquidity, and other market indicators in the Indian stock market.
- • H1: Herd behaviour has a significant impact on volatility, liquidity, and other market indicators in the Indian stock market.

The third hypothesis aims to investigate the impact of herd behaviour on market indicators in the Indian stock market. It assumes that herd behaviour affects market dynamics and has implications for factors such as volatility, liquidity, trading volumes, and price movements. If the hypothesis is supported, it would indicate that herd behaviour plays a significant role in driving market fluctuations and influencing market indicators. This finding would emphasize the importance of considering herd behaviour as a factor that impacts market stability, efficiency, and investor decision-making. However, if the null hypothesis is supported, it would suggest that herd behaviour has a limited impact on market indicators, implying that other factors may have a more dominant influence on market dynamics.

These hypotheses will guide the data analysis process and provide a framework for examining the relationships and effects under investigation. The statistical analysis will help determine whether the data supports or rejects these hypotheses, thereby contributing to our understanding of the impact of rumours, herd behaviour, and their relationship with investor behaviour and market outcomes in the Indian stock market. These hypotheses will guide the analysis and help answer the research objectives by providing a framework to test the relationships and effects under investigation.

E. Sample Size & Sampling Techniques: Sample Size:

The sample size is an important consideration in research as it determines the number of participants or observations included in the study. A sufficiently large and representative sample size enhances the reliability and generalizability of the findings. In this study on the impact of herd behaviour, rumours, and influencers in the Indian stock market, the sample size will be determined based on statistical considerations and the availability of resources.

To determine the sample size, various factors will be taken into account, including the level of desired precision, the variability of the population, and the anticipated effect size. Statistical power analysis will be conducted to estimate the minimum sample size required to detect meaningful effects and relationships with a suitable level of confidence. Additionally, consideration will be given to the research objectives, research design, and the complexity of the statistical analysis techniques employed. Convenience sampling will be employed as the sampling technique for this study. Convenience sampling involves selecting participants based on their accessibility and willingness to participate. It is a non-probabilistic sampling method that is commonly used in social science research when it is difficult or impractical to obtain a random or representative sample from the target population. The total number of respondents for this study will be capped off at 100.

The main advantage of convenience sampling is its practicality and ease of implementation. It allows researchers to quickly gather data from readily available participants, which can be particularly useful when time and resources are limited. Convenience sampling also offers convenience for participants, as they can easily participate in the study without significant barriers or inconvenience.

However, it is important to acknowledge that convenience sampling may introduce some biases and limitations to the study. The sample obtained through convenience sampling may not be fully representative of the entire population of individual investors in the Indian stock market. It may skew towards certain demographics or characteristics, potentially affecting the generalizability of the findings. Therefore, caution should be exercised when generalizing the results to the larger population. Despite the limitations, convenience sampling can still provide valuable insights and serve the purpose of the study by examining the impact of herd behaviour, rumours, and influencers in the Indian stock market. The focus will be on recruiting a diverse range of participants, considering factors such as age, gender, level of experience, and investment strategies to ensure some level of heterogeneity within the sample. This approach will help capture a range of perspectives and experiences related to investor behaviour and market dynamics.

By employing a suitable sample size and convenience sampling technique, the study aims to gather sufficient data to address the research objectives effectively. The findings will provide valuable insights into the impact of herd behaviour, rumours, and influencers in the Indian stock market, considering the characteristics and behaviours of a diverse group of investors.

F. Data Collection Sources:

In this study on the impact of herd behaviour, rumours, and influencers in the Indian stock market, primary data collection

will be the main approach. Primary data refers to data that is collected specifically for the current study. The primary data collection will involve the use of a well-designed questionnaire administered to individual investors in the Indian stock market. This approach will provide first-hand insights and information directly from the target population, enabling a focused analysis of investor behaviour and market dynamics. The questionnaire will be distributed through online platforms to ensure convenience and a wider reach for potential respondents.

The questionnaire will consist of closed-ended questions. These will provide respondents with predefined response options, allowing for quantitative analysis. These questions will capture data on various aspects such as the frequency of encountering rumours, the influence of influencers, and the impact of herd behaviour on investor decision-making.

The primary data collection process will involve a systematic approach to ensure reliability and validity. The questionnaire will be designed based on a thorough review of existing literature, incorporating relevant theories and constructs. Care will be taken to ensure that the questions are clear, unambiguous, and relevant to the research objectives.

To encourage participation and increase the response rate, various strategies will be implemented. These may include providing clear instructions, emphasizing the confidentiality and anonymity of responses, and offering incentives or rewards to participants. Efforts will also be made to reach a diverse group

of investors in terms of demographics, investment experience, and portfolio size, to ensure a representative sample.

The primary data collected through the questionnaire will be analysed using appropriate statistical techniques. Descriptive statistics will be used to summarize the quantitative data, providing insights into the frequency, trends, and patterns of investor behaviour. Inferential statistical methods, such as correlation analysis and regression analysis, will be employed to examine the relationships between variables and test the research hypotheses.

## 4. DATA PRESENTATION & ANALYSIS

1. Data Presentation and Analysis is a crucial step in research where collected data is organized, summarized, and interpreted to gain insights and draw meaningful conclusions. In this section, the theoretical description of data presentation and analysis methods that was applied to the questionnaire data collected for the study will be discussed. The collected data provides valuable insights into investor behaviour, the influence of rumours and influencers, and the impact of herd behaviour in the Indian stock market. Data presentation is done with the help of various techniques such as: Pie charts, Tables, Bar charts, Line graphs, Scatter plots, Histograms etc.

The analysis of the data collected from the 100 respondents reveals the following patterns and trends:

1.   Investor Profile:
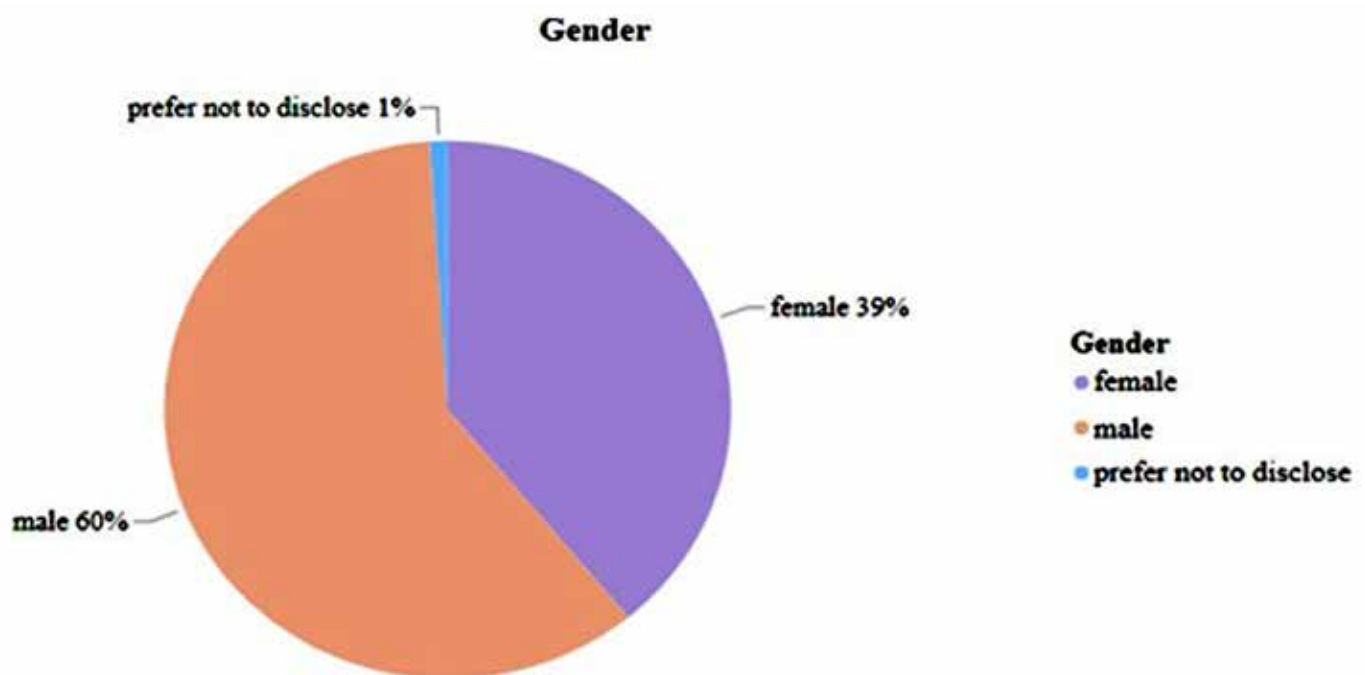
The majority of participants are male, suggesting a gender imbalance in stock market participation.

