

PSYCHOLOGICAL BIASES AND INVESTMENT DECISIONS: A DEEP DIVE INTO THE CHINESE MARKET

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Abstract: *This study investigates the intricate relationship between investor self-confidence, risk perception, decision-making biases, cognitive biases, and investment experience in influencing individuals' investment portfolio choices. Recognizing the significance of these variables in the financial decision-making process, our research aims to shed light on the nuanced dynamics that contribute to the formation of investment portfolios. This article analyses, using quantitative methods, data collected from a diverse sample of local Chinese investors. Self-confidence of investors was assessed to understand its impact on risk perception and decision-making bias. In addition, this article examines how accumulated investment experience moderates these relationships. The dependent variable of portfolio is the focus of our analysis. Through rigorous statistical techniques, we aim to uncover patterns and correlations that provide insights into the factors that influence portfolio composition. The results of this study are expected to contribute to the existing body of knowledge in finance and behavioral economics, providing practical implications for individual investors and financial professionals. The study aims to enhance the understanding of the psychological and empirical dimensions underlying portfolio choice, thereby providing valuable insights for investors to optimize their financial decision-making process in a dynamic market environment.*

Keywords: *Investor Self-Confidence, Risk Perception, Decision-Making Biases, Cognitive Biases, Investment Experience, Investment Portfolio*

Introduction

The development of science and technology has profoundly changed people's way of life, such as life, consumption, investment and other behaviors, many of which can be carried out through the Internet. In the past, if people wanted to invest, they had to go to the field, or keep an eye on the stock market, or confirm the input-output ratio through various traditional ways. Now, the situation has changed drastically. The development of technology has made people's investment behavior more and more common, while the types and number of products people invest in have also been increasing, and the threshold of investment has also been lowered.

However, the financial market is a complex and volatile area in which investors are exposed to various uncertainties, opportunities and risks. Driven by a multitude of factors, investment decisions play a pivotal role in influencing the financial outcomes of individuals, institutions and economies. To unravel the complexities inherent in the investment process, it is critical to understand the context in which these decisions unfold. In recent decades, behavioral finance has emerged as an important lens through which to study the psychological and cognitive aspects of financial decisions. Overconfidence is a pervasive cognitive bias that manifests itself when individuals display unreasonable confidence in their abilities, leading them to overestimate the accuracy of their predictions and underestimate risks (Daniel et al., 1998; Barber & Odean, 2001). This overconfidence can seriously influence investment choices and affect portfolio composition and performance.

At the same time, risk perception, i.e. the subjective assessment of the likelihood and impact of potential losses, is a key determinant of investment decisions (Kahneman & Tversky, 1979). Investors' perceptions of risk are subjective and can be influenced by psychological factors, including emotions, cognitive biases, and individual differences in risk tolerance. Understanding how risk perceptions interact with other psychological variables is critical to understanding the complexity of portfolio construction. Decision bias and cognitive bias further add to the complexity of the investment environment (Yanyan & Loang, 2023). Behavioral anomalies such as loss aversion, anchoring and mental accounting can create distortions in the decision-making process, leading investors to deviate from rational and optimal choices (Shiller, 2000; Shefrin & Statman, 1985). The interaction of these biases with overconfidence and risk awareness adds to the intricacies of the investment decision-making mechanism.

The role of investment experience cannot be ignored. As individuals gain experience in the financial markets, their decision-making processes may change, thereby affecting their perceptions, attitudes and approaches to risk (Odean, 1999). Examining how investment experience moderates the relationship between overconfidence, risk perception and decision bias provides valuable insights into investor adaptation. Against this background, this study seeks to contribute to the existing body of knowledge by systematically examining the relationship between investors' self-confidence, risk perception, decision bias, cognitive bias and investment experience in portfolio selection. By doing so, this study aims to provide a comprehensive understanding of the complex dynamics that influence investment decisions in a changing financial environment.

