

Improving the Quality of Decision Making for Investors: A Research under Behavioral Finance and Psychology

Jinze Lyu^{1,a,*}

¹*University of Minnesota-Twin cities, Minneapolis, 55455, The USA*

a. jinzelyu0223@gmail.com

**corresponding author*

Abstract: Behavioral finance theory emerged as a response to concerns and shortcomings in existing financial theories, such as the Efficient Market Hypothesis (EMH) and the Capital Allocation Pricing Model (CAPM), by incorporating elements of human psychology and behavior into the framework of finance research. The major difference between behavioral finance and classical financial theory (such as CAPM and EMH) lie in their assumptions and interpretations of investor behavior, particularly on whether investors are indeed rational or not. To deal with these crucial issues that behavioral finance raises, investors must first acknowledge the presence of these issue, understand the notion of them and how they influence decision-making, and be aware that their decisions may alter depending on the source and use of money. This paper aims at understanding the key crucial concepts of behavioral finance and presenting several ways to deal with the behavioral finance related issues. Loss aversion, overconfidence and mental accounting will be examined in detail in this paper to explore the reason behind these phenomenon and present ways to deal with these issues.

Keywords: Behavioral finance, Reasons, Solutions, Loss aversion, Overconfidence, Mental account

1. Introduction

Behavioral finance points out that typical financial models fail to account for human decision-making processes and variability. Behavioral finance emerged in the 1980s, when some economists began to question whether classical financial theory's assumption of a rational economy holds in reality or not. Traditional finance theory assumes that investors are totally rational and can make the best decisions given all available information, whereas in reality, many anomalies have been observed that undermine the basis for traditional finance theory.

Behavioral finance theory emerged as a response to concerns and shortcomings in existing financial theories, such as the Efficient Market Hypothesis (EMH) and the Capital Allocation Pricing Model (CAPM), by incorporating elements of human psychology and behavior into the framework of finance research. Behavioral finance theory therefore contends that traditional financial theory somehow oversimplifies the notion that investors are rational because they ignored decision-making processes and real-world unpredictability in the real financial world.

The major difference between behavioral finance and classical financial theory (such as CAPM and EMH) lie in their assumptions and interpretations of investor behavior, particularly on whether

investors are indeed rational or not. Traditional financial theory implies that investors are rational, capable of gathering and understanding all relevant facts and making the best decisions to maximize profits, which seems a little bit unpractical. Traditional financial theory emphasizes market efficiency, somehow depicting a world in which investors are perfectly as rational as a machine, claiming that market prices accurately represent all available information and that investor behavior could have little impact on market pricing. In contrast, behavioral finance believes that investors are not perfectly rational and are influenced by a range of psychological variables, cognitive biases, emotions, and incorrect judgments, which obviously appear to be more practical as each of us are real human beings who are affected by our emotions [1].

This paper aims at understanding the key crucial concepts of behavioral finance and presenting several ways to deal with the behavioral finance related issues. Loss aversion, overconfidence and mental accounting will be examined in detail in this paper to explore the reason behind these phenomenon and present ways to deal with these issues.

2. Loss Aversion: Mentality and Judgemental Mismatch

2.1. Definition

Loss aversion is a prominent concept in decision-making and risk-taking behavior. Loss aversion occurs when people detest losses more than the extent to which they appreciate gains of the same amount. Simply said, this happens when the negative emotional effect of a loss somehow far exceeds the positive emotional impact of an equal amount of gain. In reality, the anguish of losing \$100 can be significantly higher than the elation of unexpectedly gaining \$100 because human beings have a stronger tendency to avoid losses. This psychological phenomenon has manifested itself in a variety of ways in the real financial world, including people's economic decisions and purchasing habits [2].

