Behavioral Finance and Market Anomalies: Explore How Cognitive Biases and Emotional Factors Influence Investor Behavior and Lead to Market Anomalies

[1]Shyam Sunder Agrawal, [2]K. Prabhu Sahai, [3]J. Venu Gopal

[1]Mittal School of Business, Lovely Professional University, Phagwara, Punjab
[2]Government Degree College, Falaknuma, Hyderabad-5000053, India
[3]Avinash College of Commerce, Himayat Nagar, Hyderabad, India

Abstract

This study explores the complex interplay between extrinsic and intrinsic factors influencing human behavior in various contexts, including the stock market, with a focus on the impact of cognitive and emotional biases on investment decisions. Against the backdrop of modern finance theories, which assume market efficiency and rational investor decision-making, this research aims to investigate the effects of overconfidence, loss aversion, and herd behavior on investor choices. Utilizing a mixed-methods approach, combining theoretical frameworks from prospect theory and behavioral finance, this study examines the ways in which these biases lead to suboptimal decisions, undermine market efficiency, and contribute to market trends and anomalies, including momentum effects and bubbles. The key findings of this research reveal that cognitive and emotional biases significantly impact investment decisions, and that understanding and regulating these biases can improve market predictions and regulation. The study's policy and business implications are significant, as its insights can inform the development of more effective investor education programs, risk management strategies, and regulatory frameworks, ultimately leading to more informed decision-making and stable financial markets.
Keywords: Behavioral Finance, Financial Decision, Cognitive and Emotional Biases, Efficient Market.

Highlights

- **Cognitive Biases:** Research highlights how overconfidence and loss aversion distort investor behavior, leading to irrational decisions and market inefficiencies.

- **Prospect Theory:** Explores how loss aversion influences investors to avoid losses more than they seek gains, affecting their risk-taking and decision-making.

- **Herd Behavior:** Studies the bandwagon effect, where individuals follow the majority, amplifying market trends and contributing to anomalies like bubbles.

- **Market Anomalies:** Analyzes how cognitive and emotional biases result in persistent market anomalies such as momentum effects, contradicting the Efficient Market Hypothesis (EMH).

- **Mitigation Strategies**: Investigates ways to understand and manage biases, aiming to improve market predictions and regulatory practices by addressing emotional and cognitive distortions.

1. Introduction

Behavioral finance is an interdisciplinary research area that is dedicated to studying how cognitions and feelings impact investors and markets' actions (Kumar et al., 2022). Previous conventions of financial sciences based on the Efficient Market Hypothesis presupposes that investors are rational, and their actions are aimed at the maximizing the utility of all obtainable information (Baker et al., 2018). Yet there are trends in modern organisational research that show that investors act rather irrationally, have systematic biases and show emotional responses that cause the formation of market anomalies (Bansal, 2022). Such anomalies as much as sharp fixing of asset prices, patterns like momentum, and the clustering effect distort the underpinning assumptions of classical financial models and therefore point to the need to learn more about behavioral side of financial markets (Rosid et al., 2024).
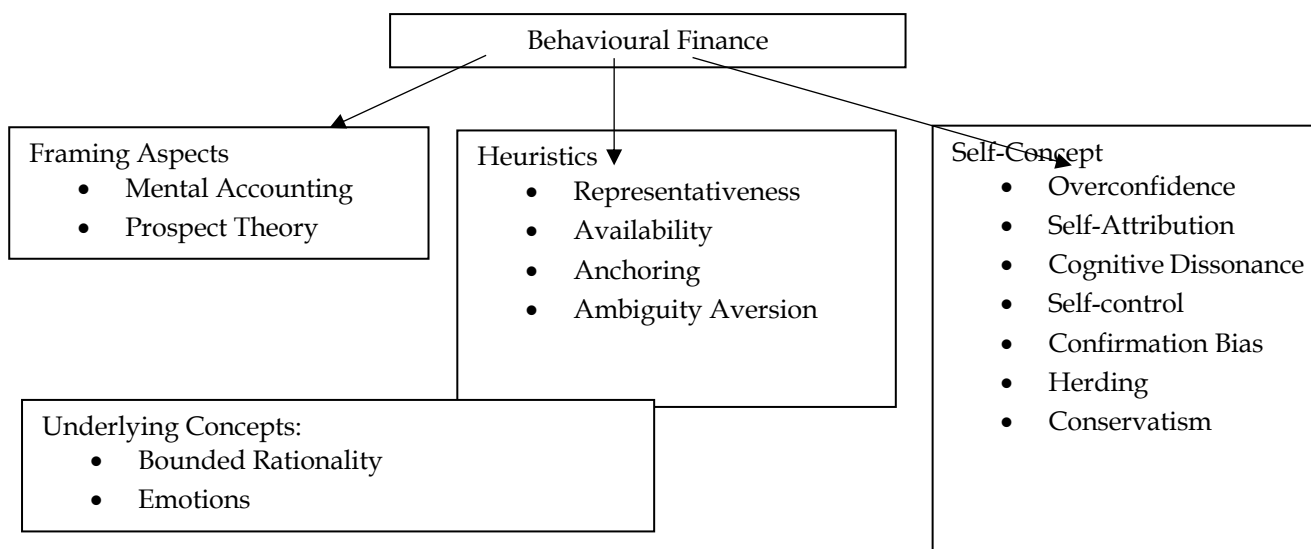
Figure 1. Classification of behavioural finance
Source: Authors' creation

The behavioral finance includes cognitive biases including overconfidence, loss aversion and herding behavior (del Águil, 2019). Overconfidence bias leads to overconfidence about the knowledge and the accuracy of the predictions about the stocks which in turns leads to over trading and high volatility (Salas, 2024). (Kawadkar, 2024) prospect theory is a psychological theory that explains loss aversion where an individual's responses to gains and losses are different; for instance, an individual is likely to choose an irrational option in an attempt to avoid losing an amount of money as much as he or she would like to gain that sum (Barberies et al., 2002). Thus, such phenomena as herding, when a large number of people follow the actions of others, only strengthen market movements and make bubbles and crashes more possible. Fear and greed are some of the emotions that affect the investors and magnify the anomalies of the market (Dilik, 2024). Fear makes investors sell their assets in the market at very low prices during periods of market stress while greed makes investors to invest in assets in the market during period of high prices also termed as bubbles in bull markets (Woo, et al., 2020). These psychological factors destabilize the markets interfering with the efficiency and the price equity to the core values, thus creating possibilities of informed trader's gains. Hence, behavioral finance is a branch of finance that is imperative to identify the factors for such patterns and to predict and prevent the negative impacts (Ma, 2024). The strength of the behavioral finance perspective is that psychology is incorporated into models of financial decision making hence presents a more enlightening approach to the understanding of the markets (Choi et al., 2010). Thus, this combination of perspectives not only contributes to improving the accuracy of market forecasts and investment activities but also serves as the basis for developing and improving legislation regulating financial markets and protecting the rights of investors (Nawrocki & Viole, 2014). Thus, the role of the behavioral approach in the analysis of the financial markets and, more generally, enhancing the economy theories and practices worth expanding as new markets emerge and the understanding of the market behavior becomes more enigmatic (De Giorgi et al., 2020). The aim of this study to provide a comprehensive understanding of investor behavior and market anomalies and less studied market anomalies that have not covered in exiting research contributing to the new field. Further, some novel strategies that can mitigate the negative impacts of factors on investors' behavior.