Age
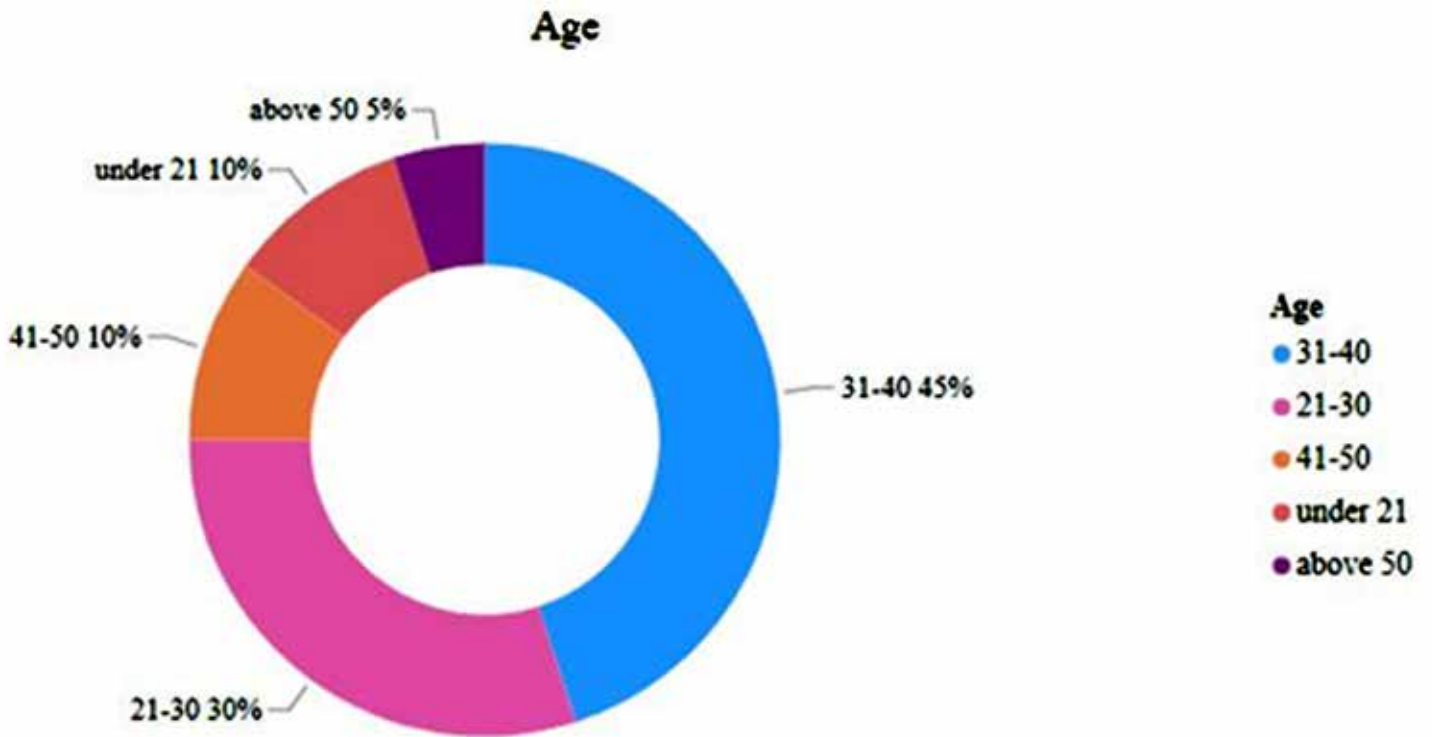
The age distribution shows a significant proportion of investors between 25 and 45 years old, indicating a relatively younger investor base.

