THE ROLE OF FINANCIAL LITERACY AND PSYCHOLOGICAL FACTORS IN INVESTMENT DECISION BY NON-PROFESSIONAL INDIVIDUAL INVESTORS

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ABSTRACT

There is no world without risk and uncertainty whenever future is unknown. There are so many factors that create an influence on global financial market. Economic, social, political, Environmental, technological and irregular factors are most prominent for influencing the financial market. However, the impact of all factors is conveyed and leaded by a group of Investor. Eventually the impact of influence of all factors are driven by reaction and perception of investor. Behavioral finance is an emerging field that examines how psychological and cognitive factors influence individuals' economic decisions. It integrates insights from behavioral and cognitive psychology into the traditional domains of economics and finance. By recognizing the impact of human emotions, biases, and cognitive processes, behavioral finance provides a more comprehensive understanding of financial behaviors and decision-making, challenging traditional economic models that assume rationality and efficiency. This research explores the intricate relationship between information, psychological factors, and financial decision-making, shedding light on the pivotal role they play in shaping individuals' choices in the dynamic financial landscape. The study investigates how the availability and interpretation of information, coupled with psychological elements, influence decision-making processes in the realm of finance. Behavioral finance represents a multidisciplinary research approach that explores how psychology influences individual decision-making in the realm of finance and the subsequent effects on financial markets. In this field, behavioral models are constructed by integrating insights from psychology into traditional economic theories. Rather than adhering strictly to the assumptions of classical economics, these models take into account the complexities of human behavior, incorporating concepts from psychology.

Keywords: Efficient Market Hypothesis, Rationality, Bias, Behavioral finance, Investor Behavior, Investors Psychology, Arbitrage, Speculation.

Introduction

According to modern Finance theory and economic theorists, investors are assumed to be behave rationally during financial decision. This means they make decisions based on all available information and form "rational expectations" about the future. They want to maximize financial benefits or minimize the financial losses from their decision. Investors are presumed to use all available information when making decisions about buying and selling stocks. This includes information about companies, economic conditions, and any other relevant factors. The idea of market efficiency suggests that financial markets are efficient and incorporate all available information into stock prices. As a result, it is difficult for investors to consistently achieve higher-than-average returns by exploiting market inefficiencies. The stock prices follow a "random walk." This implies that future price movements are unpredictable and not influenced by past price movements. In other words, the price changes are random and not driven by a pattern or trend. Stock prices should only move in response to unexpected positive or negative news, indicating that the market is reacting to new information rather than being influenced by irrational behavior.

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Contrary to the assumption of rational behavior in the EMH, Shiller (1999) argues that investors do not think and behave rationally. Instead, they are influenced by emotions such as greed and fear. Shiller suggests that investors engage in speculation, driving stock prices to unrealistic highs and lows. This behavior is attributed to emotional factors rather than a careful consideration of fundamental values. Investors are misled by extremes of emotion. This includes both greed, which can lead to overly optimistic expectations, and fear, which can result in overly pessimistic views.

Tversky and Kahneman (1986) contend that the rational theory of choice falls short in establishing a satisfactory foundation for a descriptive theory of decision-making, primarily because of framing and prospect theory. According to their perspective, these cognitive factors play a crucial role in shaping how individuals make decisions, challenging the assumptions of traditional rational choice theory.

Parikh (2009) was summarizing the findings of regarding the dynamics of the Sensex, which is a stock market index in India. Parikh argues that the volatility of the Sensex, which represents the ups and downs in stock prices, is not solely driven by the performance of the companies included in the index. Instead, Parikh attributes the volatility to the mistakes and behaviors of the crowd of investors participating in the stock market. the emotional intelligence of the average investor plays a crucial role in shaping the overall behavior of the crowd. The emotional quotient, or emotional intelligence, influences how individual investors react to market events and make trading decisions. These collective decisions then contribute to the overall market behavior. several behavioral patterns exhibited by the crowd, including herding (following the actions of others), overreaction (exaggerated responses to news or events), underreaction (insufficient response to information), and other biases that arise from individual investors' inherent psychological tendencies. The complex phenomenon of investor behavior, driven by emotions and biases, is highlighted as a significant factor influencing the financial market. The passage suggests that understanding and analyzing these behavioral aspects are crucial for comprehending the dynamics of the stock market and making informed investment decisions.

