

The Role of Behavioral Bias in Investment Outcomes

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Abstract. Investment decisions are made by individuals who are subject to behavioral biases. The biases could lead to a significant impact on the outcome of investments. This research paper aims to investigate the role of behavioral biases in investment decisions and outcome. The study draws on the theories of Rational Behavioral Finance, which recognizes that human behavior is influenced by both rational and irrational factors. The paper reviews several key behavioral biases that can affect investment decisions, including loss aversion, endowment bias, framing, overconfidence, and the illusion of control. The analysis of these biases is based on the context of different investment settings, including stock markets, mutual funds, and real estate. The paper introduces the significance of each bias, and how they can lead to suboptimal investment decisions. The latter part of the paper highlights how the biases can be addressed to improve the outcome of investments. Eventually, the research paper concludes that behavioral biases can significantly impact investment outcomes, but the application of Rational Behavioral Finance theories and strategies can mitigate the impact of these biases.

Keywords: Loss aversion, endowment bias, framing bias, overconfidence, diversification.

1. Introduction

Investing in the stock market, mutual funds, or real estate can be a lucrative way of achieving financial goals. However, investment decisions are not always rational and objective since behavioral biases often influence the choices investors make. Behavioral finance is a growing field of study that seeks to understand how cognitive biases impact investment decision-making. A report by J.P. Morgan Asset Management states that investors' behavior is one of the biggest obstacles to achieving long-term investment success [1]. The information implies that behavioral biases can have a significant negative impact on investment returns. Such biases can cause investors to make suboptimal decisions, resulting in lower investment returns.

The field of behavioral finance recognizes that investors are human beings with emotional biases that impact their decision-making process. Rational Behavioral Finance, which combines the principles of traditional finance with the insights of behavioral economics, seeks to explain how investors make decisions in real-world situations. There are several different types of behavioral bias. One of the most common biases in investing is loss aversion. This bias refers to the tendency of investors to feel the pain of a loss more acutely than the pleasure of a gain. As a result, investors may hold onto losing investments for too long, hoping to recover their losses, instead of cutting their losses and moving on. Another bias is endowment bias, which refers to the tendency of investors to overvalue assets they own and undervalue assets they don't own. Framing is another cognitive bias that refers to how information is presented to investors, which can affect their perception and decision-making. Lastly, Overconfidence bias can lead investors to make risky investments or trade too frequently. This bias refers to the tendency of investors to overestimate their abilities and knowledge, leading them to believe that they can outperform the market.

This paper introduces the significance of each bias, and how they can lead to suboptimal investment decisions. The latter part of the paper highlights how the biases can be addressed to improve the outcome of investments. For example, diversification and disciplined rebalancing can help to reduce the impact of loss aversion and overconfidence, while seeking out diverse sources of information can help to reduce the impact of framing and endowment biases. Eventually, the research paper concludes that behavioral biases can significantly impact investment outcomes, but the application of Rational Behavioral Finance theories and strategies can mitigate the impact of these

biases. By understanding the role of behavioral biases in investment decisions, investors can make more informed and rational investment choices that lead to long-term financial success.

2. Loss Aversion

Loss aversion is a behavioral bias where people feel the pain of losses more acutely than the pleasure of gains of equal size. In other words, the negative feelings associated with losing money are stronger than the positive feelings associated with gaining the same amount of money [2]. This bias can cause investors to hold onto losing investments for too long, leading to missed opportunities for profit and ultimately lower investment returns.

One specific example of loss aversion can be seen in the case of the "January effect" in the stock market. The January effect is a phenomenon where small-cap stocks tend to outperform large-cap stocks in the month of January. However, some investors may be hesitant to invest in small-cap stocks due to the higher risk associated with these types of investments. This hesitation may be driven by loss aversion, as investors may fear losing money in these investments more than they value the potential for higher returns [3]. In the case of the January effect, small-cap stocks tend to outperform large-cap stocks in January. However, despite the potential for higher returns, some investors may still be hesitant to invest in small-cap stocks due to the perceived higher risk associated with these types of investments. This hesitation may be driven by loss aversion, as investors may be more concerned with avoiding losses than maximizing gains.