1.1 Research Background

Another branch of the neoclassical economics is behavioral finance that appeared less than 20 years ago and which is devoted to the study of impacts and regularities of psychological factors and patterns on investors and markets' actions (Debond, 2008). The neoclassical theories such as the EMH has the assumption that markets are rational and efficient; thus, the price of the assets captures all the available information. On the other hand, (Singh et al., 2024) there are many empirical violations of EMH including that which pertains to existence of asset bubbles, momentum trading and excessive fluctuations that go ahead to confirm market inefficiencies due to irrationality. The following perturbations from rationality are defined by cognitive biases. Overconfidence bias (Salas, 2024) involves the investors being overconfident with their imperfection while being over-reliant with their knowledge that aids them in making wrong estimations of the future stock movement thus leading to frequent and avoidable trading. This bias was taken through deep analysis by (Barber and Odean,

2000) with findings showing that active shareholders or those with high level self-confidence, are active traders and earn less. However, loss aversion put forward at the heuristic model of the subject by Kahneman and Tversky (1979) presupposes that people suffer in loss even more than they gain in profit. This bias can incline towards the 'fear of losing' money more than the actual gains and therefore influences holding patterns and investment negatively (Salas, 2024). This is the case because things like the herd behavior, where an investor copies behavior that they deem proper from the majority, creates such market related activities as; speculation bubbles and crashes. Shiller (2015) listed on irrational exuberance as the major behavioral characteristic of the investors that fueled the dot-com bubble through herding. It is noteworthy that psychological factors are also still as the key drivers of the investors' actions, as well as the general tendencies of the market. Everyone knows that for the behaviour in the market, such feelings as fear and greed are among the most powerful ones. During marketing stress, they lead to panic selling through principles of fear and thereby increase the magnitude of the decline. On the other hand, greed may make investors to access the market during the bull market in order to buy shares at prices which are reasonable (Ullah et al., 2024).

An example is the financial crisis in 2007-2008 where a greed behavior led to so much risk taking which crowned with shift to fear. Understanding of these behavioral characteristics is necessary to obtain an explanation regarding why the markets do not fulfill the expectations derived from rational policies (Brahmasrene, & Whitten, 2022). Whereas behavioral finance focuses especially on the people's psychological traits that regulate their economic behaviors, it introduces into the model's consideration of these behaviors, thus accounting for the existing market irrationalities (Fama et al., 2020). Thus, the conscious recognition of cognitive biases and the major emotion regulation impacts helps in the construction of the basic outlook how to improve in market prediction, on the development of more effective regulation patterns, and the construction of the best investment strategies. In this case, knowledge in behavorial finance together with it apply in the international financial markets are crucial to enhancing stability and efficiency in the markets. Stock prices don't follow classical theory only decisions of investors' sentiment play important role in stock market (Jana, 2016). Various factors influence the individual investors' investment decisions for opting investments like herd behaviour, anchoring, cascades and overconfidence affect the sentiments and create market anamolies (Raut et al., 2020). The study explored, there is a positive impact between investment decision and behavioural finance but heuristics create negative relationship (Ogunlusi & Obademi, 2021). According to Dar & Kumar (2023), this study happened in particular region where decisions of investors influenced by age, occupation, culture and religion, overconfidence and risk perception don't have any impact.

1.2 Research Objective

●   To investigate the impact of cognitive biases on investment decision-making processes
●   To analyze the role of emotional factors in market dynamics and anomalies
●   To evaluate the relationship between cognitive biases and market anomalies
●   To propose strategies for mitigating the adverse effects of cognitive biases and emotional factors on financial markets

1.3 Research Problems

When it comes to behavioral finance, it has been seen that the theories like Efficient Market Hypothesis (EMH) at this present moment of time, do not take into consideration few of the behavioral aspects affecting an investor (Gottesman & Morey, 2023). Nevertheless, such market imperfections as asset price bubbles, momentum trading, and high volatility challenge such assumptions and support the effect of psychological factors along with the cognitive bias on the market processes. Therefore, the following research questions: Regarding the implications of cognitive and affective factors on investors, this research attempts to fill this gap (Frydman et al., 2016). Overconfidence, loss aversion, and herding characteristics result in distortions within rationality; thus, the inefficiency of investments and markets. Market egoism; investors with self-confidence are engaged in the market and operate with technical knowledge thereby over-trading due to the egocentric view of their market predicting capacities thus increasing market volatility. Its impact is that it leads to over-emphasis on potential losses to investors meaning that good stocks are sold and bad ones, held in large quantity due to the reluctance of investors to sell them. Speculative talking nature of people aligns itself with majority opinion in real markets and results in formation of bubbles as well as sudden bursts.

Other causes of such biases are emotional based on fear and or greed. Furor selling takes place when people sell their stocks in a bear run and on the other hand greed makes people buy stocks in a bear run so that they may be able to sell them at a higher price as they have bought them at a lower price. It is emotional responses of this nature that cause such impacts on markets and its operation; all pointing towards negative economic consequences. The solutions to these research problems are crucial in building the general idea about the market anomalies (Gao et al., 2014). Thus, it is the study's endeavor to

address the gap evidenced regarding the impact between and among cognitive biases, emotions, and the markets to assess their connection to the financial theory. The findings of the study will be useful in unmasking the measures that would help in avoiding the unfavorable effects of these biases on the market and the call for better rationality while investing and a sound market. In conclusion, this thesis is beneficial and contains views on the stabilisation and efficiency enhancement for the fiscal market invested in for the benefit of investors, governments and economy.

2. Literature Review

2.1 Investigating the impact of cognitive biases on investment decision-making processes

Behavioral finance, as a relatively new branch of study, questions the rationality of dealing in finance and unites psychological concepts with the processes occurring in financial markets. Preconceptions, and systematic violations of rationality, have a major influence on the behavior of investors and thus on the processes occurring in the market (Hirshleifer et al., 2006). Thus, this literature review analyses the effects of overconfidence, loss aversion and herding bias on investment choices and the characteristics of markets.

2.2 Overconfidence Bias

Overconfidence is considered as one of the most well researched cognitive errors in behavior finance. Hubris investors are confident more than they should be, they think they know more than they do about the market and it is more difficult for them to recognize their mistakes due to their overconfidence. Barber and Odean (2000) lay down initial empirical evidence that indicate that the more overconfident traders trade more frequently resulting in lower net returns because of the trading costs. From their investigation of individual brokerage accounts, it is evident that their subject males – usually more overconfident about their financial expertise as the female – make trades 45 percent more often than their female counterparts; they also net from $947 to $1,051 in returns (Kahneman et al., 2017). All the surveyed male participants reported they are aware of the care products' available features which made them 4 percentage points lower than women. Daniel, Hirshleifer, and Subrahmanyam (2006) provide a theoretical framework depicting how overconfidence gives rise to market phenomena that are identified as overreaction and underreaction eventually resulting in behavioral anomalies including excess volatility and return predictability. Overconfidence makes investors overreact to private signals and underreact to public information leading to deviations from the fundamentals. This behavior plays a part in events like the momentum effect of a stock movement indicating its future performance, contrary to the EMH (Lo et al., 2004).
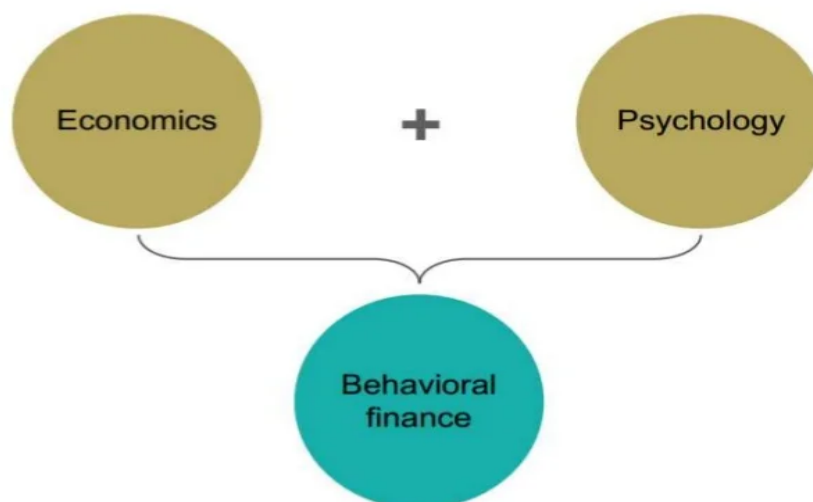
Figure 1. Composition of behavioural finance
Source: Authors' creation

2.3 Loss Aversion

Blending on the concept proposed by Kahneman and Tversky (1979), loss aversion refers to investors' ability to feel the effects of loss significantly than they can the corresponding gains of the same measure. This bias greatly distorts the investment decision making process which in turns results in behaviours like the disposition effect whereby investors are likely to sell their winning stocks at the wrong time and on the other hand are very slow to cut their losses. Statman (2014)

provide evidence on the disposition effect, explaining it by investors' failure to sell stocks with losses and consequent underperformance. Ben-David as well as Hirshleifer (2012) go further to look at the effects of loss aversion on the general market outcomes. They made a point that loss-averse investors healance for market underreaction to bad news and overreaction to good news hence contributing to short term momentum and long-term reversals. All this behavior contributes to increased market information processing and distorts the premises of efficient, rational market participants (Ma et al., 2019).

