

Analysis of the Impact of Mental Accounting on Investment Decisions

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Abstract. In traditional finance, the concept of "rational person" is difficult to explain irrational behavior in investment decisions, while psychological accounts, as the core theory of behavioral finance, can provide a key perspective for research in this field. This article provides a comprehensive review of the impact of psychological accounts on investment decisions and systematically reviews domestic and foreign literature from 1985 to 2024. This article uses content analysis and logical induction to collect literature from dimensions such as psychological accounts and investment decision-making processes, and integrates fragmented conclusions. The result indicates that psychological accounts affect investment decisions through three major pathways: account classification, funding sources, and perception of gains or losses, and this influence exhibits significant heterogeneity in the dimensions of investor type, cultural background, and market environment. This article fills the gap in the review of the connection between behavior and decision, which can provide a reference for investors to reflect on their decisions and for financial institutions to carry out product design. At the same time, it also points out the shortcomings of current research, which mainly focuses on static analysis, and provides ideas for future directions, such as dynamic tracking and cross-market comparison.

Keywords: Psychological account, investment decision, behavioral finance, disposal effect, risk appetite

1. Introduction

In the financial market, investment decisions have a profound impact on personal wealth accumulation and corporate development strategies. Traditional economics proposes the hypothesis of "rational economic agents", which holds that investors can conduct rational analysis of all information when making decisions and make choices that maximize their own interests. However, in real-life investment scenarios, investors' behavior is often irrational, seriously violating traditional investment decision-making theories. In his 2005 study, Li Xindan found that investors in the Chinese stock market exhibit irrational behaviors such as overconfidence and disposition effects, which have a significant impact on investment returns [1]. Statman and Thorley analyzed trading data of US stock market investors in 1999, which also confirmed the widespread existence of irrational behavior among investors [2].

In recent years, the rapid development of behavioral finance has opened up new avenues for investment decision research. The psychological account theory, as a key theory in behavioral finance, provides a powerful explanation for investors' irrational behavior. This theory was proposed by Richard H. Thaler in 1985, which breaks the traditional economic view that money can be completely replaced. It points out that people classify and evaluate money psychologically, and the funds corresponding to different psychological accounts have characteristics such as non-substitutability, psychological budgeting, and loss aversion bias, which jointly affect the investment decision-making process [3]. In their study "Non Substitutability and Budget Effects of Consumer Decision Making from the Perspective of Psychological Accounts", Liu Ruping et al. empirically confirmed the sustained impact of non-substitutability characteristics on contemporary consumption and investment decisions, and found that individuals have significant differences in their rules of control over funds from different sources [4]. This conclusion echoes Thaler's theoretical core.

Subsequently, scholars both domestically and internationally conducted extensive research on the impact of psychological accounts on investment decisions. Foreign research is mostly based on European and American financial markets, such as Shefrin and Statman's behavioral portfolio theory, which points out how investors allocate assets based on psychological accounts [5]. Odean's empirical study on the disposal effect of retail investors in the US stock market introduces the loss aversion feature of psychological accounts, which leads investors to sell profitable stocks too early and hold loss-making stocks for a long time [6]. Chinese research focuses on domestic investors in China, analyzing the impact of psychological accounts corresponding to different funding sources on risk appetite. Among them, Zhan Zexiong et al. conducted research based on trading data of individual investors in the Chinese A-share market, which not only confirmed the widespread existence of irrational behaviors such as disposition effects, but also found that the disposition effects of Chinese investors are influenced by market environment, policy orientation, and other factors, and have significant differences in performance intensity and triggering conditions compared to European and American markets [7].

Although existing research has achieved certain results, there are still significant gaps. On the one hand, research often analyzes the impact of psychological accounts on a certain aspect of investment decision-making from a single dimension, such as only focusing on risk preference or asset allocation, lacking a systematic review of the impact of psychological accounts on investment decision-making through multiple paths and links, and failing to construct a complete theoretical logical framework. On the other hand, the heterogeneity research on the impact of psychological accounts on investment decisions in different types of investors, cultural backgrounds, and market environments is not comprehensive enough.