2.2. Reasons why this Issue Occurs

The major reason why loss aversion happens is an emotional effect in which losses evoke harsher feelings like anxiety, fear, and regret whereas benefits elicit milder sensations. This emotional mismatch somehow increases people's sensitivity and anxiety over loss. The second cause of loss aversion lies in the risk aversion response, which humans develop to safeguard their survival and safety. When confronted with loss, a real human being would naturally develop the psychology of avoidance and prevention, which results in loss aversion in the real financial world. Loss aversion may be created by the reference point effect as well, which happens when people compare their profits and losses to a predetermined benchmark set by themselves. So when a loss occurs to a real human investor, the divergence from the reference point increases, making the loss more obvious. In stock market investing, investors may use the original purchase price at which they bought the stock as a benchmark, and if the share price falls to a point below the original benchmark, the loss compared to the purchase price may rise. A fourth sort of loss aversion is memory bias, which happens when people remember and recall losses more often than benefits. This memory bias accentuates the loss's psychological relevance, increasing loss aversion [1].

2.3. Previous Researches on this Issue

According to Hardie et al. [3], a brand's positioning in relation to a variety of criteria influences client decisions. Consumers value losses from a reference point above gains of the same size. Usher et al. [4] gave additional support for this idea by developing a nonlinear model that combines loss aversion and attention switching into multi-choice dynamics. In an attempt to explain risk aversion, Rabin and Thaler [5] suggested that the expected-utility paradigm was insufficient to explain risk aversion. They

recommended for the combination of loss aversion and mental accounting. Another attempt to explain loss aversion was made by Abdellaoui et al. [1], who applied prospect theory to create a parameter-free framework for measuring loss aversion, which they showed could explain a wide range of field and experimental data. Furthermore, Novemsky and Kahneman [6] employed psychological concepts to define the bounds of loss aversion and proposed more testing of the model. On how risk aversion related to investor behaviour, Thaler et al. [7] researched how myopia and loss aversion influence risk-taking behavior, whereas Haigh and List [8] investigated whether professional traders had myopic loss aversion. Tom et al. [9] studied the neurological basis of loss aversion while making risky decisions. Individual variations in behavioral loss aversion were also shown to be predicted by brain activity in the ventral striatum and prefrontal cortex. Furthermore, Köbberling and Wakker [10] created a loss aversion index to measure the phenomena. Sokol-Hessner et al. [11] discovered that thinking like a trader lowers loss aversion in the real financial world, implying the potential of conscious cognitive control in decision-making processes when human investors make their decision. Overall, research on loss aversion demonstrates its importance in understanding consumer behaviour, risk aversion, and decision-making.

2.4. Possible Solutions to this Issue

There are a couple of ways to deal with loss aversion. The first step in addressing loss aversion in behavioral finance is to identify the issue. Educating investors on the psychological phenomenon of loss aversion can help them understand their own behavior patterns and make more informed investment decisions, because unlike what has been arbitrarily assumed by the traditional finance theory, each of us are all real humans who are easily affected by our emotions. The second strategy for overcoming loss aversion is to practice emotional management techniques. Investors can use emotional management strategies, such as deep breathing and relaxation exercises to remain emotionally stable in the face of losses and avoid making premature decisions based on mood swings, which is a quite crucial one considering the fact that most investors are largely affected by their emotions. The third strategy for dealing with loss aversion is to identify investment goals and then create appropriate investment strategies around them. This then allows investors to better deal with their mood changes and avoid making hasty decisions based on short-term market fluctuations. This is also an important way to overcome loss aversion because investors need to take a bigger picture and understand that losses and gains are both natural parts of investing therefore they shouldn't be affected by their emotions arisen from short term losses. A fourth option for overcoming loss aversion is to diversify the portfolio and spread the risk by investing in equities, bonds, mutual funds, and so on, which is quite crucial as has been suggested by the portfolio theory proposed within the traditional finance theory as well. In order to overcome loss aversion, investors should set long-term goals and exercise with great caution while they deal with market fluctuations that pop up in every single trading day. Long-term investing can mitigate the impact of short-term market fluctuations, resulting in more consistent profits [9].