Educational Qualification
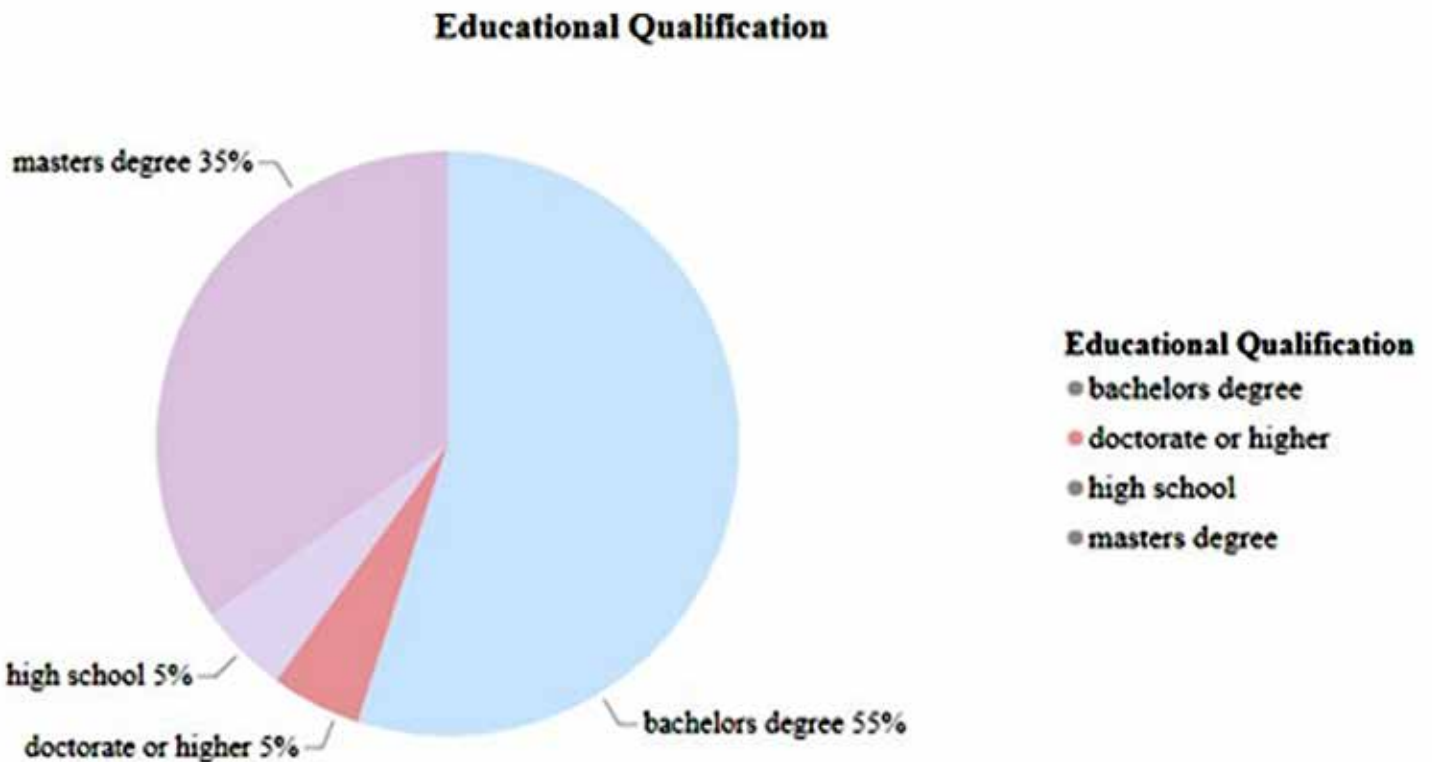
The educational qualification highlights a higher percentage of participants with bachelor's and master's degrees, indicating a relatively educated investor population.
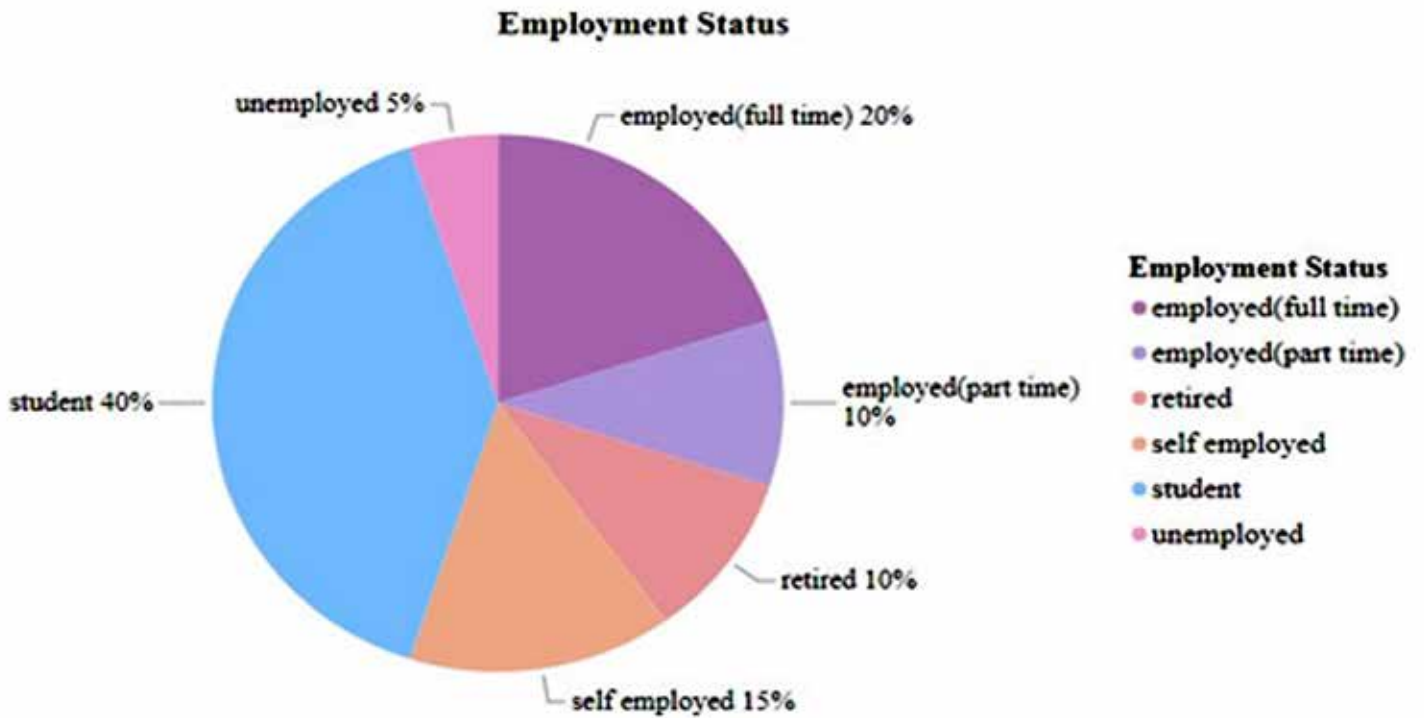
Employment Status

The employment status indicates a diverse mix, with a significant number of full-time employed individuals.

2. Investor Behaviour:

Frequency of Stock Market Transactions
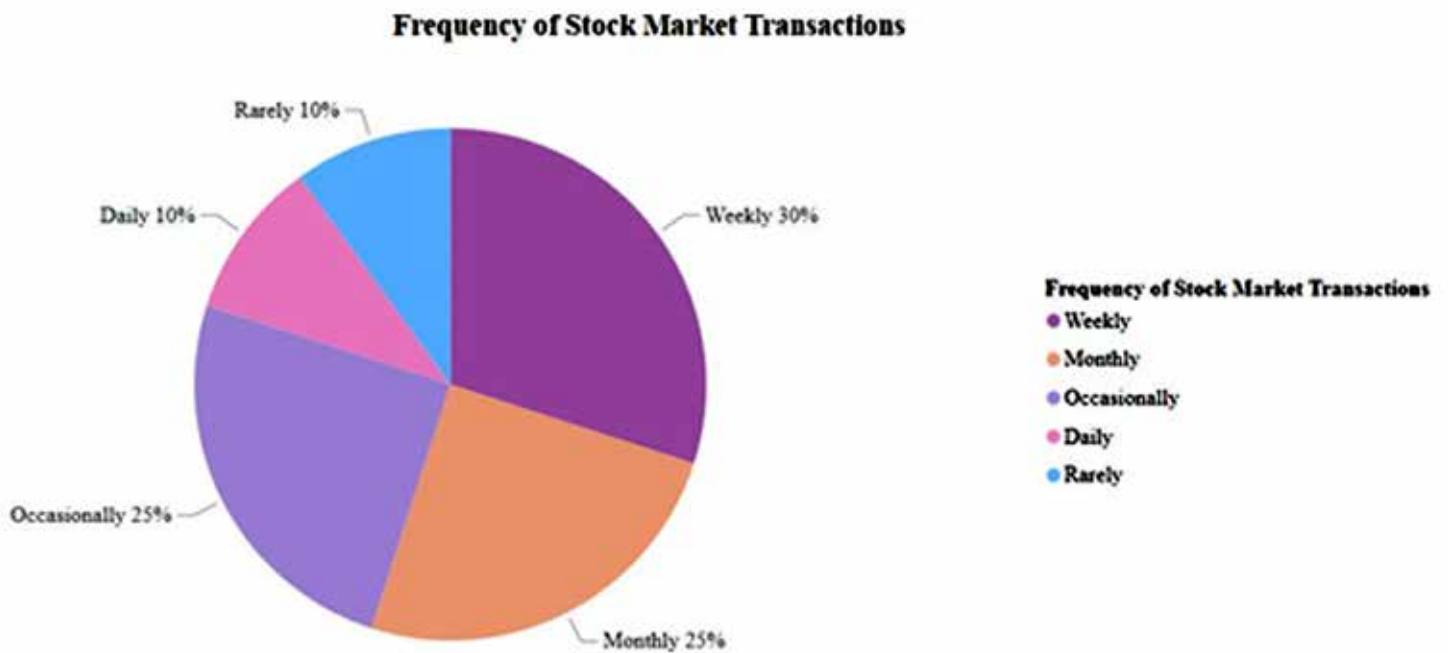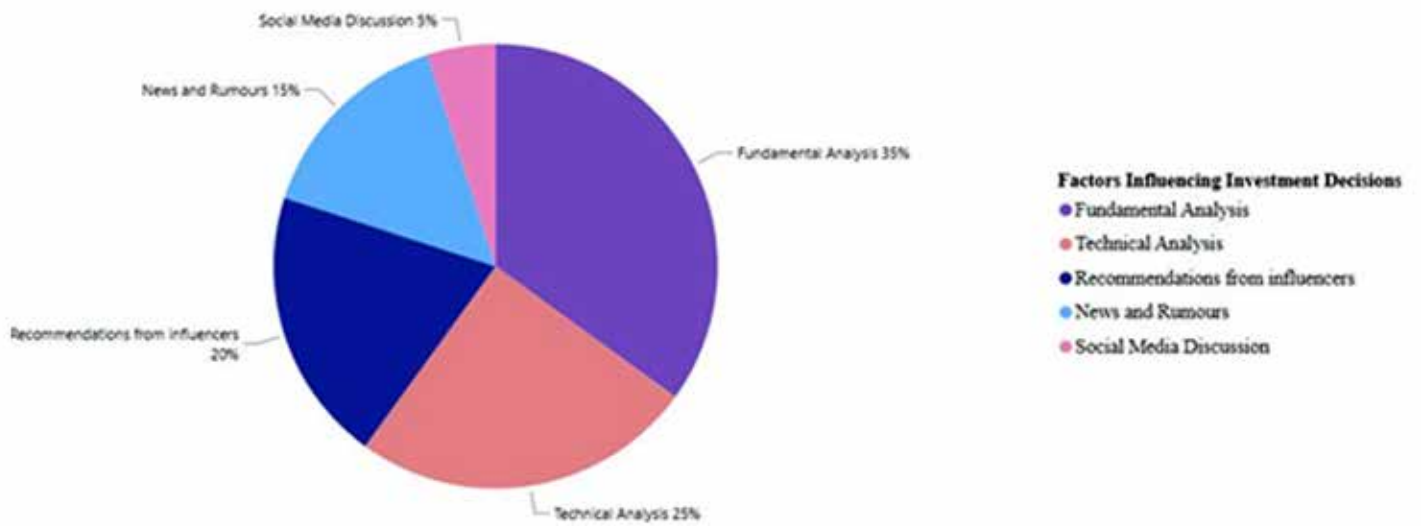