2.4 Herd Behavior
Another important cognitive bias that causes investment decisions is Herd behavior which refers to investors' imitation of the action taken by other investors. Some of the drivers of this phenomena include social pressure, FOMO, and the notion that others are in a better position to make better decisions. Shiller (2015) also explains how the action of herding can lead to the creation of speculative bubbles especially due to the fact that people are willing to take part in the same obsessed actions. Bikhchandani, Hirshleifer & Welch (2005) propose a formal model on Over-learning and Cascades, in which the investors disregard the private signals and mimic the others. According to their model, what can happen is that you get these large shifts in the market because of herding and that is how you get these large-scale phenomena like bubbles and crashes (Montier, 2018). According to Messis et al., (2014) in their empirical research also affirm the above contention of herd behaviour among institutional investors which as explained earlier has awful consequences of exaggerating market trends thereby causing high fluctuations in stock prices.

2.5 Cognitive/Biases and Market Anomalies: An Integration
The critical evaluation of cognitive biases in the consideration of market anomalies gives the analyst a clue into financial markets. Appealing to theories from social psychology, behavioral finance explains not only investor behavior but also provides reasons regarding certain anomalies that are still present in the markets. For example, De Bondt and Thaler (2017) demonstrate that stock prices are overly sensitive to changes in information due to respondents' cognitive errors, which results in reversal and reversion to the mean. It disapproves the EMH as their study stresses the necessity to include psychological factors into the model (Nofsinger, 2018). In addition, the author with (Hirshleifer, 2005) affirms that there exist some cognitive biases which contribute to the formation of market anomalies as in the case of momentum and reversal patterns. He insists that such mentality prejudices as overconfidence and fear of the loss can be the reason of systematic irrationality of investors' actions and, thus, inexpugnable market regularities. Therefore, recognizing the effects of cognitive biases concerning the investments decision making has great relevance to policymakers as well as the practitioners (Statman, 2014). These biases can be addressed by establishment of regulatory interventions where these bodies can develop some campaigns and measures that will reduce these effects such as investor education to increase awareness and bring about changes in behaviors that are irrational. For example, enrolment in pension funds in which people automatically participate due to retirement savings schemes eradicates the impacts of inertial behaviour and loss-aversion, thus improving people's financial performances. To investment professionals, application of the behavioral analysis introduces better portfolio models and the expertise of the analysts in the portfolio. Thus, being aware of the impact of cognitive bias, fund managers can build better risk management frameworks and avoid typical traps connected with irrationality. Such approaches as a contrarian investment, which focuses on short-term reactions of the market, can be especially successful while using the regularities generated by cognitive biases (Savor & Wilson).

2.6 Evaluating the Relationship Between Cognitive Biases and Market Anomalies
Behavioral finance thus tries to account for the irrationality that is seen in the financial markets by incorporating theories from psychology into the more familiar frameworks looked at under finance. In this context, cognitive biases play a pivotal role, as they cause these deviations affecting investors' actions and being the root of market inefficiencies. Specifically, this literature review aims to analyze how institutional herding, overconfidence, loss aversion and other cognitive biases are bound up with market peculiarities as asset bubbles and momentum, as well as excessive fluctuations of stock prices (Shefrin et al., 2018).
Overconfidence bias; whereby investors tend to overestimate their skills and forecasting abilities, is one of the most widely quoted biases that can have far-reaching impacts on the market mechanics. Barber and Odean (2000) used data to show that overconfident investors trade often and they incur more in transaction costs thus getting lower net gains. This frequent trading also implants more unwanted fluctuations into the market and hence adds to the occurrence of such phenomena as excess volatility (Thaler, 2017). Thus, the historical performance of momentum strategy, reported by (Gao et al., 2014),

confirms some conclusions inconsistent with the hypothesis of efficient market (EMH). Behavioral economics, therefore, as an enhancement of financial theory encompasses a better approach when it comes to explaining market behavior. This information enables the policymakers and investors to minimize the impacts of the cognitive bias and other emotions. Improving the knowledge of one's financial strengths and weaknesses, raising awareness of rare cognitive shifts, and employing structural safeguards, including circuit breakers, could reduce market fluctuations and shield consumers from the uniquely noxious effects of irrationality. Thus, it is of the utmost importance to diagnose and treat mental aspects of investors' activity in order to enhance the efficiency and stability of the market. These theories put forward by behavioral finance are useful in that they transgress normative financial theories as well as help design better and stronger financial systems.
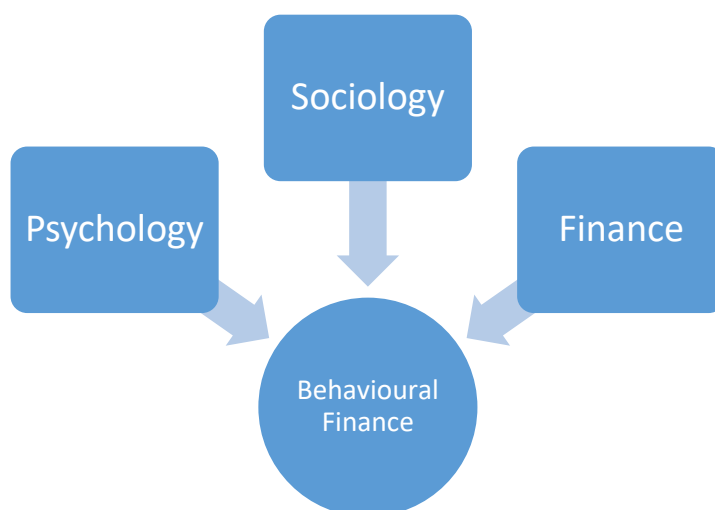

Figure 3. Composition of Behavioural Finance
Source: Authors' creation

It posited loss aversion, which was also introduced by Kahneman and Tversky (1979), which shows that equivalent gains are less also felt than equivalent losses. Depending on the specifics of this bias, it can influence the behavior on the markets because decision-makers can be sensitive to gains and losses in different ways. Shefrin (2002) label this phenomenon as the disposition effect since it results in suboptimal playlist outcomes and contributes to the growth and inefficiency of the market, due to investors' failure to compensate for their mistakes in correctly identifying winning and losing stocks. In a similar vein, Ben-David and Hirshleifer, (2012) build on this by demonstrating that loss aversion leading to under reaction of the market to bad news and over reactions to good news (Akerlof & Shiller, 2015). Such a behavior can create short-term patterns such as moments and long-term negative patterns known as reversion to the mean, where early overreactions are brought back to standard returns over time, thus making it easier to predict the returns (Tseng, 2018). This finding also refutes the EMH, as (Bondt and Thaler, 1985) show that stock prices overreact to the information, and afterwards revert to the mean.