3. Overconfidence: Overinvesting and Underperforming

3.1. Definition

Overconfidence is a cognitive bias in behavioral finance in which an investor overestimates his or her skills, competences, or knowledge, leading to illogical judgments, which then turns out to be huge financial losses. Investors may overestimate their financial abilities and judgment in reality, somehow believing they can properly predict market trends or identify low-cost investment possibilities. Some investors even believe they have the ability to outperform the market by undertaking technical or fundamental research, despite the reality that the market is incredibly efficient argued by some

researchers (which is proposed by the traditional finance theory), making it impossible to obtain a long-term edge through these strategies in reality. Overconfident investors are more prone to ignoring investing dangers such as market volatility and possible losses when they trade. They may assume they can control or avoid risk, leading to over-investment in hazardous assets. Overconfident in their ability, investors may ignore or discard evidence that contradicts their own ideas. In the face of negative market news or financial data, overconfident investors may arbitrarily conclude that the information is useless or that they can find a better investment opportunity because there's a sparking idea indicating that they are more capable than what they really are. Overconfidence may also inspire investors to trade more frequently than they should be, believing that buying and selling frequently would result in a higher profit whereas in most cases that is not the case. In fact, frequent trading increases transaction costs, and market efficiency precludes overconfident investors from consistently profiting from short-term trading in the real financial world [12].

3.2. Reasons why this Issue Occurs

The first cause of overconfidence is what's called self-attribution bias, which occurs when people ascribe success to their own talents and efforts while blaming failure on other reasons. Investors sometimes ascribe their success to their analytical and decision-making abilities, while their losses are attributed to market circumstances or other uncontrolled variables, at least they believe they themselves are not the major reason why faults happen. Confirmation bias can result in overconfidence. People are more prone to seek out and pay attention to information that supports their existing beliefs under the influence of confirmation bias, while disregarding or dismissing information that contradicts them, believing that they are more accurate than what they actually are. This bias causes investors to focus on information that confirms their beliefs [13]. The third aspect that contributes to overconfidence is information overload. When presented with a large amount of sophisticated information, most human investors are somehow unable to absorb all the information completely and properly (whereas the traditional finance theory believes that people are all perfectly capable of collecting and apprehending all the information available in the market), preferring to focus on specific areas selectively. This selective attention may lead investors to become overconfident in their judgment and overlook other critical risk factors, which then causes more financial losses. Optimism bias can result in overconfidence. In reality, people can be inherently optimistic about the future, and this optimism bias then leads investors to somehow overestimate the chance of success while underestimating the danger of failure when making their own seemingly smart investment decisions. Experience restrictions may also contribute to overconfidence, as most investors frequently overestimate their talents based on little experience while neglecting market volatility and complexity. In reality, most investors are not quite as well equipped with sufficient financial knowledge as they assume them to be. Some investors may be successful in the short term but feel they can invest in the long run, which leads to overconfidence [14].

3.3. Previous Researches on this Issue

Overconfidence is a widespread problem in areas, such as negotiation, speculation, corporate finance, and political behavior (basically every aspect of finance where human investors exist overconfidence). Neale and Bazerman [13] firstly investigated the effects of framing and negotiator overconfidence on bargaining behaviour and results. Then, Kyle and Wang [15] discovered that overconfidence may trump reason in a duopoly model of informed conjecture. On how overconfidence affects decision making process, Soll and Klayman [16] researched overconfidence in interval estimations, whereas Malmendier and Tate [12] investigated how CEO overconfidence influences firm investment. Brown and Sarma [17] investigated the relationship between CEO overconfidence, dominance, and corporate

acquisitions. Then, Gervais et. al. [18] discussed how compensation contracts and capital budgeting are influenced by overconfidence. Ahmed and Duellman [19] further found a negative relation between CEO overconfidence and accounting conservatism. Anderson et al. [20] proposed a status-enhancement account of overconfidence, highlighting the motive to maintain high self-esteem and how this motive affects behaviors. Overconfidence not only affects business decisions. Ortoleva and Snowberg [21] studied the role of overconfidence in political behavior, predicting that overconfidence leads to ideological extremeness, increased voter turnout, and stronger partisan identification. Overconfidence can also have multiple dimensions, as has been examined by Hribar and Yang [14] on how CEO overconfidence affects management forecasting, which considers both the "over-optimism" and "miscalibration" dimensions of overconfidence. These studies collectively contribute to understanding the impact of overconfidence in various contexts.