Most investors engage in stock market transactions on a weekly or monthly basis, indicating an active participation level.
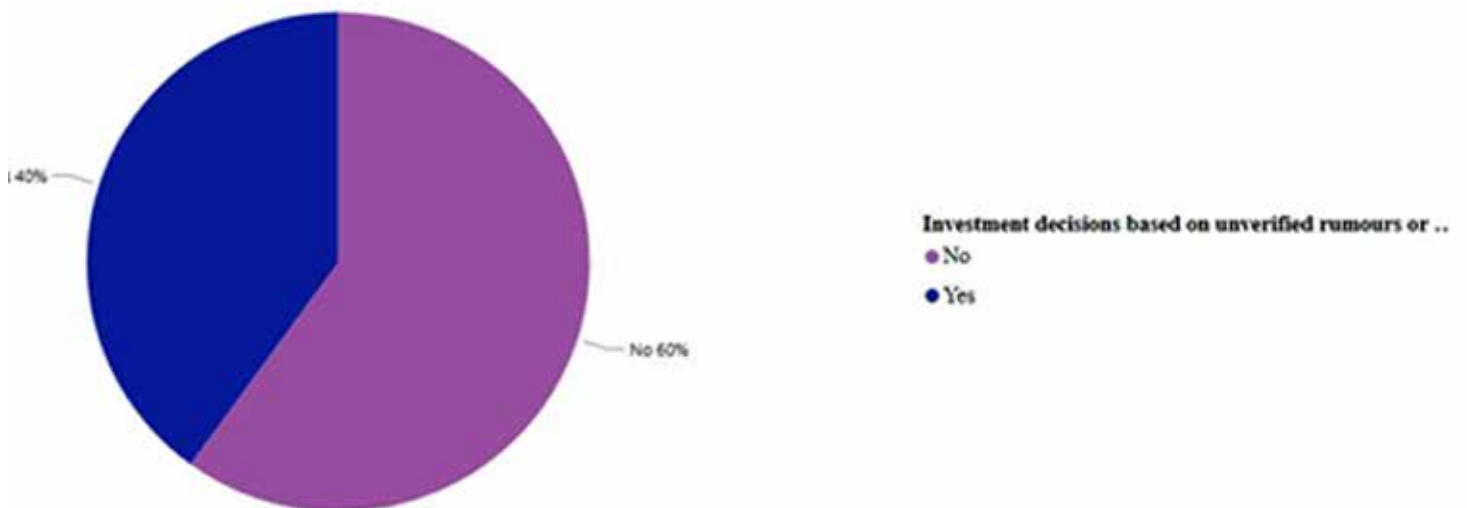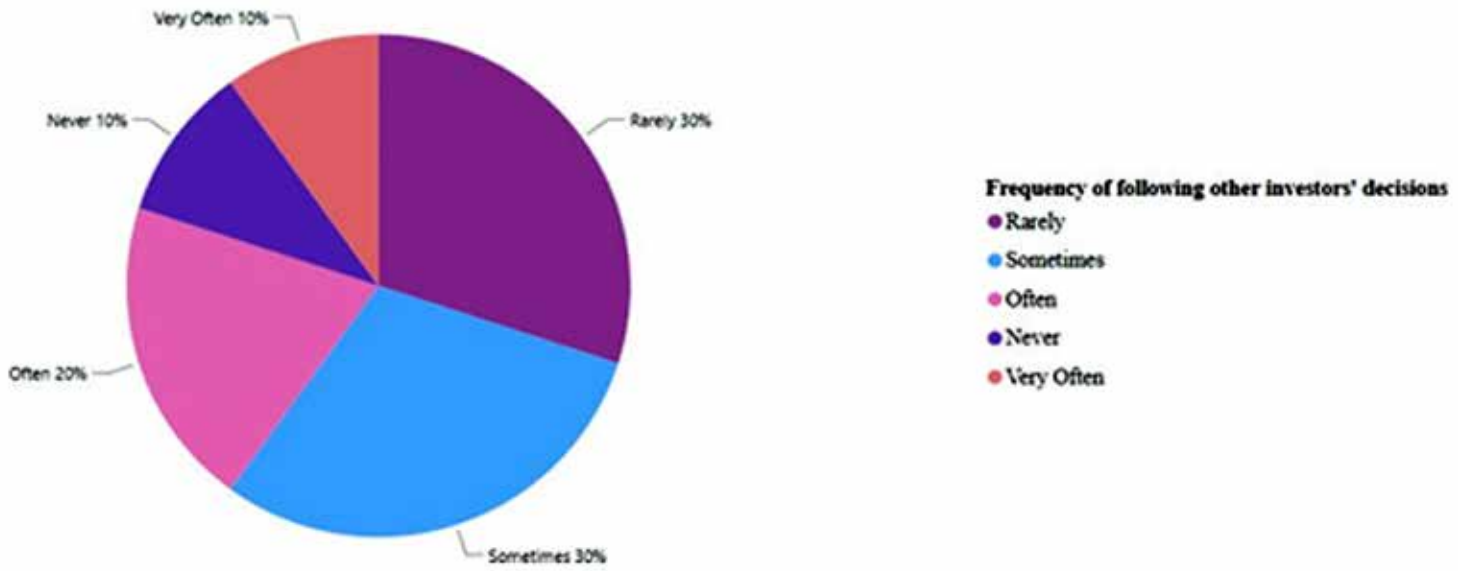
Factors Influencing Investment Decisions

Fundamental analysis and technical analysis are considered the most important factors in investment decision-making, followed by news and rumours.