This article aims to address the shortcomings of the aforementioned research. By reading relevant literature at home and abroad, systematically sort out the paths and mechanisms through which psychological accounts affect investment decisions. And conduct in-depth analysis of heterogeneity performance under different investor types, cultural backgrounds, and market environments.

2. The core connotation and theoretical development of psychological account theory

2.1. The theoretical origin of psychological accounts

The psychological account theory was officially proposed by Richard H. Thaler, a professor at the University of Chicago, in 1985. This theory challenges the "rational person" hypothesis of traditional economics [3]. Thaler proposed an innovative explanation by observing a series of

irrational behaviors of investors, in which people unconsciously classify, encode, evaluate, and budget wealth psychologically, a process known as psychological accounting.

Thaler's psychological account theory is closely related to the "prospect theory" proposed by Daniel Kahneman and Amos Tversky in 1979. Prospect theory points out that when people make risk decisions, they are not solely based on objective probability and expected value, but are significantly influenced by psychological factors such as loss aversion and reference dependence [8]. Psychological account theory further explores the specific psychological mechanisms behind these irrational behaviors.

2.2. The core characteristics of psychological accounts

2.2.1. Non-substitutable

Non-substitutability, as the core characteristic of psychological accounts, refers to the property that funds from different sources and purposes are categorized into independent accounts in individual cognition, making it difficult to substitute funds between accounts. In a study conducted by Wang Yanyu et al. in 2020, through a sample survey of households across 31 provinces and cities in China, it was empirically found that there are significant differences in individuals' psychological categorization of funds from different sources such as wage income, financial management returns, and unexpected gains, and this categorization directly affects the way funds are allocated [9].

2.2.2. Mental budgeting

In their article "The Operational Rules of Psychological Accounts and Their Application in Marketing", Mao Like and Zhang Zigang explain that people set different budgets for different psychological accounts to control their expenditures and evaluate their income status. For instance, when considering consumption, people may set a fixed budget for monthly entertainment activities. When the expenditure approaches or even exceeds the budget, they will actively reduce related consumption.

Similarly, when considering investment, investors will also set a profit target and a tolerance for losses for their investment accounts. When the return on the investment portfolio reaches the preset target, investors may choose to withdraw their investment promptly. However, once the losses reach the set bottom line, they may consider exiting the investment to stop the losses [10].

2.2.3. Loss aversion bias

The prospect theory proposed by Daniel Kahneman and Amos Tversky suggests that the loss aversion bias in psychological accounts manifests as a stronger aversion towards account losses than the pleasure brought by profits of the same amount. Simply put, the pain caused by losses far outweighs the pleasure brought by equivalent gains [8].

2.3. Theoretical development of psychological accounts

The theory of psychological accounts was initially mainly applied in the field of consumption to explain consumers' irrational decisions in daily economic behaviors such as shopping and savings. With the continuous deepening of research, its application scope has gradually expanded to multiple economic fields such as investment, savings, and taxation.

In the field of investment, early researchers Richard H. Thaler and Eric J. Johnson mainly focused on how psychological accounts affect investors' risk preferences, and found that due to the existence of psychological accounts, there are significant differences in investors' risk tolerance for funds from different sources [11]. Subsequent research will further expand to various stages of investment decision-making, including asset selection, asset allocation, and position adjustment. For example, Shefrin and Statman proposed the "Behavioral Portfolio Theory" in 1994, which broke through the limitations of traditional portfolio theory that only considers risk and return, and introduced the concept of psychological accounts into the process of portfolio construction. This theory suggests that investors will construct multiple asset portfolios based on psychological accounts according to different investment objectives and risk preferences [5].

Chinese scholars have also conducted extensive research on the application of psychological account theory in investment decision-making and have achieved rich results. Research by Liu Li, Zhang Zheng, and others has found that the role of psychological accounts in Chinese investors' investment decisions is not only reflected in risk preferences and asset allocation, but also closely related to China's unique cultural background, market environment, and other factors. These findings further expand the research of psychological account theory in the investment field [12].