To address the complex dynamics surrounding overconfidence, risk perception, decision-making biases, cognitive biases, and investment experience in the context of investment portfolio choices, the following research objectives guide this study. The research aims to provide a comprehensive understanding of the individual and collective impacts of investor

self-confidence, risk perception, decision-making biases, cognitive biases, and investment experience on the decision-making process for investment portfolios. The outcomes will contribute valuable insights to both academic research and practical applications in the realm of behavioral finance and investment management.

The significance of this research lies in its potential contributions to both academic scholarship and practical applications within the realm of behavioral finance and investment decision-making. The findings aim to have broad-reaching implications for various stakeholders. This research seeks to contribute to the theoretical foundation of behavioral finance by providing a nuanced understanding of the interplay between psychological factors and investment portfolio choices. The empirical findings can serve as a basis for refining existing theories, adding depth to the understanding of how individual components like self-confidence, risk perception, biases, and experience collectively shape financial decision-making. The research outcomes will offer practical insights for individual investors, helping them make more informed decisions about portfolio construction, risk management, and investment strategies.

Understanding the impact of risk perception and cognitive biases can assist investors and financial advisors in developing effective risk mitigation strategies tailored to individual investor profiles. Financial professionals can benefit from insights into how psychological factors influence client decision-making, enabling them to provide more tailored advice and guidance (Loang & Lei, 2023). The study's findings can inform financial advisors on how to communicate risk effectively, considering the varied perceptions and biases of investors. The research may inform regulatory bodies about the psychological factors influencing investment decisions, contributing to the development of regulations that better align with investor behavior and protection. The findings can support educational initiatives aimed at enhancing financial literacy, incorporating insights into investor psychology and decision-making. According to the collective impact of self-confidence, risk perception, biases, and experience, the research aims to contribute to the development of more comprehensive models in behavioral finance.

The study intends to integrate various variables into a cohesive framework, fostering a deeper understanding of the complexities involved in investment decision-making. Also, it could add the research area of China since there is not abundant researches on this area by using those factors. The research is significant for its potential to advance both academic understanding and practical applications, ultimately contributing to the improvement of decision-making processes in the field of investments.

Literature review

The literature review serves as a critical foundation for understanding the existing body of knowledge surrounding the key variables of interest: investor self-confidence, risk perception, decision-making biases, cognitive biases, and investment experience. This chapter aims to synthesize and critique relevant studies, theories, and empirical evidence, providing insights into the complex dynamics that influence investment portfolio choices. It is essential to examine how scholars in the field of behavioral finance have explored the relationships between psychological factors and investment decision-making. By delving into the existing literature, we can identify gaps, inconsistencies, and areas of consensus, laying the groundwork for the empirical investigation that follows.

The review begins by exploring the theoretical underpinnings of each key variable, examining influential frameworks and models that have shaped our understanding of investor behavior. Subsequently, empirical studies investigating the impact of these variables on investment portfolios will be critically examined. By the end of this chapter, a comprehensive understanding of the state of knowledge in the field will be established, guiding the subsequent research and analysis.

In understanding the intricate dynamics of investor behavior and decision-making in the context of investment portfolios, it is crucial to explore the underlying theories that form the basis of behavioral finance. This section will review prominent theories related to investor self-confidence, risk perception, decision-making biases, cognitive biases, and investment experience. Building on the works of Daniel et al. (1998) and Barber and Odean (2001), Overconfidence Theory suggests that individuals tend to overestimate their own abilities and knowledge. Overconfident investors may trade excessively, believe in their forecasting abilities, and exhibit a preference for high-risk investments (Yang & Loang, 2024). Understanding the impact of overconfidence is crucial in unraveling the complexities of investment decision-making.

Shefrin and Statman (2000) proposed the Behavioral Portfolio Theory, emphasizing the psychological factors influencing portfolio choices. The theory integrates prospect theory and cognitive errors, asserting that investors construct portfolios based on mental accounts and exhibit preferences influenced by behavioral biases (Yan & Loang, 2024). This framework provides insights into how cognitive and emotional factors contribute to the formation of investment portfolios. The Biased Expectations Hypothesis, as discussed by Thaler (1980) and Barberis and Thaler (2003), asserts that investors form expectations about future returns based on biased information processing. Cognitive biases, such as anchoring and representativeness, can lead to distorted expectations, impacting the construction and adjustment of investment portfolios.