3.4. Possible Solutions to this Issue

To deal with overconfidence, investors must first assess their own abilities and knowledge level, which aims at comparing what they actually are versus what they assume them to be, now that the notion of overconfidence has been observed, as well as recognize their own strengths and weaknesses. Investors should avoid self-attribution bias, which occurs when investing success is attributed to variables other than talent, such as the market environment or luck in real financial world. At the same time, if an investment somehow unfortunately fails, the investor should not just blame external causes, but rather they should learn from their mistakes and improve their investing plan, now that they know the mental issue of overconfidence could happen, which prevents them from learning enough lessons from the failures. To prevent overestimating investment returns, investors should establish reasonable expectations based on their risk tolerance and market conditions in the real world [12].

When making investing decisions, investors should consider market uncertainty and possible dangers while seeking an acceptable return, and should not always assume that they are suddenly already the smartest trader that ever existed. Creating a varied portfolio can also help investors diversify their investing risks and lessen their reliance on a particular investment strategy, as has been suggested by the traditional portfolio theory within traditional finance theory as well. As a result, even if one investment decision fails, the total portfolio will not suffer much because now the investment has been diversified and the coefficient is not quite so high. Investors may seek guidance and insight from qualified financial counselors or experienced investors if they wish to overcome overconfidence as well.

4. Mental Account: Awareness and Reallocation

4.1. Definition

Mental accounting is a well-researched issue in behavioral economics and finance. The term relates to how humans conceptualize and allocate money resources in the real finance world, which leads to various behaviors and decisions made by human investors who assume that different sources of funding can have not quite the same risk aptitude. Richard Thaler, a professor at the University of Chicago, firstly coined the phrase "mental account" to characterize this behavioral finance phenomenon whereby the same amount of money coming from different areas is treated differently. It depicts the virtual distribution of cash and resources among several mental sub-accounts [1]. These sub-accounts are classified based on their sources, goals, time constraints, and other features set by the human investor according to his personal experience, such as daily expenditure, entertainment and leisure, investment and savings, and emotional/social accounts. Each account can have its own budgeting, spending, and saving rules, which influence people's purchase decisions and behavior. The

presence of mental accounts causes humans to somehow repeatedly violate simple economic rules while making judgments, resulting in irrational purchasing behaviors, whereas investors in the traditional finance theory somehow are believed to be perfectly rational and treat every single dollar equally. People may be more motivated to spend the money if it is designated as a recreational and leisure account, even if the transaction does not fit into their overall financial strategy. Duxbury et al. [22] argued that people's financial wealth decisions are influenced by their psychological cognitive processes.

4.2. Reasons why this Issue Occurs

Mental accounting activity can be explained in a variety of ways. The sunk cost effect is the fundamental cause of mental accounting, which says that people prefer to consider expenses that have already been paid and cannot be recovered when making decisions, even if such payments have little to do with future choices. This phenomenon may be explained in terms of mental accounts, which quantify the consequences of decisions by combining past and present information. The second argument for mental accounts is the framing effect, which asserts that people make different decisions when presented with various issue frames [23]. Emotional impact is also a crucial source of the mental account phenomenon, and emotions play a significant role in decision-making in the real financial world because each of us is real human being who is easily affected by real emotions. Different cultural origins influence how individuals see and manage money. Certain cultures are more likely to spend money on family and social activities, whilst others may value saving and investing.

4.3. Previous Researches on this Issue

Several studies have explored the implications of mental accounting on saving behavior, portfolio optimization, decision-making, and consumption patterns. In a 1993 study, Xiao and Olson [24] found a connection between mental categorization of money and saving behavior, which paved the way for subsequent research on the impact of mental accounting on financial decisions. Winnett and Lewis [23] explored the effect of mental accounts on household savings behavior, demonstrating the applicability of conventional economic concepts to modern financial activities.