2.7 Herd behavior and Market Anomalies

One of the main influences on the markets is the Herd behavior where a single entity bases its action on the existing information of a group rather than processing the information himself. Bikhchandani et al., (1992) come up with a model informational cascade which helps to explain how investors omit their individual information signals hence mimic other people's action which is herding (Wurgler, 2018). This collective movement can act as a magnifying of market factors, which leads to bubble like phenomena, and subsequent crashes. Shiller (2000) delves into how people behave in flocks when forming bubbles; these are growth tendencies in prices of assets based on vivid investor sentiments that at some point burst to crater. The recent one is the dot-com bubble that took place in the late 1990s, which was largely due to cognitive error of the type 3, such as overestimation of the Internet companies' potential. Also, using the international cross-sectional data, (Mohamed et al., 2010) demonstrate that the institutional investors acting in the same way, encourage herding and, thus, create such market imperfection as excessive fluctuations and bubbles (Giglio et al., 2015). Cognitive Biases and Market Anomalies have been discussed in detail in the given points, and they made an effort to blend both. The incorporation of Cognitive Biases into the analysis of Anomalies offers an End-to-End foundation in Understanding Financial Markets. Compared to rational models of finance, behavioral finance not only detects such psychological

processes that influence actions of an investor but also sheds more light on such perennial irregularities. Thus, overconfidence and loss aversion distort investors' expectations, which contributes to the emergence of trends in stock returns and questions the applicability of the EMH for financial modeling at the behavioral level. Many empirical papers including that of the Jegadeesh and Titman (2014) and De Bondt and Thaler (1985) prove that cognitive biases cause persistence of mispricings that can be profitably traded. They show that psychological factors have to be taken into account in financial decisions, and prove that the existing models which are based on the rationality postulate are insufficient. Emphasis on the Prospective Trends and Risks of Financial Practice with Reference to the Present Economic Crisis There is evidence that these cognitive biases cause market anomalies and are connected to them in a proven way, which means that the study of their connection has important implications for both the practice of finance and policy. For investors for instance, understanding of these biases is essential towards enhancing on portfolio control as well as the strategies to be undertaken in the investments markets (Kahneman et al., 2018). Educational programs aimed at increasing the people's financial literacy level and raising awareness of the biases affecting it will be beneficial for the investors. Also, the mechanisms like circuit breakers can be applied in order to prevent the instances when consumers start selling their stocks in panic during the moments when the market experiences fluctuations and needs to be stabilized (Statman, 2014).

Table 1. Summary of Literature Review Summary: Behavioral Finance and Cognitive Biases

Year	Author(s)	Findings	Research Gap
2000	Barber & Odean	Overconfident traders trade more frequently, resulting in lower net returns due to higher trading costs. Male investors trade 45% more often than females.	Need for exploration into the long-term market impact of frequent trading by overconfident investors.
2006	Daniel, Hirshleifer, & Subrahmanyam	Overconfidence leads to overreaction to private signals and underreaction to public information, causing market anomalies such as excess volatility and return predictability.	Examination of specific mechanisms through which overconfidence affects different market sectors.
2004	Lo et al.	Momentum effect indicates that stocks with past performance tend to perform well in the short run, contradicting EMH.	Further investigation into how momentum strategies evolve over different market cycles.
2012	Ben-David & Hirshleifer	Loss aversion results in market underreaction to bad news and overreaction to good news, causing short-term momentum and long-term reversals.	Analysis of how these behaviors differ across various market conditions and investor types.
2014	Statman	The disposition effect shows that investors tend to hold losing stocks and sell winning ones at inappropriate times, leading to underperformance.	Investigate how the disposition effect interacts with other biases and its implications for investment strategies.
2017	De Bondt & Thaler	Stock prices are overly sensitive to information changes, leading to reversals and mean reversion, which challenges EMH.	Explore how information sensitivity impacts different asset classes and market environments.
2018	Kahneman et al.	Cognitive biases, such as overconfidence and loss aversion, distort investment decisions and market behaviors.	Assessment of the effectiveness of interventions designed to mitigate these biases.
2018	Shefrin et al.	Behavioral finance accounts for irrationality in financial markets, providing explanations for anomalies like asset bubbles and excessive price fluctuations.	Evaluation of how emerging cognitive biases influence new financial technologies and markets.
1992	Bikhchandani, Hirshleifer & Welch	The model of informational cascades shows how herding behavior can lead to significant market shifts, bubbles, and crashes.	Further research on the impact of digital platforms on herding behavior and market dynamics.
2010	Mohamed et al.	Institutional investors' herd behavior causes excessive market fluctuations and bubbles.	Study of how regulatory measures can curb herding behavior among institutional investors.
2002	Shefrin	Loss aversion, or the disposition effect, leads to	Exploration of strategies to correct

		market inefficiencies due to investors' tendency to misidentify winning and losing stocks.	the disposition effect in different investment contexts.
2000	Shiller	Herd behavior contributes to the formation of speculative bubbles and market crashes, driven by collective investor sentiment.	Analysis of the role of digital communication in enhancing or mitigating herd behavior.
2015	Shiller	Herding behavior, driven by social pressure and FOMO, can result in speculative bubbles and crashes.	Study of the effectiveness of educational campaigns in reducing the impact of herding behavior.
2014	Jegadeesh & Titman	Cognitive biases contribute to the persistence of mispricing, which can be profitably traded.	Investigation of the persistence of mispricing's across different asset classes and market conditions.
2018	Nofsinger	Psychological factors should be integrated into financial models to better understand market behavior and anomalies.	Development of advanced models incorporating behavioral insights for more accurate predictions.
2019	Ma et al.	Cognitive biases increase market information processing and contribute to market anomalies like momentum and reversal patterns.	Research on new tools and frameworks for reducing the impact of cognitive biases in trading and investment decisions.
2018	Statman	Proposes investor education as a way to mitigate the effects of cognitive biases, such as overconfidence and loss aversion.	Further research into effective investor education programs and their long-term impact on market behavior.

Source(s): Author's creation

2.8 Major points of Research Gaps

• Overconfidence: Extensively studied with evidence showing it leads to frequent trading and lower returns (Barber & Odean, 2000; Daniel et al., 2006). Research gaps include the long-term impacts of overconfidence on various market sectors and investor types.

• Loss Aversion: Found to distort decision-making leading to behaviors like the disposition effect and market underreaction/overreaction (Statman, 2014; Ben-David & Hirshleifer, 2012). Gaps include exploring interactions with other biases and varying market conditions.

• Herd Behavior: Shown to contribute to market bubbles and crashes (Bikhchandani et al., 1992; Shiller, 2000). Future research could focus on the impact of digital platforms and the effectiveness of educational campaigns.

• General Insights: Behavioral finance provides explanations for market anomalies that challenge the Efficient Market Hypothesis (EMH) (De Bondt & Thaler, 2017; Nofsinger, 2018). There is a need for more advanced models and strategies to address and mitigate the impact of cognitive biases.

3. Materials and Methods

This research uses the first primary method of quantitative research to analyze the effects of cognitive biases and emotions on the behavior of investors and cause market inefficiencies. Primary data is gathered using sets of standardized questionnaires administered to a random pool of individual investors. This paper's survey instrument shall assess the extent of and influence exerted by primary cognitive biases, including overconfidence, loss aversion, and herding, and secondary emotional aspects, including fear and greed. This is a set of Likert-scale questions aimed at determining the extent of such bias and emotions in the respondents. Lastly, demographic questions gather data about respondents' gender, age, education and investment experience to mitigate variability. This is because the survey is issued online in a bid to have as many respondents as possible from a different background. The study makes use of Statistical Package for the Social Sciences software commonly known as SPSS in conducting data analysis. The process of determining the degree of factor weights for the efficacy index includes several stages. Estep, one involves data cleaning and preparation in order to address issues to do with missing values and outliers. In Descriptive statistics there is the narration of demographic attributes, as well as the distribution of the responses in question. Cronbach's alpha is applied to corroborate the internal reliability of the survey instrument while factor analysis is conducted on the survey instrument to confirm the constructs measured. As for the strategies of hypothesis testing Multiple regression analysis is used to test hypotheses related to the effect of the cognitive biases and or emotions on investment decisions and the existence of the anomalies in the markets. Possible independent

variables are overconfidence, loss aversion, herding mentality, fear and greed while possible dependent variables are actual investment performance and participants' view of market inefficiencies. Pearson's correlation coefficients are run to examine the interdependence between various cognitive biases and the different forms of emotional factors and analysis of variance is run to test for the variation in the different demographic groups due to the cognitive biases and emotional factors. This study employs the analysis technique of data collected by using statistical package for social science, commonly referred to as SPSS, this helps the study to check on the strength of the tested research hypothesis and be able to come up with reliable results on how cognitive biases and or emotional factors affect behavior of investors which in one way or the other causes the irregularities in the market.