Subjective thinking plays a significant role in investor decision-making. Instead of solely relying on objective information, investors may be swayed by their personal beliefs, biases, and emotions. The whims of the crowd, or herd behavior, are mentioned as a factor influencing investor decisions. This refers to the tendency of individuals to follow the actions of the majority, sometimes leading to collective irrationality in the market.

Instead of stock prices reflecting fundamental values and moving in response to unexpected news, Shiller suggests that stock prices swing above and below fundamental values. This implies that market movements may be more influenced by psychological factors than by new information.

Literature Review

Behavioral finance offers a pragmatic rationale for the observed return volatility in stock markets by integrating investor behavior into models. Additionally, it has demonstrated effectiveness in explaining and forecasting abrupt shocks within the market. Taking these factors into account, behavioral finance exhibits substantial potential for more accurate predictions of asset price volatilities and stands poised to be recognized as a widely accepted theory for future research in asset pricing.

Pack and Mahmood (2015) asserted that financial decision-makers frequently deviate from rational and logical actions, opting for opportunistic decisions due to the constraints of time and information inherent in the decision-making process. As a result, market participants rely on cognitive elements derived from individuals, including internal customs (habits), values and beliefs, and knowledge, as well as external environmental factors. The interplay of these factors contributes to a decision-making process that is intricate and complex, deviating from the straightforward rules of a bounded rational process. In this context, psychological and environmental factors emerge as crucial influences, shaping the conditions and parameters of resources in the decision-making process. This explanation underscores that rational economic behavior is not always the norm in the real-world dynamics of decision-making.

Traditional finance, as per Baker and Nofsinger (2010), relies on the concept of prudent investment to elucidate the behaviors of market participants and their consideration of the causal effects of yields and returns. The theories developed within this paradigm are diverse. First, Markowitz's market portfolio principles elucidate portfolio allocation based on expected returns and risk. Second, the risk-based asset pricing model outlines asset valuation approaches, exemplified by the capital asset pricing model developed by Sharpe, Lintner, and Black. Third, theories pertain to the pricing of contingent

claims, including Fama's efficient market theory and the option-pricing theory developed by Black, Scholes, and Merton. Fourth, Miller-Modigliani's Capital Structure Theory and its derivatives, such as agency theory and arbitrage principles, as highlighted by Subrahmanyam (2007), DeBondt et al. (2010), Park and Sohn (2013), and Kumar and Goyal (2015), respectively. These theories have exerted considerable influence on financial practices and professionals, guiding the formulation of strategies and rules in finance and investment domains, such as portfolio diversification and risk management.

Nonetheless, scholars have contested the framework, as posited by Shiller (2003). They argue that not all investors adhere to rational decision-making processes, resulting in unpredictable individual trading behaviors. Share prices undergo changes without fundamental reasons, driven by irrationality or mass psychology. This perspective has given rise to the concept of behavioral finance, suggesting that investors' decisions are influenced by cognitive illusions.

Behavioral finance proves particularly adept at elucidating stock market anomalies like overreactions and post-earnings announcement trades. It offers diverse perspectives for market participants, including boards of directors, managers, individual and institutional investors, portfolio managers, analysts, consultants, and policymakers (DeBondt et al., 2010), facilitating a better understanding and addressing of psychological aspects in decision-making.

Encompassing psychology, sociology, and behavioral theories, behavioral finance predicts the financial behaviors of investors when making decisions (Park & Sohn, 2013). Qualitatively, this field scrutinizes the psychological impacts of decision-making on the stock market, exploring how investors interpret new information. The core scope of behavioral finance is that investors' reactions are not always predictable and do not consistently result from rational deliberations. The decision-making process is also influenced by cognitive biases and affective elements such as emotions.

Through the lens of cognitive psychology, investors leverage cognitive processes such as perceptions, attention, creativity, memory, reasoning, knowledge representations, and problem-solving in their decision-making (Park & Sohn, 2013). Considering social opinions, investors' self-image, shaped by in-group preferences and the perception of group belongingness, underscores the role of social identification in investment decisions (Bauer & Smeets, 2015; Borgers et al., 2015). From a behavioral perspective, both investors and managers may exhibit irrationality, biases, and nonstandard preferences, influencing judgmental managerial decisions (Kumar & Goyal, 2015). These biases manifest in various forms, including overconfidence, the disposition effect, herding bias, and home bias/familiarity bias.