3. The impact mechanism of psychological accounts on investment decisions

3.1. Account classification affects asset allocation

Investors tend to psychologically divide their funds and form multiple independent 'psychological accounts' when conducting asset allocation. This process has a direct impact on their asset selection and portfolio construction strategies. The "Behavioral Portfolio Theory" proposed by Shefrin and Statman in 1994 is the classic theoretical basis for this mechanism. The asset allocation based on psychological accounts has triggered irrational phenomena such as "insufficient diversification" and "local preference". Investors often only diversify their investments within their accounts, ignoring the correlation between accounts, thus unable to achieve true global optimality [5].

Empirical research on the Chinese market has continuously validated the impact mechanism of psychological accounts. Li Xiaojuan, Liu Shuhai, and others have found through research that Chinese investors classify their funds into different psychological accounts based on their sources, and set differentiated risk tolerance levels and investment strategies for funds in different accounts. This classification behavior directly affects asset allocation structure and may lead to suboptimal investment portfolios [13].

3.2. The source of funds affects risk appetite

The "House Money Effect" proposed by Thaler and Johnson reveals the mechanism by which psychological accounts influence risk decisions: investors classify funds into different accounts, such as "unexpected gains" or "hard-earned money", thus forming differentiated risk preferences [11]. In recent years, empirical research on the Chinese market has further verified the universality of this mechanism. For example, research based on data from the Chinese securities market by Li Xiaojuan, Liu Shuhai, and others found that investors generally consider unexpected income such as investment profits and bonus dividends as "off exchange funds", and their sensitivity to losses decreases psychologically, making them more inclined to engage in high-risk investments, exhibiting more aggressive trading behavior and higher levels of asset portfolio risk [13].

3.3. Perception of profit or loss affects position adjustment

The disposition effect was first proposed by Shefrin and Statman, which refers to investors' tendency to sell profitable stocks too early, known as "selling profits", while holding loss-making stocks for a long time, known as "holding losses". The core mechanism of this phenomenon is the loss aversion of psychological accounts [14].

Xu Xiaomin and Xu Ruiheng's research based on trading data of individual Chinese investors reveals that investors still have a significant tendency to hold loss-making assets for too long and exit profitable assets. This trading behavior bias will systematically damage the long-term performance of their investment portfolios. This finding indicates that despite the continuous development of the Chinese market, irrational decisions driven by disposition effects remain a key behavioral factor affecting investor returns [15].

4. Heterogeneity analysis of the influence of psychological accounts on investment decisions

The impact of psychological accounts on investment decisions is not fixed, but varies significantly in terms of manifestation and degree of influence depending on factors such as investor type, cultural background, and market environment. This chapter will review and analyze the heterogeneity of this impact from three dimensions: investor type, cultural background, and market environment.

4.1. Heterogeneity of investor types

4.1.1. Comparison between retail investors and institutional investors

Many studies have shown that retail investors are more susceptible to the influence of psychological accounts. As Odean found in empirical research on trading data of individual investors in the United States, individual investors generally exhibit a "disposition effect", which means they sell profitable stocks too early but hold loss-making stocks for a long time [6]. The key point of this phenomenon lies in the loss-aversion mentality present in the psychological account. Investors will classify profitable stocks into the "determined return account" because they are afraid of losing their book profits and urgently want to lock in returns. They will classify loss-making stocks into the "potential return account" because they do not want to face the pain of losses and choose to continue holding them.

Institutional investors are relatively less affected by psychological accounts. Based on empirical analysis of the Chinese market, Li Xindan et al. pointed out that institutional investors rely more on systematic analysis and objective performance benchmarks when evaluating assets. Therefore, they exhibit stronger discipline and rationality when disposing of loss-making assets, effectively avoiding common behavioral traps such as "selling profits and holding losses" [16].

4.1.2. Comparison between novice investors and experienced investors

Frydman and Wang believe that compared to experienced investors, novices often exhibit a more significant tendency towards "account segregation". They will strictly classify funds into different psychological accounts based on their sources and set different risk attributes accordingly [17]. An empirical study in 2023 showed that senior investors are more effective in avoiding traps such as "disposition effects" in trading. They tend to consider multiple aspects systematically rather than being influenced by a single profit and loss situation [18].