3.1 Analysis

3.1.1 Demographic examination

Age

Descriptive statistics

Table 2. Age-wise statistics

What is your age?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-25 years	13	17.3	17.3	17.3
	26-35 years	36	48.0	48.0	65.3
	36-45 years	13	17.3	17.3	82.7
	46 year and above	13	17.3	17.3	100.0
	Total	75	100.0	100.0	

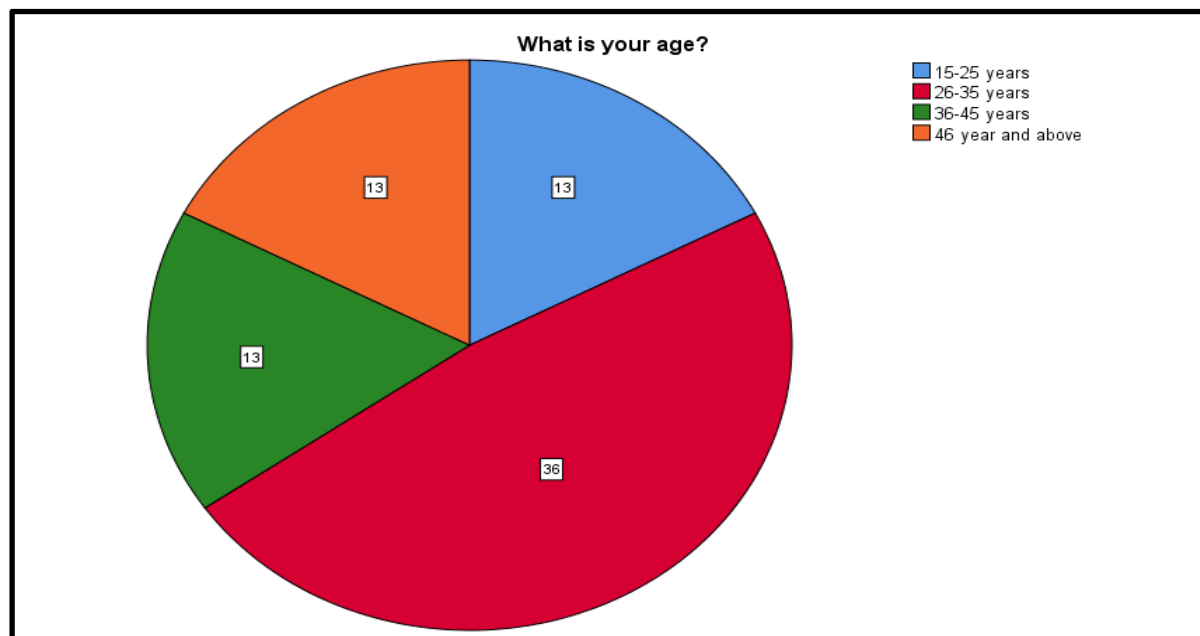**Source**: Output from SPSS

Figure 4. Age-wise

Source: Authors' creation

Table 1 and figure 4 indicate the participants' age frequency. In this above it is clear that the people in the age group 26 to 35 years are participants in the survey the most and the frequency is 36. The percentage of participants who are highest in age 26 to 35 years is 38%.

Gender

Table 3. Age-wise statistics

What is your gender?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	23	30.7	30.7	30.7
	Male	26	34.7	34.7	65.3
	Prefer not to say	26	34.7	34.7	100.0
	Total	75	100.0	100.0	

Source: Output from SPSS
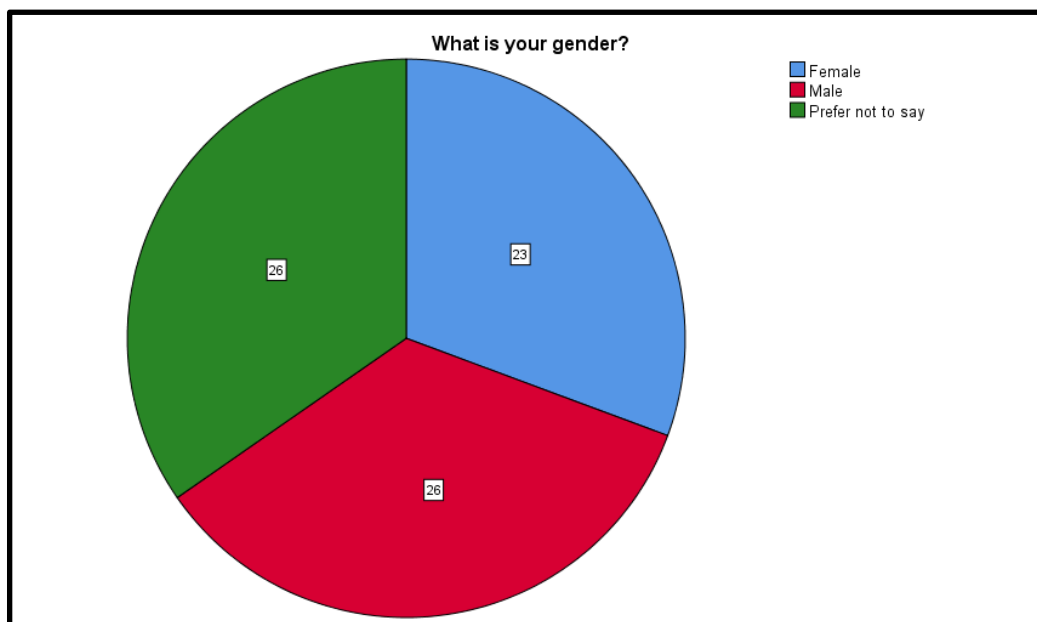
Figure 5. Gender-wise
Source: Authors' creation

The table 2 to and figure 5 is the indicator of gender of the respondent and it can be clearly said that Kinder from variance are participant equally in the survey. The cumulative percentage of the male is 65.3% and this is for the female is 30.7% and this is the lowest.

Designation

Table 4. Designation-wise statistics

What is your designation?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CEO	26	34.7	34.7	34.7
	COO	23	30.7	30.7	65.3
	Manager	13	17.3	17.3	82.7
	Others	13	17.3	17.3	100.0
	Total	75	100.0	100.0	

Source: Output from SPSS

Figure 6. Designation-wise

Source: Authors' creation

From Table 3, it can be said that the valid percentage of se is the highest 34.7% and the frequency of CEO is 26. Figure 6 indicates that the people from the designations other than the mentioned three designations are the lower participants and the percentage is 13%.
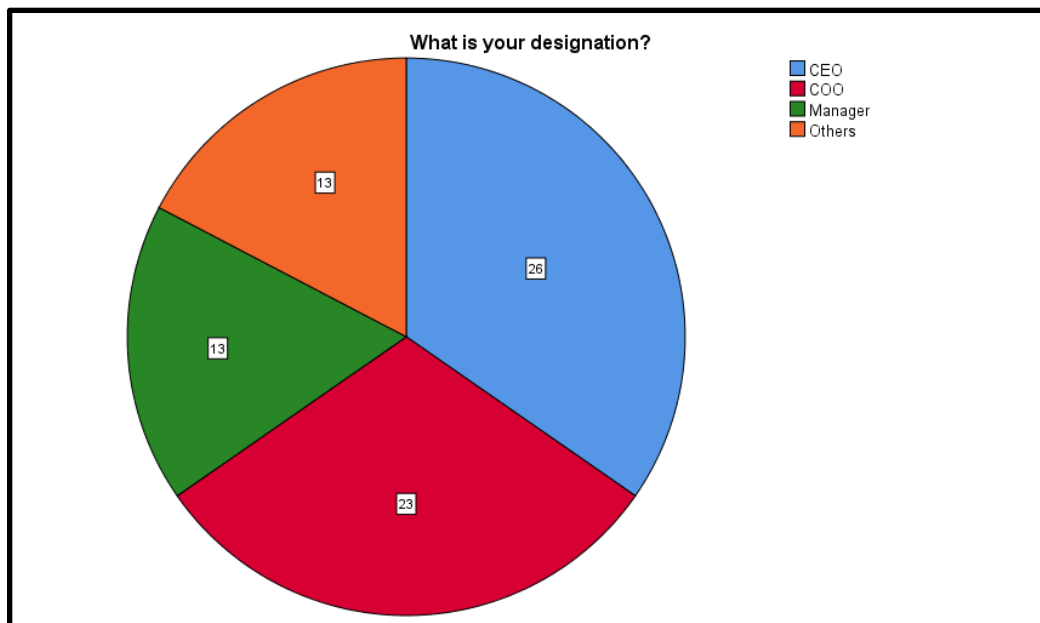
3.1.2 Statistical analysis