There have been additional advancements in this area. Tversky and Kahneman (1974) posited that cognitive biases stem from the utilization of heuristics, which are mental shortcuts or "rules of thumb." Individuals resort to heuristics due to limitations in cognitive resources, preventing them from executing the necessary procedures for normative decision-making. While Tversky and Kahneman acknowledged that these heuristics are often efficient and cost-effective, they emphasized that their application can introduce biases in specific circumstances. Their focus on these circumstances aimed to shed light on the underlying nature of the heuristics, similar to how vision scientists' study visual illusions to comprehend the intricacies of the visual system. Despite this approach, it inadvertently fostered the perception that relying on heuristics leads to irrational decision-making.

In one of the first experimental papers to be published in the Journal of Finance, Haigh and List (2005) reported an experiment using 54 professional futures and options pit traders from the Chicago board of trade and showed that traders exhibited more myopic risk aversion than students. Onkal and Muradoglu (1994, 1995, 1996) conducted a series of experiments comparing finance professionals and novices in a task requiring probabilistic forecasting of stock prices. They found that finance professionals were more over confident than novices but that they could reduce this bias if they were given feedback. Thus, at least in certain financial tasks, differences between professionals and layman occur. So the research shows that, at least in some financial tasks, conclusions drawn from studies of lay people do need to be modified if they are to be applied to professionals.

Objective of the Study

- The objective of the study is to identify investment behaviour (Action process) in state of financial literacy and behaviour of individual investors (Cognitive process).
- To study various Emotional factors influencing the investors while investment decisions.
- To identify Information influencing the investors thought process while investment decisions.
- To analyze the behavior and psychology of investors

- To know the preference of people towards investing
- To recommend the suitable preventive measures and solutions to address the adverse outcomes of wrong investment decisions which are influenced by the investors behaving approach.

Assumption of Study

- There are only individual investors in capital market.
- Investor has only one investment avenue which is Equity share.
- Investor can take investment decision about trading pattern and selection of stock only.
- All investor wants to maximize net benefit.
- There are only two types of investor behaviour: Rational Behaviour and Emotional Behavior.
- Information is freely available for all investor.

Different Types of Investors and Decision Matrix

Based on the syntheses of theories and evidences, conceptual framework, is derived to examine the relationship between thought process and action process of non-professional individual investor. This "fourfold" pattern of investment decision of individual investor is divided into four different quadrants based on two different dimensions. First one is relative financial literacy and second one is behaviour of investor. The basic empirical model for the conceptual framework about investor decision can be represented as follow.

Financial Literacy, Information, and Knowledge Processing Ability

In the realm of behavioral finance, it is posited that the information structure and characteristics of financial agents significantly influence individuals' investment decisions (Baker & Nofsinger, 2010). Information sources encompass various channels such as mass media, annual financial reports detailing firms' major performances, guidance from financial advisors, pertinent articles hosted on company websites, and insights obtained from fellow investors. As per the information content hypothesis, market analysts play a pivotal role in shaping share prices by leveraging specific information to offer nuanced recommendations to investors (Walker & Claasen, 2006). This theory asserts that recommendations wield considerable influence in guiding or affirming investors' expectations.

Financial literacy entails the capacity to comprehend and apply a range of financial skills, encompassing the management of personal finances, budgeting, and investment strategies. It encompasses the knowledge and skills needed to make informed and effective decisions about money. Improving financial literacy is crucial for individuals to navigate the complex financial landscape and make sound financial choices. Financial literacy is a critical life skill that empowers individuals to take control of their financial well-being and make decisions that align with their financial goals. A basic understanding of economic concepts and how broader economic factors may influence personal finances, such as inflation, interest rates, and economic cycles.

Goetzmann and Massa (1999) presented empirical evidence suggesting the plausible existence of two distinct categories of investors: feedback traders who align with trends, and the smart money who adopt a contrarian approach. If investor is financially literate, they can relatively make better decision because they can evaluate various types of information which is relevant for their investment decision. Generally, investor who is relatively highly financially literate, has overconfident and they do not follow other. This type of investors creates their own investment strategies. Many Investors has no sufficient knowledge, information and skill and ability of processing the data for taking appropriate investment decision. Due to the lower financial literacy, they may call Financially illiterate investor. Lower financial literacy led to make more error in investment decision. Hence, there are high probability to make losses. The outcome of investment decision take by investor who is relatively lower financially literate, is attributes to the luck rather than lack of skill.