4.2. Cultural background heterogeneity

4.2.1. Comparison between collectivism and individualism

East Asian culture, represented by China, emphasizes collectivism and family values, while European and American culture tends towards individualism. The manifestation of this cultural difference in investment decision-making is that the psychological accounts of Chinese investors often have a strong "family attribute". According to the research of Xue Mingyuan and Zhou Mingshan, Chinese families set up dedicated psychological budgets and savings accounts for collective goals such as children's education and medical security when allocating assets, and prioritize stable financial products for such goals [19]. Baker et al.'s cross-country comparative study shows that investors in highly individualistic cultures tend to make financial decisions based more on personal risk preferences and personal wealth appreciation, and are less constrained by family responsibilities [20].

4.2.2. Comparison between risk avoidance and risk pursuit

The East Asian cultural sphere, represented by China, usually exhibits a stronger risk aversion tendency, which significantly enhances the loss aversion in psychological accounts. Based on behavioral experiments, Song Yanan et al. found that Chinese investors experience stronger psychological discomfort when facing potential losses, which directly leads to a stronger willingness to hold losses and a lower proportion of risk asset allocation in decision-making [21]. Investors with a culture of adventure tend to view short-term market volatility as a necessary cost for long-term investment, thus demonstrating stronger return orientation and higher risk tolerance in asset allocation.

4.3. Heterogeneity of market environment

4.3.1. Comparison between bull market and bear market

The overall market trend will significantly affect investors' emotions and risk preferences, thereby regulating the degree of influence of psychological accounts. In a bull market, the "House Money Effect" is amplified by psychological accounts. As Thaler and Johnson's experimental research shows, investors tend to attribute book profits to "unexpected gains accounts," and their risk tolerance is 2-3 times higher than when using principal [10].

A bear market will activate the loss defense mechanism of psychological accounts. Odean's trading data shows that in bear markets, investors become more sensitive to losing accounts and transfer over 80% of their funds to "safe accounts" to hold cash or bonds, resulting in a 60% stronger disposition effect than in bull markets [6].

4.3.2. Comparison between mature markets and emerging markets

In mature markets, a professional investment process and transparent information environment can effectively prevent individuals from making irrational decisions. Institutional investors, with their professional analytical skills and portfolio management discipline, can better avoid behavioral biases such as "selling profits and holding losses" caused by psychological accounts. In contrast, the impact of psychological accounts is more prominent in emerging markets such as China's A-share market, where individual investors have a higher proportion.

5. Conclusion

Based on relevant literature from 1985 to 2024, it is known that psychological accounts have core characteristics such as "non-substitutability", "psychological budgeting", and "loss aversion". They rely on three paths to influence investment decisions: first, account classification dominates asset allocation, and investors will divide accounts based on goals and match different assets; second, the source of funds shapes risk preferences, and the risk tolerance of unexpected income accounts is higher than that of wage accounts; third, the perception of returns or losses drives position adjustments, triggering the disposal effect of "selling profits and holding losses". This impact is moderated by three factors. From the perspective of investor types, the bias between retail and novice investors is more pronounced than institutional and senior investors. In terms of cultural background, Chinese investors are more concerned with household accounts, while European and American investors focus on individual needs. In terms of market environment, bull markets amplify risk appetite, while bear markets increase loss aversion.

The value of this article mainly lies in two aspects: theory and practice. In terms of theory, fragmented research can be integrated to fill the gap in the review of the connection between "behavior and decision", providing a localized perspective in China to improve the behavioral finance system. In terms of practice, it can help investors identify decision-making biases and provide a reference for financial institutions to design target account funds and optimize services. Currently, there are some prominent limitations in research, such as mostly static analysis, a lack of cross-market comparison, and insufficient integration with emerging fields such as digital finance. Based on this situation, the future can be expanded from three aspects. Firstly, combining big data to dynamically track changes in investor account cognition, observing the impact of investment experience and market cycles on account segmentation. Secondly, conducting cross-market comparative research to explore the constraining effects of market mechanisms such as information disclosure and investor structure on psychological account bias. Thirdly, integrating digital finance and neuroscience to analyze the impact of virtual accounts on investment decisions and the physiological mechanisms of psychological account operation, enriching the research dimensions and practical value of this field.

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