Table 5. Descriptive Statistics

Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
IV1.1_Behavioral Finance i	75	2	5	2.92	.941	1.163	.277	.722	.548
DV_ investment decisions	75	1	5	3.96	1.437	-1.387	.277	.446	.548
IV1.2_Investing strategies.	75	1	4	3.31	1.127	-1.394	.277	.325	.548
IV3.1_Cognitive biases	75	1	4	2.87	1.234	-.316	.277	-1.639	.548
IV_4.1_Financial decisions	75	2	5	3.21	1.069	.445	.277	-1.024	.548
Valid N (listwise)	75								

Source: Output from SPSS

From the table 4 of descriptive statistics, it can be clearly said that the value of standard error for each variable are same and the statistical value for the IV1.1 is the highest position 0.722. The above statistical value indicates that the impact of behavior finance is all factors in the investment decision of the investors.

3.2 Hypothesis

H1: There is a relation between the investing strategies and the investment decision

Table 6. Regression table

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.308[a]	.095	.083	1.377	.095	7.655	1	73	.007	2.554

a. Predictors: (Constant), IV1.2_Investing strategies.

b. Dependent Variable: DV_ investment decisions

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.509	1	14.509	7.655	.007[b]
	Residual	138.371	73	1.895		
	Total	152.880	74			

a. Dependent Variable: DV_ investment decisions

b. Predictors: (Constant), IV1.2_Investing strategies.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.661	.496		5.365	.000
	IV1.2_Investing strategies.	.393	.142	.308	2.767	.007

a. Dependent Variable: DV_ investment decisions

Source: Output from SPSS

The above regression table indicates that the R square value for the impact of investing strategies on the investment decision is 0.83. The value of R square greater than 0.5 shows the high dependency of the DV on the IV.

H2: The preconceived notion and investment decision are related to each other

Table 7. Regression table

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.013[a]	.000	-.014	1.447	.000	.012	1	73	.913	2.149

a. Predictors: (Constant), IV2.2_Preconceived notions

b. Dependent Variable: DV_ investment decisions

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.025	1	.025	.012	.913[b]
	Residual	152.855	73	2.094		
	Total	152.880	74			

a. Dependent Variable: DV_ investment decisions

b. Predictors: (Constant), IV2.2_Preconceived notions

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.032	.680		5.930	.000
	IV2.2_Preconceived notions	-.016	.147	-.013	-.110	.913

a. Dependent Variable: DV_ investment decisions

The overhead figure shows that the Darwin Watson value is 2.149 which indicate that there is a positive impact of the preconceived notions on the investment decision.

H3: Investment decisions are depending on the financial decisions

Table 8. Regression table

Model Summary[b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.375[a]	.141	.129	1.342	.141	11.943	1	73	.001	2.696

a. Predictors: (Constant), IV_4.1_Financial decisions

b. Dependent Variable: DV_ investment decisions

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.495	1	21.495	11.943	.001[b]
	Residual	131.385	73	1.800		
	Total	152.880	74			

a. Dependent Variable: DV_ investment decisions

b. Predictors: (Constant), IV_4.1_Financial decisions

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.340	.494		4.740	.000
	IV_4.1_Financial decisions	.504	.146	.375	3.456	.001

a. Dependent Variable: DV_ investment decisions

The value of the sum of squares under the regression analysis for IV 4.1 is 21.495 which indicate the positive impact of the collected financial decision on the investment decision.

3.3 Correlation test

Table 9. Correlation table

Correlations		IV1. 1_Behavioral Finance i	IV1. 2_Investing strategies.	IV2. 2_Preconceiv ed notions	DV_Market Anomalies	IV3. 1_Cognitive biases	IV_4. 1_Financial decisions
IV1.1_Behavioral Finance i	Pearson Correlation	1	.610**	.451**	.224	-.091	-.077
	Sig. (2-tailed)		.000	.000	.053	.439	.512
	N	75	75	75	75	75	75
IV1.2_Investing strategies.	Pearson Correlation	.610**	1	.944**	.385**	-.194	.270*
	Sig. (2-tailed)	.000		.000	.001	.096	.019
	N	75	75	75	75	75	75
IV2.2_Preconceived notions	Pearson Correlation	.451**	.944**	1	.166	-.423**	.092
	Sig. (2-tailed)	.000	.000		.156	.000	.433
	N	75	75	75	75	75	75
DV_Market Anomalies	Pearson Correlation	.224	.385**	.166	1	.777**	.948**
	Sig. (2-tailed)	.053	.001	.156		.000	.000
	N	75	75	75	75	75	75
IV3.1_Cognitive biases	Pearson Correlation	-.091	-.194	-.423**	.777**	1	.790**
	Sig. (2-tailed)	.439	.096	.000	.000		.000
	N	75	75	75	75	75	75
IV_4.1_Financial decisions	Pearson Correlation	-.077	.270*	.092	.948**	.790**	1
	Sig. (2-tailed)	.512	.019	.433	.000	.000	
	N	75	75	75	75	75	75

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Output from SPSS

From the above table of correlation, it can be said that the highest relation value of investment decision with the IV 1.2 which is the investing strategies, and the value is 0.944. From these values can be said that investment strategies may negatively impact the changes in investors' decisions.

4.   Results and Discussions

The evidence from behavioral finance enlightens that investors' behaviors are substantially determined by cognitive imperfections and emotional characteristics, which cause market anomalies that the rational theories cannot effectively explain. Overconfidence, loss aversion, and herding, among other cognitive biases, affect humans' rationality and lead to systematic violations of the efficient markets' hypothesis. When investors become overconfident, they over-trade and cause more fluctuation in stock prices because they think more of themselves and their capabilities to predict fluctuations. That overconfidence leads to lower returns because overconfident traders incur higher transactions costs and have a poor sense of timing is explained by the available literature. Loss aversion results in the investor to being more sensitive to losses, thereby leading to the disposition effect whereby, the winning securities are sold prematurely, and the losers are held for long. This behavior leads to inefficiency in portfolio management and forms the basis of inefficiencies such as momentum and reversal effects. Mass psychology phenomena together with FOMO strengthen the impacts of market trends and making them even more drastic by forming bubbles and crashes. The dot-com bubble and the 2007-2008 financial crises are examples where mass psychology leads to an overvaluation of assets to a level that is not sustainable ultimately resulting in the collapse of the bubble. These inclinations are also conditioned by the emotions like fear and greed that also fuel irrationality in the markets during manias and panics. The former results in panic selling while the later leads to Speculative buying both of which unbalance the market. By incorporating these psychological phenomena into the models, one can get better avenues in explaining the irregularities in the markets. This knowledge can be helpful to policymakers and investors to decrease impact of the flawed reasoning, as to increase people financial awareness or enact rules preventing wild fluctuations in the markets. In conclusion, it is imperative to assess the role of the behavioral factors since it is inherent in enhancing the market forecasts, promoting the stability, and designing ideal investment strategies. The following table shows the comparison between empirical results and previous research outcomes.