Another example of how loss aversion can affect investment decisions can be seen in the case of the 2008 financial crisis. During the 2008 financial crisis, many investors experienced significant losses in the stock market, which triggered their loss aversion bias. As a result, some investors sold their stocks at a loss, instead of holding onto them, in an effort to avoid further losses. This behavior was driven by the fear of losing more money and the desire to minimize the negative impact of the crisis on their portfolios. However, research suggests that selling during a market downturn can often be counterproductive, as investors may miss out on potential gains when the market eventually recovers [4]. The example implies that loss aversion can lead to a bias towards conservative investment strategies, which may limit the potential for higher returns. This can be problematic, as investing always involves a degree of risk, and avoiding all risky investments may not be the best approach for maximizing long-term investment returns. By being overly focused on avoiding losses, investors may be missing out on opportunities for growth and may be more likely to underperform in the long run.

Overall, loss aversion can have a significant impact on investors' decision-making and the final outcome of their investments. This bias can cause investors to hold onto losing investments for too long, leading to missed opportunities for profit and lower investment returns.

3. Endowment Bias

Endowment bias is "a cognitive bias in which individuals overvalue an asset they already possess, such as a house or a stock, and are reluctant to part with it, even if doing so would be financially advantageous" [5]. This bias can lead investors to hold onto investments for too long, even if those investments are no longer performing well or no longer align with their investment goals. As a result, endowment bias can negatively impact investment decisions and the final outcome of those investments.

One specific and well-known example of endowment bias can be seen in the case of Nokia, a Finnish telecommunications company. In the early 2000s, Nokia was a dominant player in the mobile phone industry, with a market share of over 40%. Nokia's initial success in the mobile phone market during the early 2000s can be attributed to its endowment bias. As Nokia was already a dominant player in the mobile phone industry, it continued to rely heavily on its existing technologies and products, rather than exploring new and innovative designs. This bias towards its own products and

technologies led to Nokia's inability to keep up with the changing market trends and consumer preferences, ultimately resulting in a decline in its market share [6].

However, as the smartphone revolution took hold, Nokia began to lose ground to competitors like Apple and Samsung. Despite these challenges, many investors and analysts continued to view Nokia as a strong investment due to its past success and the emotional attachment it had to the company. In the case of Nokia, many investors and analysts continued to view the company as a strong investment, despite evidence that suggested otherwise. This behavior was driven by the emotional attachment and the past success associated with the company, which created a sense of ownership or endowment. This emotional attachment is a manifestation of endowment bias, where investors continue to overvalue a company based on past successes or personal connections, rather than an objective analysis of the company's current performance and future prospects. As a result, many investors held onto Nokia shares for too long, resulting in significant losses as the company's stock price declined sharply. Another example of how endowment bias can impact investment decisions can be seen in the case of real estate investments. Many individuals view their homes as a significant part of their personal wealth and identity, leading them to overvalue their homes and resist selling them even when it may be financially beneficial to do so. This bias can lead investors to miss out on other investment opportunities or to take on excessive debt in order to maintain ownership of their homes.

Overall, endowment bias can significantly impact investors' decision-making and the final outcome of their investments. This bias can lead investors to hold onto investments for too long, even when those investments are no longer performing well or are no longer aligned with their investment goals.

4. Framing Bias

Framing bias is a cognitive bias that occurs when people make decisions based on how information is presented to them, rather than on the actual information itself [7]. It refers to the tendency of individuals to make different decisions based on how information is presented to them. This bias can cause investors to make irrational decisions that may not be in their best interests.

An example of framing bias in mutual fund investments can be seen in how investors are presented with information about a fund's performance. Investment firms may use framing bias to present performance data in a way that highlights positive performance while downplaying negative performance. For instance, instead of presenting year-to-year performance data, investment firms may present a fund's total return over the past several years, which can distort investors' perception of the fund's performance and lead them to overlook poor performance in certain years [7]. In a study, Tversky and Kahneman (1981) demonstrated that framing can impact decision-making in mutual fund investments [7]. They found that investors were more likely to choose a fund that was presented in terms of a 90% success rate, rather than one with a 10% failure rate, even though both statements represent the same information.