To explain mental accounting, Shefrin and Statman [25] presented Behavioral Portfolio Theory (BPT), which incorporates mental accounting into portfolio creation and securities design, offering a new perspective on investment strategies. Duxbury et al. [22] investigated mental accounting and decision-making in reverse scenarios, in which money is spent to save time. Their findings emphasize the adaptability and flexibility of mental accounts in various settings of real human investors, which proved the existence of mental accounting again. Cheema and Soman [26] investigated variable mental accounting, which demonstrates how customers justify their purchasing decisions using flexible expenditure accounts (which are also one form of mental accounts). These findings highlighted the value of mental accounting as a technique for self-control in financial decision-making when real human investors encounter problems. To incorporate mental accounting into decision making process, Das and Statman [27] created a framework for risk management and investing strategies based on previous research on this topic that combines traditional portfolio theory with behavioral insights to improve portfolios using mental accounting in real human investing scenarios. On how mental accounting affects financial decisions, Alexander and Baptista [28] studied portfolio selection using mental accounts in the context of delegation and background risk, highlighting the significance of incorporating mental categorizations in real human investing choices. Thaler [1] explored anomalies in saving behaviour, fungibility, and mental accounts, emphasizing the complexity of financial decision-making when human investors make their decisions, which contracts the traditional financial theory again. Koch and Nafziger [29] studied rolling mental accounts and

objectives under mental accounting, highlighting the dynamic character of financial categorizations. Huang and Di [30] looked at the influence of uncertainty in portfolio selection and mental account computing of real human investors. They underlined the need of considering individual risk tolerance and preferences while making financial decisions for different investors. Hou et al. [31] discovered that digital payments can also alter spending patterns by resetting mental accounting. Overall, mental accounting research sheds light on how people organize, allocate, and analyze their financial resources, which influences savings behavior, investment decisions, consumption habits, and ethical choices as they make their investment choices. Understanding the complexity of mental accounting allows academics and practitioners to create strategies for improving financial well-being and making better-informed decisions in the real finance world, which is certainly something that the traditional finance theory cannot deliver.

4.4. Possible Solutions to this Issue

To deal with mental account concerns, investors must first acknowledge the presence of mental accounts, understand the notion of mental accounts and how it influences decision-making, and be aware that their decisions may alter depending on the source and use of money. When making financial decisions, investors should examine and reflect on their decision-making process to determine the real impact of mental accounting. To avoid making incorrect financial decisions, investors should divide their money across safe and risky accounts [28]. Investors should also comprehend account segregation, which is the technique of managing money as a single account rather than separating it into many mental accounts as an attempt to make comprehensive investment decisions. When constructing a budget and financial plan, investors should not divide income and spending into different accounts, but rather assess their whole financial situation and consider the issue quite comprehensively. When evaluating investment profits and losses, investors should look at the entire portfolio and sum the wins and losses from all investments, rather than calculating the gains and losses for each individual project.

5. Conclusion

In behavioral finance, human conduct is classified as either involuntary or conscious. Loss aversion, overconfidence, and mental accounting are all behavioral financial aberrations that people do not consciously exhibit. These habits, taken together, influence investors' decision-making and behavior patterns in the financial market. Understanding these habits helps investors better understand their own psychological and behavioral traits, allowing them to make more reasonable and productive financial decisions.

Studying behavioral finance allows us to successfully defend investors' interests. Behavioral finance highlights typical psychological and behavioral biases that investors use in decision-making, such as overconfidence, loss aversion, herd mentality, and so on. These variations will cause investors to make illogical investing decisions, increasing risk and loss. By recognizing these behavioral biases, investors may better detect and prevent their influence on investment decisions. Behavioral finance emphasizes the value of investor education.

Loss aversion, overconfidence and mental accounting have been examined in detail in this paper to explore the reason behind these phenomenon and present ways to deal with these issues. These are subtle mental mistakes that normal investors tend to unconsciously make. To deal with these crucial issues that behavioral finance raises, investors must first acknowledge the presence of these issue, understand the notion of them and how they influence decision-making, and be aware that their decisions may alter depending on the source and use of money. Understanding behavioral finance allows investors to assist individual investors in overcoming behavioral bias in trading and improve

their investing decision-making abilities. After understanding key behavioral finance concepts, investors can avoid frequent trading due to overconfidence. They can also overcome loss aversion by making more rational asset allocation decisions.

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