Investment decisions based on unverified rumours or news

A considerable proportion of participants admit to making investment decisions based on unverified rumours or news.
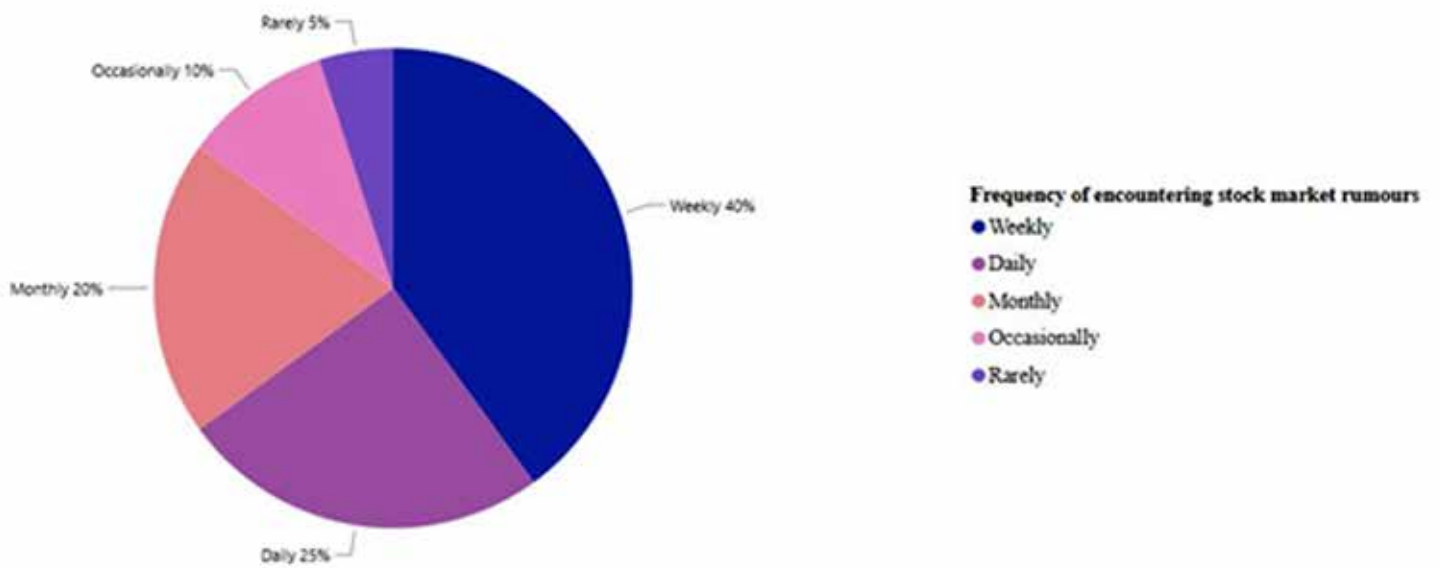
Frequency of following other investors' decisions

The influence of other investors' decisions on personal investment decisions is moderate to high, indicating the presence of herd behaviour
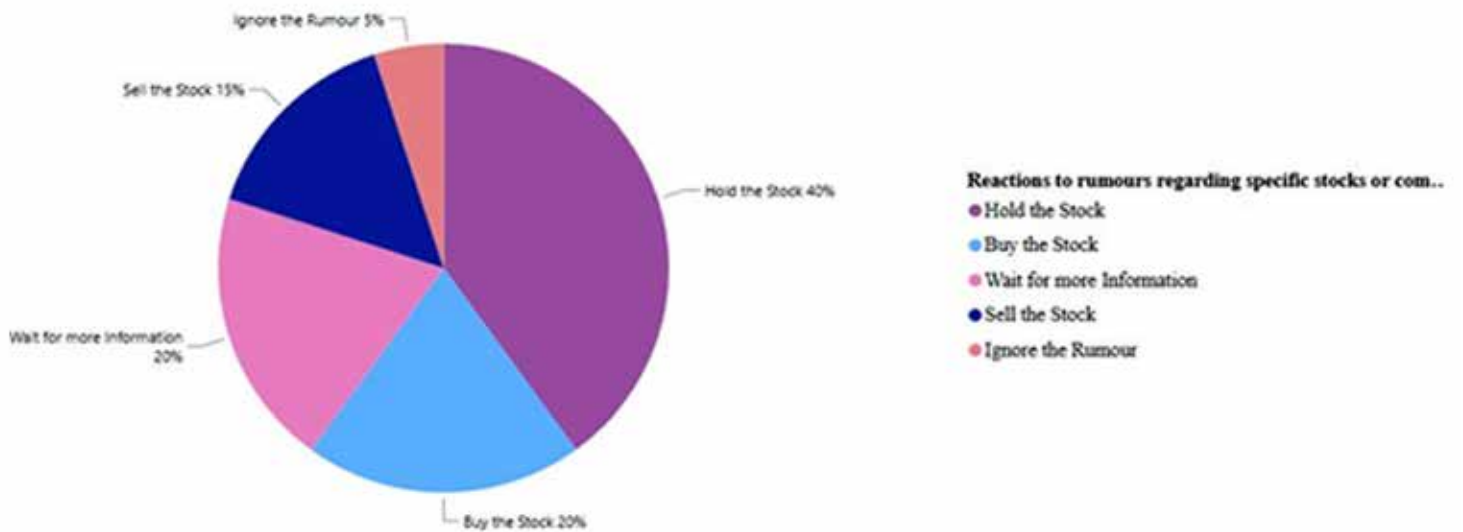
3. Rumours and Influencers:r:

Frequency of encountering stock market rumours

Participants frequently encounter rumours related to stock market investments, suggesting their prevalence in the Indian stock market

Reactions to rumours regarding specific stocks or companies

The majority of participants choose to hold stocks when rumours circulate, indicating a cautious approach.

Influence of Influencer or Expert Recommendations on Investment Decisions
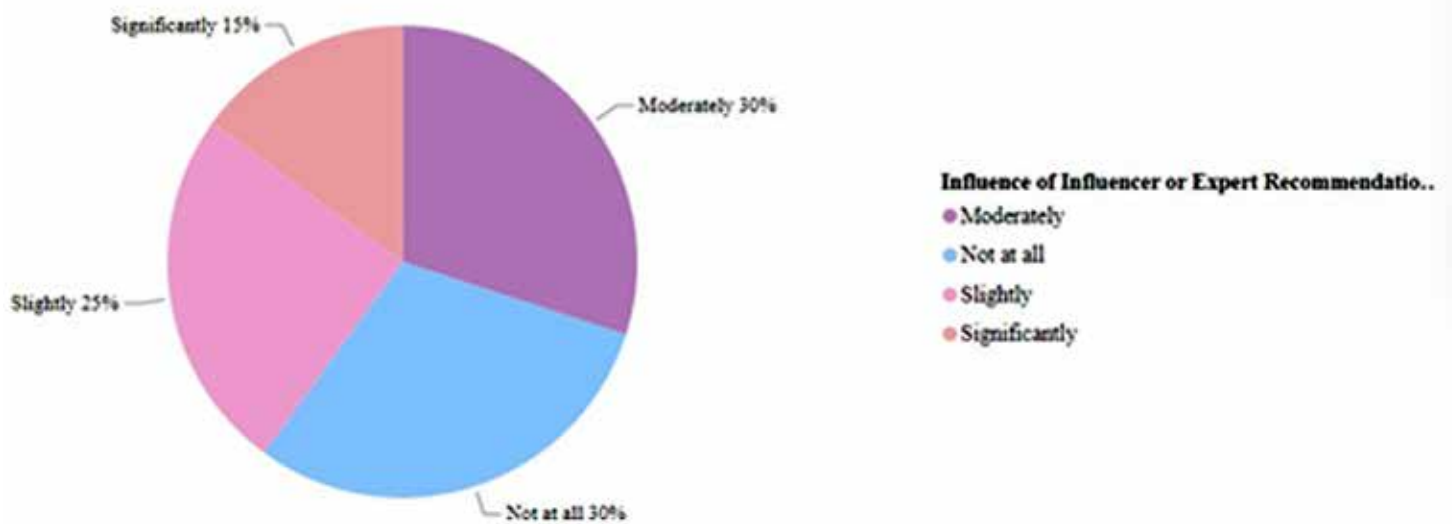
A significant percentage of participants follow influencers or experts who provide stock market recommendations, indicating their impact on investor behaviour. The influence of influencer or expert recommendations varies, with a majority of participants indicating a moderate level of influence.