Investors' Behavior

Individual Investor is a basically a human being, so their behaviour is also like human. Generally, the term 'behavior' associated with action and reaction to the stimuli. The behaviour of the investors is categorized into two main parts. First, Mental Behaviour and second, Physical behaviour. The mental behaviour is a 'cognitive process' and emotional operation of mind of investors which include wide range of cognitive actions such that thinking, visualizing, dreaming, memorizing, feeling, analysing

and simplifying. The physical behaviour is an 'action process'. it mostly shown in the movement of the living organism which can be observable. Physical Interaction, Physical Actions and Reactions, Body Language and Facial Expressions are some examples of physical behaviour. The physical behaviour of investors is normally shown in their trading pattern and eventually lead by investment decision. The mental behaviour further classified as emotional behavior and Rational behaviour.

• Emotional Behavior (Irrational Behaviour)

According to Howard (2012), emotions can lead investors to make suboptimal decisions and judgments, introducing errors in assessing levels of uncertainty and urgency. The unavailability of additional instruments can further impact the decision-making process. Jain et al. (2015) proposes that, for individual investors, the perceived pain associated with realizing a loss is often greater than the pride linked to realizing a gain. Consequently, investors may refrain from selling stocks that have experienced a decline in prices to avoid the regret stemming from perceived poor investments and the embarrassment of reporting a loss.

Richards (2014) asserts that individuals harbor emotional perspectives regarding money, and these views are contingent on the methods employed to acquire it. The intensity of emotional attachment to money tends to increase with the effort invested in its generation, a phenomenon known as moral or mental accounting. Moral accounting signifies that individuals adopt distinct mental frameworks and prescribed actions in their relationship with money.

Emotional behavior refers to the way individuals express and manifest their emotions through actions, reactions, and non-verbal cues. It encompasses a wide range of observable behaviors that reflect a person's emotional state. Emotional behavior of investor refers to a one types of thought process that led by their mental state of mind. These types of investors are making decision base of their sentiments rather than proper calculation and evaluating relevant information. Investors who behave emotionally is overconfident and very sensitive about particular stock, affected by framing bias. One more important aspect of investor who is behave emotionally is a highly risk aggressive.

• Rational Behavior

Rational behavior refers to decision-making and actions that are logical, consistent, and based on a thoughtful and systematic evaluation of available information. Individuals exhibiting rational behavior typically aim to achieve their goals by making choices that maximize utility or satisfaction given the constraints they face. These types of investors are making decision based on theory and theoretical calculations. Rational individuals assess and consider the level of risk associated with different choices, aiming to minimize potential negative consequences. Rational choices are often made by weighing the opinions and advice of others, especially in situations where collective decision-making is beneficial.

• Investment Decision

Within the scope of psychology literature, numerous biases are identified in human behavior. However, our focus, in understanding the impact of biases on investment decision, is directed solely toward the significant biases and those of a systematic nature. Biases that offset each other in the aggregate hold minimal concern for us. The ones that are both systematic and exert an influence on asset prices in a collective sense are deemed noteworthy (Stracca, 2004). Behavioral biases commonly affecting asset prices in the aggregate are those that impact investors' decision-making and their ability to cluster choices.

Many investors, excluding large institutions, face constraints in terms of resources (both financial and temporal) and lack the necessary computational power to make well-informed decisions. These limitations in costs and information processing power are commonly referred to as bounded rationality. In response to bounded rationality, investors often resort to shortcuts and rules of thumb when making decisions (Simon, 1986; Williamson, 1998). Behavioral finance literature lists numerous factors and biases that contribute to decision heuristics, including anchoring bias, conservatism bias, social bias, hindsight bias, ignorance of probability laws, emotional factors, disposition effect, confirmatory bias, overconfidence, certainty effect, endowment effect, house-money effect, disappointment aversion, and sunk costs. The subsequent discussion delves into each of these behavioral biases and factors in detail.

Given the substantial computational resources required to calculate the actual value of investments, investors often anchor on representative information, assuming that prevailing stock market prices are normal or at an equilibrium level without a clear understanding of real equilibrium or fair prices (Mullainathan and Thaler, 2000). Investors also grapple with attention limitations, as they are bombarded

with vast and complex information. This information overload forces them to focus only on the most striking information, making them susceptible to fads (Shiller, 2000) and manipulations (Daniel, Hirshleifer, and Teoh, 2002). This restricted ability to process information exposes investors to conservatism bias, wherein they fail to allocate sufficient attention and time to absorb relevant information. Studies have shown that investors tend to react excessively to new information, and conservatism helps alleviate this overreaction (Barberis et al., 1998).