By critically reviewing these underlying theories, we gain insights into the theoretical frameworks that have shaped the study of behavioral finance. The subsequent sections will delve into empirical studies to assess the real-world implications and nuances of these theories in the context of investment portfolios. The dependent variable in this study is the "Investment Portfolio," and understanding how psychological and experiential factors influence its construction and performance is crucial. This section reviews existing literature that investigates the impact of various variables on investment portfolios.

Research by Glaser and Weber (2007) suggests that overconfident investors exhibit a preference for non-diversified portfolios. Overconfidence can lead to excessive trading and the inclusion of fewer assets in the portfolio, potentially affecting overall diversification and risk management. Grinblatt and Keloharju (2001) find that individual investors' risk perceptions significantly influence their asset allocation decisions. Investors with higher risk tolerance are more likely to allocate a larger proportion of their portfolios to equities, demonstrating the impact of risk perception on investment choices. Hirshleifer (2001) explores the relationship between decision-making biases and portfolio performance. The study indicates that investors prone to cognitive biases may underreact to information, leading to suboptimal trading strategies and potentially lower portfolio returns.

Benartzi and Thaler (2001) introduce the concept of the "myopic loss aversion" framework, suggesting that cognitive biases like loss aversion can influence investors to hold suboptimal portfolios. The study highlights how psychological factors can lead to inefficient investment choices. Barber and Odean (2000) find that individual investors tend to learn from their experiences, adapting their portfolios over time. Investors with more experience exhibit improved portfolio performance, showcasing the role of learning in shaping investment decisions.

By reviewing literature on these dependent variables, this section provides insights into how psychological and experiential factors influence various aspects of investment portfolios. The empirical findings will further contribute to this growing body of knowledge, aiming to enhance our understanding of the complexities surrounding investment decision-making. Studies by Deaves, Luders, and Luo (2010) and Lundeberg, Fox, and Punóchoř (1994) highlight the impact of self-confidence on financial decision-making. Deaves et al. (2010) suggest that overconfident individuals tend to trade more frequently, leading to potential negative effects on portfolio performance. An overestimation of one's performance, potential, and ability are also seen as overconfidence. Excessive assurance about the veracity of one's beliefs (over precision) and overconfidence as the conviction that one has superior judgement than others (over placement) (Moore and Healy, 2008).

Slovic, Finucane, Peters, and MacGregor (2002) provide insights into risk perception, emphasizing the affective nature of judgments. Research by Weber and Milliman (1997) explores how perceived risk influences financial decision-making, shedding light on the subjective evaluation of risks in the investment domain. Tversky and Kahneman (1986) pioneered research on decision-making biases, introducing concepts like anchoring and framing. Barberis and Thaler (2003) review various behavioral biases, providing a comprehensive overview of how these biases affect financial decision-making.

Shefrin and Statman (1985) contribute to the understanding of cognitive biases, highlighting their impact on investor behavior. Thaler (1980) introduces the concept of mental accounting, emphasizing how individuals categorize and evaluate financial outcomes. Barber and Odean (2002) investigate the role of investment experience in shaping investor behavior. Their findings suggest that experienced investors tend to exhibit better trading performance and make more informed decisions.

While existing literature provides valuable insights into the relationships among psychological and experiential factors in investment decision-making, several research gaps are apparent. Identifying these gaps is crucial for shaping the focus and contribution of the current study. The literature often examines individual variables (e.g., overconfidence, risk perception, decision-making biases) in isolation, lacking a comprehensive examination of their collective impact on investment portfolios. There is a need for studies that systematically integrate multiple variables, providing a more holistic understanding of their joint influence on portfolio choices.