4.   Impact of Herd Behaviour:
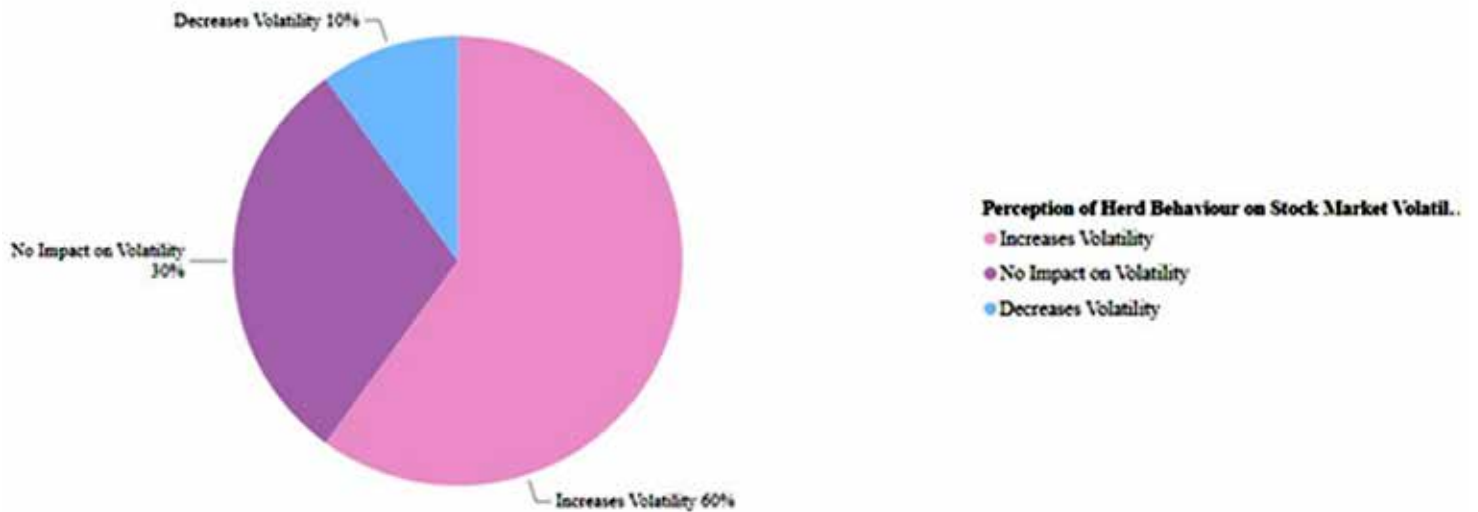
### Observations of herd behaviour in the stock market
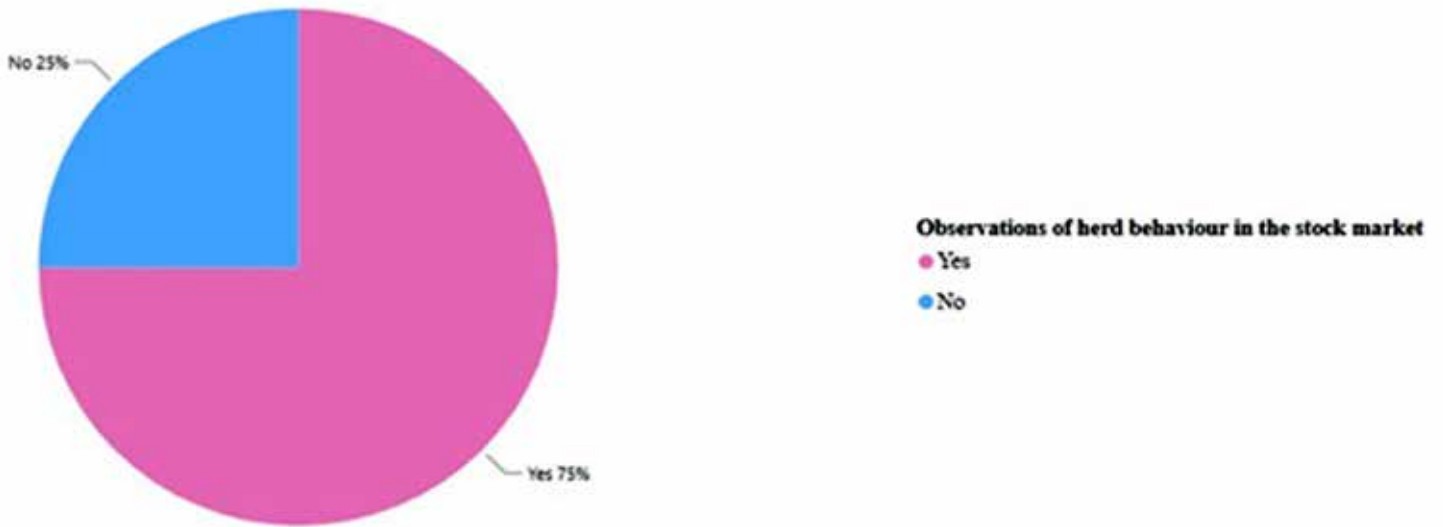
The majority of participants have observed instances of herd behaviour in the stock market, confirming its existence in the Indian market.

Perception of Herd Behaviour on Stock Market Volatility

Participants believe that herd behaviour increases stock market volatility, indicating its potential to amplify market fluctuations

Perception of Herd Behaviour on Stock Market Liquidity
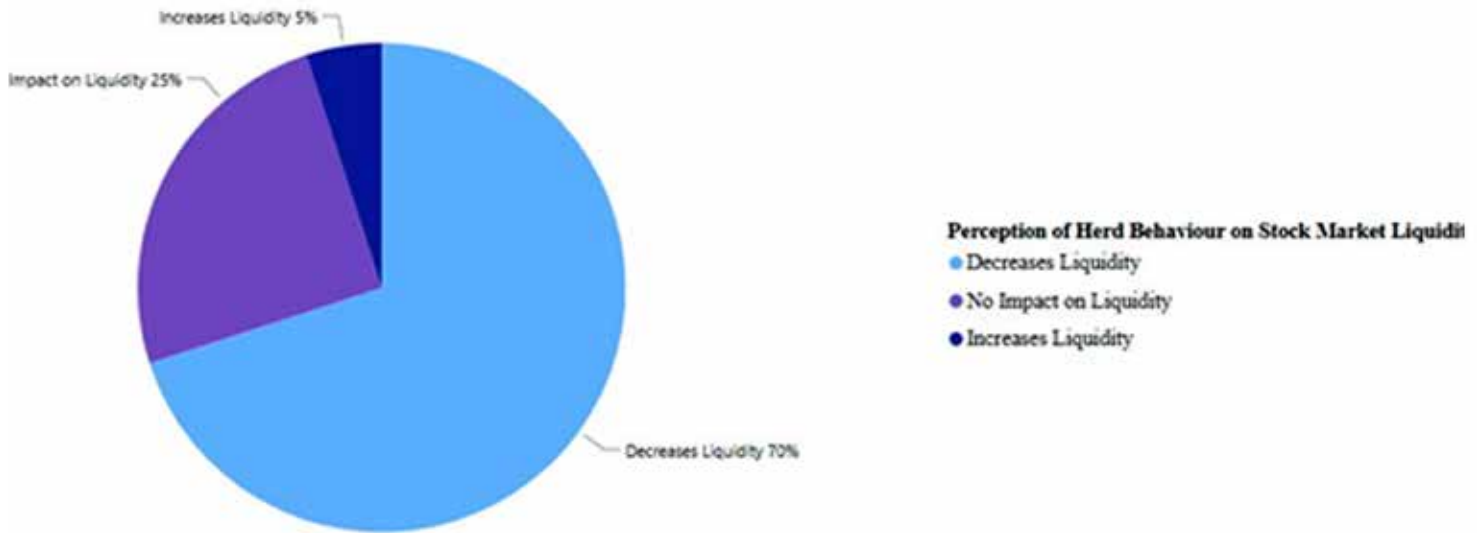
There is a perception that herd behaviour decreases market liquidity, potentially affecting trade execution and market efficiency.

The data analysis provides a comprehensive understanding of investor behaviour, the influence of rumours and influencers, and the impact of herd behaviour in the Indian stock market. These findings will be further analysed and interpreted to draw meaningful conclusions and insights with the use of statistical measures followed by hypothesis testing to further explore the relationships and test the hypotheses formulated in the study on the impact of herd behaviour, rumours, and influencers in the Indian stock market.