An initial public offering (IPO) is another excellent example of framing bias in the behavioral economy. IPOs are usually framed as a once-in-a-lifetime opportunity to invest in a company's shares at a discounted price before they hit the open market. This framing can lead investors to overestimate the potential benefits of investing in an IPO while underestimating the risks associated with it. Moreover, IPOs are often accompanied by a great deal of media hype, which further reinforces the idea that investing in an IPO is a sound financial decision. However, research has shown that investors who invest in IPOs typically underperform the market in the long run [8]. This example highlights how framing bias can affect people's behavior. By framing IPOs as an opportunity to get in on the ground floor of a potentially lucrative investment, investors may be more likely to invest in the IPO, even if it is not a sound financial decision. Additionally, this framing can lead investors to overlook or downplay the risks associated with investing in an IPO, which can result in significant losses in the long run.

Overall, framing bias can significantly impact investors' decision-making and the final outcome of their investments. This bias can cause investors to make decisions based on incomplete or distorted information, leading to poor investment outcomes. To mitigate the effects of framing bias, investors should seek out objective sources of information and make decisions based on a full understanding of the risks and potential rewards associated with their investments.

5. Overconfidence & Illusion of Control

Overconfidence and illusion of control are two common behavioral biases in the field of behavioral economics. Overconfidence refers to the tendency of individuals to overestimate their abilities, knowledge, or predictions, which can lead to poor decision-making [9]. The illusion of control, on the other hand, is the belief that an individual has more control over an outcome than they actually do [10]. This bias can lead individuals to overestimate their ability to influence an event or outcome.

One specific and well-known example of overconfidence and illusion of control in investment decision-making can be seen in the case of Long-Term Capital Management (LTCM), a hedge fund founded in 1994 by a group of renowned economists and finance experts. The founders of LTCM believed that their expertise in financial modeling and risk management would enable them to generate outsized returns with minimal risk. As a result, they made highly leveraged bets on complex financial instruments, such as derivatives, with the belief that they could control the outcome of these investments. However, LTCM's overconfidence and illusion of control proved to be their downfall. In 1998, the collapse of the Russian ruble and the resulting market turmoil caused LTCM to suffer massive losses, which threatened to destabilize the entire financial system. The US Federal Reserve was forced to intervene and orchestrate a bailout of LTCM to prevent a wider financial crisis [11]. Another example of how overconfidence and the illusion of control can impact investment decisions can be seen in the case of individual investors. Many individual investors believe that they can outperform the market by picking individual stocks or timing the market. This overconfidence can lead investors to make riskier investment decisions, such as holding highly concentrated portfolios or making frequent trades in an attempt to beat the market.

One real-life example of this phenomenon is the "Robinhood effect," which refers to the surge in retail trading activity seen on platforms like Robinhood during the COVID-19 pandemic. Many novice investors were lured by the prospect of quick profits and the belief that they could beat the market. However, this overconfidence led to many investors making risky trades, such as buying heavily shorted stocks like GameStop and AMC, which ultimately led to losses for many investors [12]. Overall, overconfidence and the illusion of control can significantly impact investors' decision-making and the final outcome of their investments. These biases can cause investors to make riskier investment decisions or overlook important information, leading to poor investment outcomes. To mitigate the effects of overconfidence and the illusion of control, investors should seek out objective sources of information, diversify their portfolios, and be mindful of the limits of their own knowledge and abilities.

6. Strategies for Investors to Make Rational Investment Decisions

There are several strategies investors can use to mitigate the effects of behavioral biases on their investment decisions. One strategy is to use a rules-based approach to investing, which involves following a set of predetermined criteria for making investment decisions. This can help reduce the influence of emotions and biases, as decisions are made based on objective criteria rather than subjective opinions. Another strategy is to diversify investments across different asset classes and sectors, which can help mitigate the impact of individual investments that may be affected by behavioral biases. By spreading investments across a range of assets, investors can reduce the impact of any single investment decision on their overall portfolio. Investors can also seek out unbiased information and expert opinions from trusted sources, such as financial advisors or reputable financial

publications. This can help to counteract the impact of biases such as framing and confirmation bias, by providing a balanced view of investment opportunities and risks.