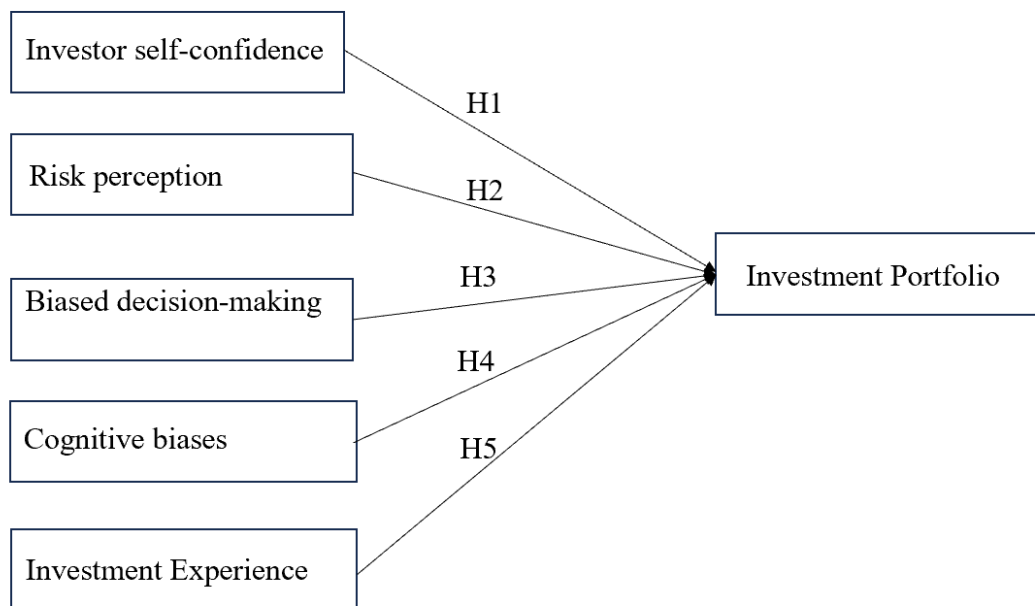
Many studies focus on theoretical frameworks without sufficient empirical validation or application to real-world investment scenarios. The research can benefit from empirical studies that test and apply behavioral finance theories within the context of actual investment decisions, enhancing the practical relevance of the findings. Existing literature often assumes uniformity in investor behavior, overlooking individual differences in risk tolerance, cognitive

abilities, and investment goals. Future research should explore how these factors interact with psychological variables, recognizing and accounting for investor heterogeneity in decision-making processes (Tang et al., 2023).

Most studies are conducted in a specific cultural or regional context, which may limit the generalizability of the findings. Investigating how cultural and contextual factors influence the relationship between psychological variables and investment decisions is critical to a deeper understanding of the issues. Much of the previous research on investment behavioral doctrines has been done in the West, and few Chinese scholars have done so in this way. This article fills the research gaps in this area by focusing on using an empirical approach to study Chinese individual consumers in a Chinese region.

Filling these research gaps will contribute to a more detailed understanding of how psychological and empirical factors jointly influence portfolio choice, and provide valuable insights for academic research and practical applications in the field of behavioral finance, and the results of the study will also provide some guidance and suggestions for relevant practitioners.

Theoretical and conceptual framework



The conceptual framework for this study delineates the relationships among the independent variables—Investor Self-Confidence, Risk Perception, Decision-Making Biases, Cognitive Biases, and Investment Experience—and the dependent variable, Investment Portfolio. The framework is designed to guide the empirical investigation and analysis of how these psychological and experiential factors collectively shape investment decisions.

Higher levels of investor self-confidence are expected to be positively associated with a preference for riskier assets and a more active trading strategy. Overconfident investors may exhibit a tendency to overestimate their abilities, leading to a willingness to take on more risk in their investment portfolios (Loang, 2023a). Investor self-confidence is expected to be positively associated with investment portfolios. Individuals with heightened risk perception may exhibit risk-averse behavior, favoring the inclusion of safer assets to mitigate perceived

financial threats. Elevated risk perception is expected to be positively associated with investment portfolio.

Biased decision-making processes may lead investors to deviate from rational portfolio construction, impacting asset allocation and overall portfolio performance. The presence of decision-making biases, such as anchoring or loss aversion, is expected to be correlated with suboptimal portfolio choices and potentially higher trading frequency. Biased decision-making is expected to be positively associated with investment portfolio. Investors influenced by cognitive biases may exhibit preferences for certain types of assets or exhibit a tendency to interpret information in a way that aligns with their existing beliefs. Cognitive biases, such as framing effects or confirmation bias, are expected to influence asset selection and portfolio composition.