Table 10. Summarizing the empirical results and previous research outcomes relevant to the study

Study Aspect	Empirical Results	Previous Research Outcomes
Cognitive Biases	**Overconfidence:** Investors often overestimate their knowledge and ability, leading to excessive trading and risk-taking. **Loss Aversion:** Investors exhibit a stronger reaction to losses compared to gains, influencing their risk behavior.	**Overconfidence Bias:** Known to lead to excessive trading and suboptimal portfolio performance (Barber & Odean, 2001). **Loss Aversion:** Demonstrated through disproportionate impact of losses vs. gains (Kahneman & Tversky, 1979).
Emotional Biases	**Herd Behavior:** Investors frequently follow the crowd, amplifying market trends and contributing to bubbles. **Fear and Greed:** Emotional reactions to market conditions drive decisions that deviate from rational predictions.	**Herd Behavior:** Documented to cause market trends and price anomalies (Bikhchandani et al., 1992). **Fear and Greed:** Emotional responses influencing investment choices and market volatility (Shiller, 2000).
Impact on Market Efficiency	Biases such as overconfidence and herd behavior lead to market inefficiencies, including momentum effects and bubbles.	**Market Efficiency Theory:** Assumes rational behavior, which is challenged by the presence of biases (Fama, 1970). **Behavioral Finance:** Highlights how biases can cause deviations from efficient market hypothesis (Shiller, 2003).
Suboptimal Decisions	Cognitive and emotional biases result in systematic deviations from rational decision-making, leading to suboptimal investment strategies.	**Prospect Theory:** Provides a framework for understanding deviations from rational decision-making (Kahneman & Tversky, 1979). **Behavioral Biases in Finance:** Research shows biases lead to less optimal financial decisions (Shefrin, 2000).
Market Trends and Anomalies	Evidence of momentum effects and bubbles, which are influenced by investor biases.	**Momentum Effect:** Observed in stock returns, driven by herding and overconfidence (Jegadeesh & Titman, 1993). **Market Bubbles:** Often fueled by emotional biases and herd behavior (Kindleberger, 1978).
Regulatory and Policy Implications	Understanding biases can lead to better investor education, improved risk management, and more effective regulatory frameworks.	**Investor Education:** Can mitigate the impact of biases (Hurd & Rohwedder, 2003). **Regulatory Frameworks:** Enhancing transparency and reducing biases can improve market stability (Barberis & Thaler, 2003).

Source(s): Author's Creation

Above table captures the essence of the empirical results and previous research outcomes related to the interplay of cognitive and emotional biases in investment decisions and market behaviour.

5. Conclusion

The focus on behavioral finance and the relation to market anomalies proves that cognition and emotions play a huge role in investment behaviors and market characteristics (Coşkun, 2023). Hypotheses such as the Efficient Market Hypothesis inherent on rational behavior and efficient markets. Still, implications of market anomalies such as asset price bubbles, momentum effect, and excessive volatility persist, which enforces the call for psychological mechanisms to be included in economic models. Two heuristics that have been identified as distorting rational decision making are representativeness, and availability. Overconfidence bias makes the investors overestimate the level of their knowledge and the accuracy of future forecasts therefore increasing the trading frequency and the overall turnover in the markets. The literature review indicated that overconfidence leads to inferior performance because traders do not choose the correct time to trade and pay

more in transactions. When relying on the prospect theory, decision making is based on the endowment effect and losses aversion that results in the disposition effect which involves the irrational decision by the investors to hold on to their losing stocks while selling their winners, therefore under performing a perfectly optimized portfolio. Self-reinforcing herding enhances existing market trends via people's actions inspired by social pressure and the desire to avoid missing out, leading to speculative bubbles and crashes. Forces like the dot com bubble and the credit crunch crisis are examples of how people act in like manner and push the price of securities far from their intrinsic value until a readjustment occurs. Cognitive biases are magnified by emotional states including fear and greed that affect market behavior during periods of high stress and When greed takes control or during a period of stress, new biases arise that affect the market.

The limitations of the study include a focus on specific factors such as cognitive biases, prospect theory, herd behavior, and market anomalies. Future research should explore the impact of emerging technologies on investor behavior, such as AI and big data analytics, and their influence on market anomalies. Additionally, studying cross-cultural differences in cognitive biases and their effects on global markets could provide deeper insights into behavioral finance (Lo, 2004). Managerial implications in the study**,** managers should integrate behavioral insights into investment strategies to counteract biases and enhance decision-making (Barberis & Thaler, 2003). Training on cognitive biases can improve investor behavior and risk management (Kahneman & Tversky, 1979). Additionally, adjusting market analysis to account for behavioral anomalies can refine predictions and regulatory practices (Shiller, 2000).

References
AKERLOF, G., & SHILLER, R. (2015). *Phishing for Phools: The Economics of Manipulation and Deception*. https://doi.org/10.2307/j.ctvc777w8

Baker, M., & Wurgler, J. (n.d.-b). *Investor Sentiment in the Stock Market*.

Bansal, S. (2022). *The Role of Behavioral Finance in Explaining Market Anomalies and Investor Biases*. https://www.researchgate.net/figure/Categorization-of-behavioral-biases_fig1_297767583

Barber, B. M., Odean, T., Barry, C., Bittlingmayer, G., Fama, E., French, K., Krig-Man, L., Liang, B., Nofsinger, J., Rangan, S., & Rubinstein, M. (2000). Trading Is Hazardous to Your Wealth: The Common Stock Investment Performance of Individual Investors. In *THE JOURNAL OF FINANCE •: Vol. LV* (Issue 2).

Barberis, N., & Thaler, R. (2002). A Survey of Behavioral Finance. *Advances in Behavioral Finance*, *2*. https://doi.org/10.2139/ssrn.327880

Ben-David, I., FRANZONI, F., & Moussawi, R. (2018). Do ETFs Increase Volatility? *The Journal of Finance*, *73*. https://doi.org/10.1111/jofi.12727

Ben-David, Itzhak & Hirshleifer, David. (2012). Are Investors Really Reluctant to Realize Their Losses? Trading Responses to Past Returns and the Disposition Effect. *Review of Financial Studies.* 25. 10.2139/ssrn.1876594.

Bikhchandani, Sushil & Hirshleifer, David & Welch, Ivo. (1992). A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades. *Journal of Political Economy*. 100. 992-1026. 10.1086/261849.

Bikhchandani, Sushil & Hirshleifer, David & Welch, Ivo. (2005). Information Cascades and Observational Learning. Ohio State University, Charles A. Dice Center for Research in Financial Economics, Working Paper Series.

Brahmasrene, T., & Whitten, D. (2022). The influence of investor sentiment on stock prices among industries in US. *International Journal of Behavioural Accounting and Finance*, *1*(1), 1. https://doi.org/10.1504/ijbaf.2022.10048146

Choi, J., Laibson, D., & Madrian, B. (2010). Why Does the Law of One Price Fail? An Experiment on Index Mutual Funds. *The Review of Financial Studies*, *23*, 1405–1432. https://doi.org/10.1093/rfs/hhp097

Coşkun, E.A. (2023), "Feedback trading in global stock markets under uncertainty of COVID-19", *Review of Behavioral Finance*, Vol. 15 No. 5, pp. 750-778. https://doi.org/10.1108/RBF-08-2021-0154

Dar, B. I., & Kumar, J. (2023). The Behavioural Pattern of Investment in the Financial Market: A Study of the Individual Investors. *Global Business Review*. https://doi.org/10.1177/09721509231192229

de BONDT, W. F. M., & THALER, R. (1985). Does the Stock Market Overreact? *The Journal of Finance*, *40*(3), 793–805. https://doi.org/10.1111/j.1540-6261.1985.tb05004.x

De Giorgi, E., Hens, T., & Mirante, A. (2020). On the competence effects of Bayesian updating. *Journal of Behavioral and Experimental Finance*, 26, 100274.