Shiller (2003) introduces feedback models that link attention, social bias, past information, and increased optimism to rising stock prices. Limited attention capabilities also lead investors to overlook others' motives in manipulating information representation (Daniel et al., 2002). For instance, companies often present positive information prominently, while negative information is downplayed (Klibanoff et al., 1998).

Additionally, investors, being generally averse to ambiguity compared to risk, may prefer to invest in risky situations over those with limited information (Heath and Tversky, 1991). Due to their constrained computational power, investors tend to disregard probability laws, overvaluing information from small samples without giving due consideration to population information. This tendency is evident in the superior returns observed from trading on publicly available information (Lakonishok et al., 1994).

Individual investors make various types of investment decisions based on their financial goals, risk tolerance capacity, and time horizons. Here are some common types of investment decisions made by individual investors. In the subsequent discussion, we divide the decision into two groups depending upon whether they are affecting Stock Selection Decision or Trading pattern selection decision.

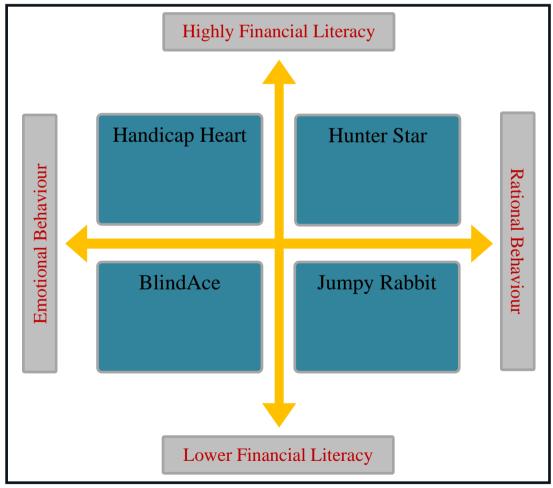


Figure 1: Different types of Investors and Decision Matrix

Blind Ace

The bottom left quadrant indicates a *Blind Ace* type of investor. This type of investor does not have sufficient information and even if he does get information, he may not have skill or ability to understand it and use it to make a meaningful decision. These types of investors behave irrationally or emotionally and buy or sell stock by relying on Luck factor and attribute outcome of investment decision to the luck factor. Self-attribution leads to a natural tendency to attribute any disappointment to bad luck rather than a lack of skill. Poor decisions are made because we can only hold a small number of ideas inour minds at any one time and are therefore unable to combine all the relevant factors (e.g. Miller, 1956).

These types of investors have very little patience and insufficient self-control. They are crazy about the lure of profit. These types of investors tend to behave irrationally or emotionally as they are heavily influenced by Framing Bias, availability bias and representativeness bias. These types of investors are seen blindly following to other investors in the market. Such investors take huge risks in the lure of making quick profits and huge profits. Such investors increase their risk by investing all the wealth or money in a single capital asset, investing by borrowing money, investing more and more to recover losses, etc. Due to this behavior of these investors, they earn profits very quickly, as well as loses losses just as quickly.

Generally, trading by such investors is also called *gambling or speculation*. Such investors have a very short life cycle in respect of market. Because when he makes a profit, he is feeling proud to succeed in the market and will take more and more risks to make even more profit, but he does not feel fear of negative results, but takes more and more risks in the hope of success again. In the short term there are frequently make profits and losses, but in the long term he has lost all his wealth.

These types of investors arbitrarily select known stocks for buying and selling while making investment decisions. His decisions are very erratic and snappy, and there is no consistency in his trading or investment decisions. There is no predetermined level of risk or return while making an investment decision. Under the influence of some of the aforementioned emotional bias and cognitive Bias, one buys when it feels right and sells when it feels right.

Handicap Heart

Investors of this nature commonly possess a higher level of financial literacy. They acquire ample information about relevant securities and market dynamics before making investment decisions, leveraging their knowledge and skills to ensure sound choices. Despite their financial literacy, these investors often overestimate their expertise, downplay risks, and may exhibit irrational or emotional behavior. Armed with knowledge and confidence, they independently formulate their investment strategies.

Initially opting for low-risk or calculated investments, their risk appetite tends to escalate over time. Their heightened self-assurance surpasses the norm, leading to an underestimation of potential downsides. This category of investors demonstrates recent experiences and an insatiable desire for profits, hindering them from consistently behaving in a rational manner. Notably, they display less self-control and greater self-confidence compared to their counterparts.