Cognitive biases is expected to be positively associated with investment portfolio. Greater investment experience is anticipated to be associated with more informed and adaptive portfolio choices, potentially leading to better overall performance. Accumulated investment experience may contribute to enhanced decision-making skills, risk management, and the ability to navigate diverse market conditions. Investment Experience is expected to be positively associated with investment portfolio. This theoretical and conceptual framework guides the empirical analysis, allowing for the exploration of how these independent variables collectively shape investment portfolio choices. The study aims to uncover patterns, interactions, and nuanced relationships that contribute to a deeper understanding of investor behavior in the context of portfolio decision-making.

Methodology

The research design is an important component of this study as it guided a systematic investigation of the relationship between psychological and empirical factors and their collective impact on portfolio choice. The chosen design integrates quantitative methods to provide a comprehensive understanding of investor behavior.

This study adopts a quantitative methodology research design that will quantify the quantitative aspects of the investigation allowing for statistical analysis of the survey data. Firstly, the study will design a structured questionnaire to collect quantitative data on investors' self-efficacy, risk perception, decision-making bias, cognitive bias, investment experience and portfolio choice. The study will endeavor to use stratified random sampling to ensure representation of different demographic and investment experience categories (Loang, 2023b). The questionnaire will be released through Question star, targeting Chinese individual investors, and will use Likert scale items. Quantitative survey responses will be converted into numerical scores for statistical analysis. Descriptive statistics, correlation analysis and regression modelling will be used to analyses the quantitative survey data.

Participants will be provided with detailed information about the study and informed consent will be obtained prior to their participation. Also, the study will keep the identity of the participants confidential and the data will be anonymized to ensure privacy and compliance with ethical standards. The primary unit of analysis is the individual investor in China. Each participant in the survey is a unique case study, contributing to a comprehensive understanding of how psychological and experiential factors combine to influence the portfolio decisions of Chinese individual investors.

A structured questionnaire is an important tool for collecting quantitative data on the psychological and experiential factors of Chinese individual investors and their impact on portfolio choice. The questionnaire is comprehensively designed to cover a range of variables consistent with the research objectives, and it will be distributed through the Questionnaire Star platform. Analyzing quantitative survey data involves the use of a range of techniques to answer research questions, explore relationships between variables and derive meaningful insights. The data analysis techniques chosen were tailored to the quantitative methodological research design used in this study.

The statistical analyses used in this study were least squares (PLS) analyses using the structural equation modelling (SEM) method and software's statistical tests were performed using the structural equation modelling (SEM) method, which is used to test the underlying structure in linear and non-linear relationships with various forms of indicators. The validity of the data was also verified by validity tests. This study aims to provide a rich and multidimensional understanding of investor behavior by providing a nuanced and comprehensive exploration of the interplay between psychological and empirical factors and their impact on portfolio choice among Chinese individual investors. The methodology employed in this study is a robust and systematic research methodology aligned with the study's objectives, ensuring that high quality data were collected and contributing to a nuanced exploration of the impact of psychological and empirical factors on the portfolio choices of Chinese individual investors.

Results and Discussion

The literature review analysis has provided valuable insights into the interplay between overconfidence, risk perception, and investment portfolio choices. This section presents the essential findings and discusses their implications for investor behavior and portfolio management.

Overconfidence and Investment Decision-Making

The literature highlights the significant impact of overconfidence on investment decision-making processes. Overconfident investors tend to exhibit excessive optimism about their investment abilities and the prospects of their chosen assets (Barber and Odean, 2001). This overestimation of skills and knowledge can lead to higher trading frequency, increased portfolio turnover, and suboptimal investment decisions (Gervais and Odean, 2001). Moreover, overconfidence may result in underestimating risks and overestimating potential returns, leading to portfolio inefficiencies and increased vulnerability to market downturns (Daniel et al., 1998).