Behavioral finance experts also suggest that investors can benefit from mindfulness and self-awareness practices. By becoming more aware of their emotions and biases, investors can take steps to manage them and make more rational investment decisions. Meditation, journaling, and cognitive-behavioral therapy are examples of mindfulness and self-awareness practices that can help investors to overcome behavioral biases. Finally, financial education and literacy are critical tools for mitigating the impact of behavioral biases on investment decisions. By understanding the underlying principles of finance and investing, investors can make more informed decisions and avoid common biases that can lead to poor investment outcomes.

Overall, there are several strategies that investors can use to mitigate the effects of behavioral biases on their investment decisions. By using a rules-based approach, diversifying investments, seeking out unbiased information, practicing mindfulness and self-awareness, and improving financial education and literacy, investors can make more rational decisions and achieve better investment outcomes.

7. Conclusion

Behavioral biases are prevalent in investment decision-making and can lead to suboptimal investment outcomes. This paper has highlighted some of the most common biases, including loss aversion, endowment bias, framing, overconfidence, and the illusion of control. These biases can lead to investors making suboptimal decisions, resulting in lower investment returns. For instance, loss aversion can cause investors to hold onto losing investments for too long, while overconfidence can lead them to make risky investments or trade too frequently. To address these biases, Rational Behavioral Finance theories and strategies can be applied. For instance, diversification can help to reduce the impact of loss aversion and overconfidence. Seeking out diverse sources of information can help to reduce the impact of framing and endowment biases. By understanding the role of behavioral biases in investment decisions, investors can make more informed and rational investment choices that lead to long-term financial success. It is important to note that addressing these biases requires self-awareness and discipline. Investors need to recognize their biases and be disciplined enough to apply the strategies that can help mitigate their impact. Additionally, it is essential to seek out professional advice from financial advisors who can help investors to understand and manage their behavioral biases effectively.

In conclusion, behavioral biases can significantly impact investment outcomes, and investors must be aware of their existence and understand how they can be addressed. By applying Rational Behavioral Finance theories and strategies, investors can improve their investment decision-making and achieve long-term financial success.

References

- [1] J.P. Morgan Asset Management. Guide to the markets: Q3 2014. <http://admin.wrapmanager.com/images/uploads/pdfs/JP-Morgan-Guide-to-the-Markets-Q3-14>, last accessed 2023/3/12.
- [2] Kahneman, D., & Tversky, A. Prospect theory: An analysis of decision under risk. *Econometrica*, 1979, 47(2): 263-291.
- [3] Shefrin, H., & Statman, M. The disposition to sell winners too early and ride losers too long: Theory and evidence. *The Journal of Finance*, 1985, 40(3): 777-790.
- [4] Barber, B. M., & Odean, T. The behavior of individual investors. In *Handbook of the Economics of Finance*, 2011 (2): 1533-1570.
- [5] Kahneman, D., Knetsch, J. L., & Thaler, R. H. Anomalies: The endowment effect, loss aversion, and status quo bias. *Journal of economic perspectives*, 1991, 5(1): 193-206.

- [6] Dewan, S., & Ramaprasad, J. social media, Traditional Media, and Music Sales. *MIS Quarterly*, 2014, 38(1): 101–122.
- [7] Tversky, A., & Kahneman, D. The framing of decisions and the psychology of choice. *Science*, 1981, 211(4481): 453-458.
- [8] Baker, M., & Wurgler, J. Investor sentiment and the cross-section of stock returns. *Journal of Finance*, 2006, 61(4): 1645-1680.
- [9] Larrick, R. P. *Debiasing*. Blackwell Publishing Ltd EBooks, 2008, 316–338.
- [10] Svenson, O. Are we all less risky and more skillful than our fellow drivers? *Acta Psychologica*, 1981, 47(2): 143–148.
- [11] Kahneman, D., & Tversky, A. *Choices, values, and frames*. Cambridge University Press, 2000.
- [12] Adler, J. *Behavioral economics and investment biases*. Colby College, 2016.