Investors of this kind exhibit recent experiences and an insatiable desire for profit, which hinders their ability to act rationally. They demonstrate a lack of self-control and a pronounced belief in their own capabilities over others. Despite possessing high financial literacy, these investors succumb to cognitive biases such as Sunk Cost Fallacy, Confirmation Bias, Regression Bias, Availability Bias, Representativeness Bias, Confidence Bias, and Cognitive Dissonance, leading them to make emotionally-driven or irrational decisions.

Referred to as contrarians, these investors have a life cycle somewhat longer than that of speculators, owing to their lower initial risk. Fear of wealth loss and simultaneous greed characterize their approach, albeit downplayed by an overconfidence bias. When making investment decisions, they tend to focus on a select few securities, often driven by emotional attachments to those that incurred losses or missed profit opportunities.

This group experiences a quick realization of returns but delays the recognition of risks associated with their investments. The attachment to specific securities, influenced by emotions rather than objective analysis, shapes their investment behavior.

Jumpy Rabbit

The term "Jumpy Rabbit" characterizes investors who exhibit a strong inclination toward safeguarding their assets and finances. These individuals refrain from making investment decisions due to a perceived lack of expertise and knowledge in the field. Although they approach their investments with a rational mindset, fear of the unknown prevents them from actively engaging in the market. Typically observed among older investors, this cautious approach stems from a belief that wealth should remain stable, if not increase.

These investors predefine a limited level of risk they are willing to undertake, often significantly below the average risk tolerance. They tend to mimic others in the market due to their information deficit but refrain from blind imitation. Despite their rational behavior, these investors are susceptible to biases such as framing bias, confirmation bias, and anchoring bias. Their strategy involves preserving wealth through meticulous mental accounting, leading to deliberate but delayed decision-making processes owing to their information and skill gaps. Consequently, their trading frequency remains notably low.

While these investors may be enticed by attractive opportunities, their heightened fear of wealth depletion prevents impulsive decisions. When they do commit to an investment, their primary objective is asset protection, with profit generation taking a secondary role. Commonly referred to as "Hedgers," these individuals consistently seek to shield themselves from potential risks. In tumultuous markets, their patience wanes, prompting hasty sales of profitable investments to secure gains. Unfortunately, this strategy often results in missed long-term financial opportunities, as they cling to underperforming assets, hoping for a recovery to their predetermined reference point.

Hunter Star

These astute investors possess extensive knowledge and skills, exhibiting remarkable control over their behavior. Their decision-making is marked by intelligence, and they exercise patience, investing only when opportune moments arise. Their approach to investing is systematic and logical, allowing them to navigate temptations and fears through deliberate decisions and rational behavior. Armed with ample information and confidence, they manage to mitigate the fear of risk, making well-informed choices

While these investors adeptly keep their emotions in check, there remains a concern that overconfidence may pose a potential challenge. Primarily identified as value investors or traders, they engage in calculated risks, ultimately reaping long-term returns. In situations where a stock underperforms and an alternative opportunity beckons, these experts promptly shift their investments, contributing to extended investment life cycles and sustained profits.

Hunterstar gains advantage from the errors committed by the other three investor types. Despite the intellectual prowess driving their decisions, these investors, on occasion, make suboptimal choices influenced by market anomalies, leading them to fall prey to emotional biases to a certain extent.

Conclusion and Direction for Future Research

In conclusion, the paper will provide strategic view to assist individual investor as well as professional and institutional investor to resolve these "mental mistakes and errors" by recognizing some important investment bias exist during investment decision for those who invest in stocks.

Behavioral finance has a great potential to become a dominating approach for asset pricing in the future. The researchers so far have established behavioral finance as a parallel approach to the traditional finance; however, yet to establish it as an alternative and superior approach. To achieve this, researchers need to come up with robust behavioral asset pricing models backed by enough empirical evidences from around the world.

There is a need for amalgamation of psychological studies with the empirical ones to construct robust behavioral asset pricing models; thus, incorporating biases alongside fundamentals. The key areas to be focused in undertaking future research, in the field of behavioral finance, are individual psychological biases and their aggregate effect on stock price movement, quantifying the effects of sentiments and be able to integrate them with a working model for asset pricing.

The paper offers indirect implications to the investor and advisor as the psychological biases discussed in behavioral finance are not just restricted to the markets, but could play a role wherever decision-making is involved. This, in turn, suggests that investor and advisor should be mindful of these psychological biases

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