Risk Perception and Portfolio Allocation

Risk perception plays a crucial role in shaping investment portfolio choices. Investors' perceptions of risk influence their asset allocation decisions, with risk-averse individuals opting for safer, lower-risk investments and risk-tolerant individuals seeking higher returns through riskier assets (Kahneman and Tversky, 1979). However, individual differences in risk perception, influenced by psychological biases and subjective factors, can lead to divergent portfolio strategies among investors with similar risk profiles (Shefrin and Statman, 1985). Moreover, misperceptions of risk may result in suboptimal portfolio diversification and increased exposure to systematic risks (Benartzi and Thaler, 1995).

Implications for Portfolio Management

The findings suggest that overconfidence and risk perception significantly influence investment portfolio construction and management strategies. Portfolio managers must be aware of the potential biases stemming from overconfidence and risk misperception, implementing risk management techniques and behavioral interventions to mitigate their impact (Baker and Ricciardi, 2014). Strategies such as diversification, asset allocation based on risk tolerance, and periodic portfolio rebalancing can help align investment decisions with investors' objectives while minimizing the adverse effects of behavioral biases (Markowitz, 1952). Additionally, investor education and awareness programs can play a crucial role in promoting informed decision-making and reducing the prevalence of cognitive biases in portfolio management practices (Barber and Odean, 2001).

Challenges and considerations

While Fintech solutions offer promising opportunities for green finance, several challenges and considerations must be addressed. One key challenge is the regulatory framework and legal considerations surrounding Fintech applications in green finance. Clear regulations are necessary to ensure investor protection, data privacy, and compliance with anti-money laundering and Know Your Customer (KYC) regulations. Additionally, technological challenges, such as the scalability and interoperability of blockchain platforms, must be overcome for widespread adoption.

Conclusion

This study has delved into the dynamics of overconfidence, risk perception, and their influence on investment portfolio choices. The literature review findings have illuminated the complexities surrounding investor behavior and highlighted the implications for portfolio management strategies. The analysis underscores the significant impact of overconfidence on investment decision-making processes. Overconfident investors may exhibit a tendency to underestimate risks, overestimate potential returns, and engage in excessive trading activity (Barber and Odean, 2001). These behavioral biases can lead to suboptimal portfolio outcomes and increased vulnerability to market fluctuations.

Similarly, risk perception plays a crucial role in shaping investment portfolio choices. Investors' perceptions of risk influence their asset allocation decisions, with risk-averse individuals opting for safer investments and risk-tolerant individuals seeking higher returns through riskier assets (Kahneman and Tversky, 1979). However, misperceptions of risk may result in suboptimal portfolio diversification and increased exposure to systematic risks. The findings underscore the importance of understanding and addressing behavioral biases in investment decision-making. Portfolio managers and financial advisors must be vigilant in recognizing and mitigating the impact of overconfidence and risk perception biases on portfolio construction and management. Strategies such as diversification, asset allocation based on risk tolerance, and periodic portfolio rebalancing can help align investment decisions with investors' goals while minimizing the adverse effects of behavioral biases.

Moreover, investor education and awareness programs are essential for promoting informed decision-making and reducing the prevalence of cognitive biases in portfolio management practices (Barber and Odean, 2001). By empowering investors with knowledge and tools to navigate behavioral biases, financial institutions and policymakers can enhance investor outcomes and strengthen the resilience of financial markets. Moving forward, further research is warranted to explore innovative strategies and interventions to mitigate behavioral biases

and improve investment decision-making processes. Collaborative efforts between academia, industry practitioners, and regulatory bodies are needed to develop effective solutions and promote investor welfare in dynamic financial environments.

In conclusion, this study has shed light on the intricate relationship between overconfidence, risk perception, and investment portfolio choices. The analysis underscores the profound impact of behavioral biases on investment decision-making processes and portfolio management strategies. By recognizing and addressing these biases, investors and portfolio managers can enhance decision-making outcomes and improve portfolio performance. Moving forward, further research and collaboration are needed to develop effective strategies and interventions to mitigate behavioral biases and promote rational decision-making in dynamic financial environments. Embracing a holistic approach to investor education, technological innovation, and regulatory reform will be crucial for advancing investor welfare and fostering sustainable financial markets in the years to come.

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