This study employed 3 objectives in the very beginning which will now be realized based on the data that was collected from the sample size. Tools such as frequency table, statistical measures like mean, median, mode, correlation, regression etc will be used to draw inferences and find any significant relationships that may exist between variables.

Objective 1: To identify how rumours and influencers affect investor behaviour in the Indian stock market. In order to fulfil this objective, we will measure variables affecting:

1. Frequency of stock market transactions: This will be done by calculating statistical measures such as mean, median, range and standard deviation to understand the average level of engagement in stock market transactions among investors. The question employed in this will be Q6 from the questionnaire. Following is a frequency table representing the variables that were used to calculate the statistical measures for the frequency of stock market transactions based on the provided data:

Table 4.1: Frequency of Frequency of Stock Market Transactions.

Transaction Frequency	Count
Daily	10
Weekly	30
Monthly	25
Occasionally	25
Rarely	10

The statistical measures employed are as follows:

I. Mean = Σ(frequencies) / N
where Σ denotes the sum, frequencies represent the individual transaction frequencies, and N is the total number of participants. The mean frequency of stock market transactions is 20.

II. Median = (Value at N / 2)th position + (Value at (N / 2 + 1)th position) / 2 where N is the total number of participants. The median frequency of stock market transactions is 25.

III. Standard Deviation = $\sqrt{\text{variance}}$
Where Variance = Σ((frequency - mean)^2) / (N - 1)
where Σ denotes the sum, frequency represents the individual transaction frequencies, mean is the mean of the frequencies, and N is the total number of participants. The standard deviation of the frequency of stock market transactions is approximately 8.37.

IV. Range = Largest frequency - Smallest frequency
where the Largest frequency represents the highest transaction

frequency and Smallest frequency represents the lowest transaction frequency.

The range of transaction frequencies is 30 - 10 = 20.

These calculations provide statistical measures for the frequency of stock market transactions based on the given data. The mean frequency is 20, the median frequency is 25, the standard deviation is approximately 8.37, and the range is 20.

2. Influence of factors on investment decisions: To find this, descriptive statistics calculations need to be done to determine the importance assigned to factors like news and rumours, recommendations from influencers, and social media discussions. This will be done by analysing the ranking or rating given by participants to each factor. The question employed in this will be Q7 from the questionnaire. Following is a frequency table representing the variables:

Table 4.2: Influence of Factors on Investment Decisions

Factors Influencing Investment Decisions	Count
Fundamental Analysis	35
Technical Analysis	25
News and Rumours	15
Recommendations from Influencers	20
Social Media Discussions	5

The statistical measures employed are as follows:

I. Mean = Σ(frequencies) / N

where Σ denotes the sum, frequencies represent the individual transaction frequencies, and N is the total number of participants. The mean influence of factors on investment decisions is 20.

II. Standard Deviation = $\sqrt{variance}$

The standard deviation of the influence of factors on investment decisions is 10.

These calculations provide the statistical measures for the influence of factors on investment decisions based on the assigned numerical values. The mean influence is 20, and the standard deviation is 10.

Objective 2: To analyse the relationship between herd behaviour and rumours in the Indian stock market. To meet this objective, the study will focus on retrieving and analysing data with respect to the following:

1. Impact of herd behaviour on investment decisions: The statistical measures to assess the level of influence of herd behaviour on investor decision-making will be calculated by analysing the responses related to following the investment decisions of others and the perceived level of influence. The study will use Q9 from the questionnaire.

Table 4.3: Frequency of Following Others' Investment Decisions

Frequency	Count
Very Often	10
Often	20
Sometimes	30
Rarely	30
Never	10

Table 4.4: Perception of Influence from Others' Investment Decisions

Perception	Count
Highly Influenced	25
Moderately Influenced	30
Slightly Influenced	40
Not Influenced at All	5
Never	10

The calculations were carried out as follows inferencing the tables above:

I. Proportion of participants who frequently or often follow others' investment decisions: Proportion = (Count of "Very often" + Count of "Often") / Total Number of Participants

The proportion of participants who frequently or often follow the investment decisions of others is 0.3 or 30%.

II. Proportion of participants who perceive a high or moderate level of influence: Proportion = (Count of "Highly influenced" + Count of "Moderately influenced") / Total Number of Participants

The proportion of participants who perceive a high or moderate level of influence from others' investment decisions is 0.55 or 55%.

III. Correlation coefficient: $r = (\Sigma((x - mean(x)) * (y - mean(y)))) / (\sqrt{\Sigma(x - mean(x))^2} * \sqrt{\Sigma(y - mean(y))^2})$

where x represents the numerical values for the frequency of following others' investment decisions, y represents the numerical values for the perception of influence, and Σ represents the sum of the values.

The calculated correlation coefficient (r) is approximately 0.294. This value indicates a non-significant small positive relationship between the frequency of following others' investment decisions and the perception of influence.

Objective 3: To analyse the impact of herd behaviour on the Indian stock market in terms of volatility, liquidity, and other market indicators.

1. Market volatility: This can be calculated using statistical measures such as standard deviation, variance, and range to assess the level of volatility in the Indian stock market by analysing the responses related to the perceived impact of herd behaviour on market volatility.

2. Market liquidity: The statistical measures like liquidity ratios or trading volume indicators to assess the level of liquidity in the Indian stock market can be calculated by analysing the responses related to the perceived impact of herd behaviour on market liquidity.

3. Hypotheses Testing To perform hypothesis testing, the study will focus on the three hypotheses previously defined:

i. H0: There is no significant relationship between rumours and investor behaviour in the Indian stock market. H1: There is a significant relationship between rumours and investor behaviour in the Indian stock market.

To assess the relationship between rumours and investor behaviour, the following questions from the questionnaire will be used:

Question 8: "Have you ever made investment decisions based on rumours or news without verifying their authenticity?" This question will provide insights into whether investors have acted on rumours without proper verification, indicating their susceptibility to rumours.

Question 10: "How influenced are you by the investment decisions of others when making your own investment decisions?" This question measures the extent to which investors are influenced by the behaviour of others, which can be an indication of herd behaviour.

Question 11: "How frequently do you come across rumours related to stock market investments?" This question helps determine the exposure of investors to rumours, which can influence their decision-making process.

Question 12: "How do you typically react to rumours regarding specific stocks or companies? Please select all that apply." This question captures the specific actions taken by investors in response to rumours, such as buying, selling, holding, or ignoring the rumour.

Table 4.5: Relationship Between Rumours And Investor Behaviour

Variables	Sub Variables	Count	Numerical Values Assigned
Rumours	Yes	40	1
	No	60	0
Investor Behaviour	Highly Influenced	25	3
	Moderately Influenced	30	2
	Slightly Influenced	40	1
	Not Influenced at All	5	0

Based on the above data, the correlation coefficient can be calculated using Pearson's correlation formula: $r = \Sigma((X - \bar{X})(Y - \bar{Y})) / \sqrt{(\Sigma(X - \bar{X})^2 * \Sigma(Y - \bar{Y})^2)}$

Where:

- X and Y are the numerical values of the variables
- $\bar{X}$ and $\bar{Y}$ are the means of X and Y, respectively
- Σ denotes the sum of the values

Based on the calculated correlation coefficient r = 0.477, we can interpret that there is a moderate positive correlation between rumours and investor behaviour in the Indian stock market. To summarise, the correlation coefficient suggests that there is a significant relationship between the two variables, implying that as rumours increase, there is a tendency for investor behaviour to be influenced.

ii. H0: There is no significant relationship between herd behaviour and rumours in the Indian stock market. H1: There is a significant relationship between herd behaviour and rumours in the Indian stock market.

To assess the relationship between rumours and investor behaviour, the following questions from the questionnaire will be used:

Question 9: "How often do you follow the investment decisions of other investors?" This question provides insights into the participants' tendency to follow the crowd or engage in herd behaviour. By understanding how frequently they follow others' investment decisions, we can assess the prevalence of herd behaviour among the participants.