Debondt, Werner & Shefrin, Hersh & Muradoglu, Gulnur & Staikouras, Sotiris. (2008). Behavioural Finance: Quo Vadis? *Journal of Applied Finance*. 18.

del Águila, N. (2009). *BEHAVIORAL FINANCE: LEARNING FROM MARKET ANOMALIES AND PSYCHOLOGICAL FACTORS*.

Dilik, Bora. (2024). THE RELATIONSHIP OF SOCIAL MEDIA MESSAGES WITH STOCK RETURNS AND VOLATILITY. 10.13140/RG.2.2.16452.44163.

Fama, E. F., The, K., French, D., Hirshleifer, S. P., Kothari, O., Lamont, M., Mitchell, H., Shefrin, R., Sinquefield, R., Thaler, T., & Vermaelen, R. (n.d.). *Not for Quotation: Comments Welcome Market Efficiency, Long-Term Returns, and Behavioral Finance*.

Frydman, C., & Camerer, C. (2016). The Psychology and Neuroscience of Financial Decision Making. *Trends in Cognitive Sciences*, *20*. https://doi.org/10.1016/j.tics.2016.07.003

Gao, X., Lin, T.-C., Fresard, L., Grinblatt, M., Hsu, P., Lin, C., Obizhaeva, A., Odean, T., Panayotov, G., Ritter, J., Rossi, A., Seasholes, M., Skoulakis, G., Titman, S., Weisbenner, S., Yang, L., & Zou, J. (2014). *Do Individual Investors Treat Trading as a Fun and Exciting Gambling Activity? Evidence from Repeated Natural Experiments *. http://ssrn.com/abstract=1622184Electroniccopyavailableat:https://ssrn.com/abstract=1622184

Giglio, S., Kelly, B., Pruitt, S., Barlevy, G., Cochrane, J., Diamond, D., Edge, R., Krishnamurthy, A., Liang, N., Rebelo, S., Sufi, A., Seru, A., Timmermann, A., & Wright, J. (2015). *Systemic Risk and the Macroeconomy: An Empirical Evaluation *. https://ssrn.com/abstract=2158347

Glaser, M., & Weber, M. (n.d.). *Overconfidence and Trading Volume*. www.nyse.com.

Gottesman, A., & Morey, M. (2023). Investor Confidence and Reaction to a Stock Market Crash. *Journal of Behavioral Finance*, *25*(3), 374–388. https://doi.org/10.1080/15427560.2023.2178434

Hirshleifer, D., Seongyeon Lim, S., & Hong Teoh, S. (2006). *Merage School of Business at UC Irvine; the Kellstadt Graduate School of Business at DePaul University; the Anderson Graduate School of Management at UCLA; the Sauder School of Business at University of British Columbia; and confer-ence participants at the 10th Biennial Behavioral Decision Research in Management Conference at Santa Monica, California; the NBER Behavioral Finance*.

Jana, S. (2016). Effect of Investors' Sentiment on Indian Stock Market. *Global Business Review*, *17*(5), 1240–1249. https://doi.org/10.1177/0972150916656695

Kahneman, D. (2017). Thinking, fast and slow. Farrar, Straus and Giroux. (Revised Edition).

Kahneman, D., & Tversky', A. (n.d.). *E C O N OMETRICA I C I VOLUME 47 MARCH, 1979 NUMBER 2 PROSPECT THEORY: AN ANALYSIS OF DECISION UNDER RISK*.

Kawadkar, Hemraj. (2024). Navigating the Irrational: A Review of Behavioural Finance Theory and Practice.

Königstorfer, F., & Thalmann, S. (2020). Applications of Artificial Intelligence in commercial banks – A research agenda for behavioral finance. *Journal of Behavioral and Experimental Finance*, *27*, 100352. https://doi.org/https://doi.org/10.1016/j.jbef.2020.100352

Kumar, S., Rao, S., Goyal, K., & Goyal, N. (2022). Journal of Behavioral and Experimental Finance: A bibliometric overview. In *Journal of Behavioral and Experimental Finance* (Vol. 34). Elsevier B.V. https://doi.org/10.1016/j.jbef.2022.100652

Lo, A. W. (2004). *The Adaptive Markets Hypothesis: Market Efficiency from an Evolutionary Perspective *.

Ma, T., & Tang, G. Y. N. (2019). Are market anomalies disappearing or merely disguised? Evidence from multi-factor models. *Journal of Empirical Finance*, 53, 214-236.

Ma, Xinyue. (2024). An Analysis of Luckin Coffee's New Marketing Model from the Perspective of Behavioral Finance. Advances in Economics, Management and Political Sciences. 110. 73-78. 10.54254/2754-1169/110/2024ED0106.

Messis, Petros & Zapranis, Achilleas. (2014). Herding behaviour and volatility in the Athens Stock Exchange. *The Journal of Risk Finance*. 15. 572-590. 10.1108/JRF-04-2014-0054.

Mohamed, Arouri & Bellando, Raphaëlle & Ringuedé, Sébastien & Vaubourg, Anne-Gaël. (2010). Herding by institutional investors: empirical evidence from French mutual funds.

Montier, J. (2018). Behavioral investing: A practitioner's guide to applying behavioral finance. Wiley Finance.

Nawrocki, D., & Viole, F. (2014). Behavioral finance in financial market theory, utility theory, portfolio theory and the necessary statistics: A review. *Journal of Behavioral and Experimental Finance*, *2*, 10–17. https://doi.org/https://doi.org/10.1016/j.jbef.2014.02.005

Nofsinger, J. R. (2018). The psychology of investing. Routledge.

Ogunlusi, O. E., & Obademi, O. (2021). The Impact of Behavioural Finance on Investment Decision-making: A Study of Selected Investment Banks in Nigeria. *Global Business Review*, *22*(6), 1345–1361. https://doi.org/10.1177/0972150919851388

Padmavathy, M. (2024). *International Journal of Management Behavioral Finance and Stock Market Anomalies: Exploring Psychological Factors Influencing Investment Decisions*. https://doi.org/10.34293/management.v11iS1

Raut, R. K., Das, N., & Mishra, R. (2020). Behaviour of Individual Investors in Stock Market Trading: Evidence from India. *Global Business Review*, *21*(3), 818–833. https://doi.org/10.1177/0972150918778915

Rosid, A., Aprica Isabella, A., & Siswantini, T. (2024). Behavioral Finance In Decision Making: An Experimental Study Of Investor Bias And Indonesian Private Market Anomalies. *Jurnal Ekonomi*, *13*. https://doi.org/10.54209/ekonomi.v13i03

Salas, Manuel. (2024). Student Loan Debt Literacy, Overconfidence Bias, and Indebtedness Behavior. Journal of Neuroscience, Psychology, and Economics. 17. 63-79. 10.1037/npe0000192.

Savor, P., & Wilson, M. (n.d.). *Earnings Announcements and Systematic Risk*.

Shefrin, H. (2002). Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing. In *Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing*. https://doi.org/10.1093/0195161211.001.0001

Singh, Priyanka & Tiwari, Shivangee & Singh, Dr. (2024). An Exploratory Research on Factors Influencing Customers' Investment Behavior Towards Mutual Funds. International Research journal of Management Sociology Humanities. 15. 242-258.

Statman, M. (2014). Behavioral finance: Finance with normal people. *Borsa Istanbul Review*, *14*. https://doi.org/10.1016/j.bir.2014.03.001

Thaler, R. H. (2017). Misbehaving: The making of behavioral economics. W. W. Norton & Company.

Tseng, K. C. (2018). Behavioral biases in the foreign exchange market. *Journal of Behavioral Finance*, 19(3), 299-311.

Ullah, Aziz & Biao, He & Ullah, Assad. (2024). Unveiling the Nexus Between Crises, Investor Sentiment, and Volatility of Tourism-Related Stocks: Empirical Findings From Pakistan. SAGE Open. 14. 10.1177/21582440241256236.

Woo, K. Y., Mai, C., McAleer, M., & Wong, W. K. (2020). Review on efficiency and anomalies in stock markets. In *Economies* (Vol. 8, Issue 1). MDPI Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/economies8010020