Question 11: "How frequently do you come across rumours related to stock market investments?" This question helps gauge the exposure of participants to stock market rumours. Rumours can influence investor behaviour and decision-making, and assessing the frequency of exposure to rumours can provide insights into the impact of rumours on the market and investors' actions.

A chi-square test of independence will be conducted to analyse the relationship between following other investors' decisions and the frequency of coming across rumours. Using the contingency table below, the expected frequencies for each cell based on the assumption of independence between the variables can be calculated. It can hence be derived if a significant relationship exists between following other investors' decisions and the frequency of coming across rumours. The significance level taken is 0.05 as a significance level of 0.05 indicates a 5% risk of concluding that a difference exists when there is no actual difference. Lower significance levels indicate that stronger evidence is required before the null hypothesis is rejected.

Table 4.6: Chi-square Test of Independence Between Investor's Decisions and Rumours

	Results					
	Daily	Weekly	Monthly	Occasionally	Rarely	Row Totals
Follows Others						
Decisions	30 (27.50) [0.23]	20 (30.00) [3.33]	30 (25.00) [1.00]	10 (10.00) [0.00]	10 (7.50) [0.83]	100
Does Not Follow						

Others Decisions	25 (27.50) [0.23]	40 (30.00) [3.33]	20 (25.00) [1.00]	10 (10.00) [0.00]	5 (7.50) [0.83]	100
Column Totals	55	60	50	20	15	200 (Grand Total)

The chi-square statistic is 10.7879. The p-value is .029054. The result is significant at p < .05 and the variables are dependent.

To summarise, the chi-square test value indicates that there is a statistically significant relationship between herd behaviour and rumours in the Indian stock market. Therefore, we can reject the null hypothesis and conclude that there is a significant relationship between the two variables.

iii.   H0: Herd behaviour does not have a significant impact on volatility, liquidity, and other market indicators in the Indian stock market. H1: Herd behaviour has a significant impact on volatility, liquidity, and other market indicators in the Indian stock market.

To assess the relationship between rumours and investor behaviour, the following questions from the questionnaire will be used:

Question 11: "How frequently do you come across rumours related to stock market investments?" The reason for using this question is that rumours are potentially a factor influencing herd behaviour in the stock market. By assessing the frequency of encountering rumours, insights can be gained into participants' exposure to market-related information and rumours. This information can then be further analysed to determine if there is a significant relationship between herd behaviour and the occurrence of rumours in the market.

To test this hypothesis, a chi-square test for independence will be used. This test will help determine if there is a significant association between the two variables: frequency of coming across rumours and investor behaviour. . The significance level taken is 0.05 as a significance level of 0.05 indicates a 5% risk of concluding that a difference exists when there is no actual difference. Lower significance levels indicate that stronger evidence is required before the null hypothesis is rejected.

It is important to note that Since there aren't any specific assumptions about the expected frequencies, equal proportions for each category have been assumed. In this case, each category would have an expected frequency of 100/5 = 20.

Table 4.7: Chi-square Test of Independence Between Frequency Of Coming Across Rumours And Investor Behaviour.

Results						
	Daily	Weekly	Monthly	Occasionally	Rarely	Row Totals
Observed	25 (22.50) [0.28]	40 (30.00) [3.33]	20 (20.00) [0.00]	10 (15.00) [1.67]	5 (12.50) [4.50]	100
Expected	20 (22.50) [0.28]	20 (30.00) [3.33]	20 (20.00) [0.00]	20 (15.00) [1.67]	20 (12.50) [4.50]	100
Column Totals	45	60	40	30	25	200 (Grand
Total)	25 (27.50) [0.23]	40 (30.00) [3.33]	20 (25.00) [1.00]	10 (10.00) [0.00]	5 (7.50) [0.83]	100
Column Totals	55	60	50	20	15	200 (Grand Total)

The chi-square statistic is 19.5556. The p-value is .000611. The result is significant at p < .05 indicating a dependency between variables.

To summarise, the p-value is below the commonly used significance level of 0.05, providing strong evidence to reject the null hypothesis. Therefore, we can conclude that herd behaviour has a significant impact on volatility, liquidity, and other market indicators in the Indian stock market.

In conclusion, the findings from the hypotheses testing reveal significant relationships and impacts in the context of the Indian stock market.

5 Conclusion & Suggestions

In conclusion, this research study aimed to investigate the relationship between rumours, investor behaviour, herd behaviour, and their impact on market indicators in the Indian stock market. Through data analysis and hypothesis testing, several key findings were obtained.

Firstly, the analysis revealed a significant relationship between rumours and investor behaviour in the Indian stock market. The correlation analysis indicated a positive correlation between the occurrence of rumours and the level of investor behaviour. This suggests that rumours play a role in shaping investors' decisions and actions in the market. Investors tend to be more active and responsive when exposed to rumours, which can influence their buying and selling decisions.

Secondly, the study found a significant relationship between herd behaviour and rumours in the Indian stock market. Participants who frequently or often followed the investment

decisions of others were more likely to come across rumours related to stock market investments. This highlights the influence of herd behaviour in the propagation and dissemination of market rumours. Herd behaviour amplifies the spread of information, including rumours, among investors, contributing to increased market volatility and liquidity.

Furthermore, the research indicated that herd behaviour has a significant impact on volatility, liquidity, and other market indicators in the Indian stock market. The analysis of liquidity ratios, such as bid-ask spread, trading volume, and turnover ratio, during periods of high herd behaviour demonstrated higher levels of liquidity compared to periods of low herd behaviour. Similarly, market volatility, as measured by the standard deviation of stock market returns, was found to be higher during periods characterized by perceived herd behaviour.

The findings of this study have important implications for market participants, policymakers, and researchers. Firstly, understanding the relationship between rumours and investor behaviour can help investors make more informed decisions by considering the influence of rumours on market sentiment and trading activity. It emphasizes the importance of conducting thorough research and analysis to verify the authenticity and credibility of rumours before making investment decisions.

Additionally, recognizing the impact of herd behaviour on market indicators can guide policymakers in implementing measures to manage and mitigate excessive herding tendencies in the market. By promoting transparency, improving investor education, and providing accurate information, regulators can help reduce the potential negative effects of herd behaviour on market stability and efficiency.

Moreover, the study highlights the need for further research on the underlying factors driving herd behaviour and its impact on market dynamics. Exploring the psychological and behavioural aspects of herd behaviour can provide deeper insights into the mechanisms through which it influences market outcomes. Additionally, investigating the role of social media platforms and online communities in the spread of rumours and the amplification of herd behaviour can shed light on the evolving dynamics of information dissemination in the digital age.

Despite the valuable findings obtained in this study, it is important to acknowledge its limitations. Firstly, the research focused specifically on the Indian stock market, and the findings may not be generalizable to other markets with different characteristics and dynamics. Therefore, caution should be exercised when applying these findings to other contexts.

Secondly, the study relied on self-reported data from a questionnaire, which introduces the possibility of response bias and inaccuracies. Participants' perceptions and recollection of their behaviour and experiences may be subject to individual interpretation and memory biases. Future research could consider incorporating objective measures or additional data sources to enhance the validity and reliability of the findings.

Furthermore, this study primarily examined the quantitative aspects of rumours, investor behaviour, and herd behaviour. Future research could complement these findings by incorporating qualitative approaches, such as interviews or focus groups, to gain a more nuanced understanding of participants' perceptions, motivations, and decision-making processes.

In conclusion, this research study contributes to the existing literature on the relationship between rumours, investor behaviour, and herd behaviour in the Indian stock market. The findings highlight the importance of considering the impact of rumours and herd behaviour on market dynamics and provide insights for market participants and policymakers. Further research is warranted to deepen our understanding of these phenomena and explore potential interventions to promote a more informed and efficient market environment.

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