Analysis of Investor Decision Deviation from the Perspective of Behavioral Finance Theory

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Abstract. From the perspective of behavioral finance theory, this paper discusses the common cognitive and behavioral biases in the decision-making process of investors. By systematically combing and summarizing the existing literature, this study summarizes the main types of bias in investor decision making, including overconfidence, anchoring effect, bandwagon effect, loss aversion and mental accounts. On this basis, the paper analyzes the impact of these biases on investment behavior and market efficiency, as well as their performance differences in different market environments and investor groups. The research finds that these decision-making biases often lead investors to make irrational investment decisions, affecting asset pricing and market efficiency. In response to these problems, this paper proposes some possible solutions, such as strengthening investor education, improving information disclosure mechanism, and improving market supervision. At the same time, the paper also discusses the application prospect of behavioral finance theory in investment practice, and points out the possible direction of future research. The purpose of this study is to deepen the understanding of investor behavior and provide theoretical basis and practical guidance for improving the quality of investment decisions and market efficiency.

Keywords: Behavioral finance; Investor decision; Cognitive bias; Market efficiency; Risk management.

1. Introduction

With the rapid development of the financial market and the continuous expansion of the investor group, the academic and practical circles are paying more and more attention to the decision-making behavior of investors and its impact on the market. The traditional financial theory is based on the assumption of rational man, which believes that investors can make the best choice with sufficient information. However, in reality, irrational phenomena and abnormal fluctuations often occur in the market, which makes this assumption questioned the gradual rise of financial theory provides a new way to understand investors' actual decision-making.

Data from the China Securities Investor Protection Fund shows that the number of investors in the country's stock market has exceeded 200 million by the end of 2022, about 40 percent more than in 2018. Among them, individual investors account for more than 95 percent, and a survey report by the China Securities Regulatory Commission showed that more than 60 percent of individual investors suffered significant losses in their investments in 2021. Nearly 30 percent of investors believe that the main reason for the losses is their own decision-making mistakes, which shows that the problem of investors' decision-making bias has had an important impact on market stability and investors' interests.

From the perspective of behavioral finance theory, this paper analyzes the common cognitive and behavioral biases in the decision-making process of investors. The typical problems such as overconfidence, representation bias, anchoring effect, disposal effect and herding effect are deeply studied, and the formation causes, specific manifestations and effects of these biases on investment behavior and market efficiency are discussed. In addition, this paper also focuses on how to optimize investment decisions and improve market efficiency with the insights of behavioral finance theory, so as to provide theoretical support and practical reference for investor education and market supervision.

2. Overview of behavioral finance theories

2.1. Emergence and development of behavioral finance theory

In the 1950s, psychologists began to study the characteristics of human behavior in economic decision-making, which became the starting point of behavioral finance theory. By the late 1970s, this theory gradually took shape and gained attention. In 1979, Kahneman and Tversky proposed prospect theory, which laid an important foundation for behavioral finance theory. Their research showed the way people make decisions under uncertainty and challenged the expected utility theory in traditional economics.

From 1980s to 1990s, behavioral finance theory entered a stage of rapid development, and scholars began to deeply explore the psychological deviation of investors and analyze its effect on the financial market. Phenomena such as "the mystery of excessive volatility in the stock market" and "the mystery of equity premium" have been explained, which makes behavioral finance theory receive more attention. Since the 21st century, the application scope of this theory has gradually expanded, extending from the stock market to many fields such as bonds and derivatives, and has also had an important impact[3] on corporate finance and asset pricing.

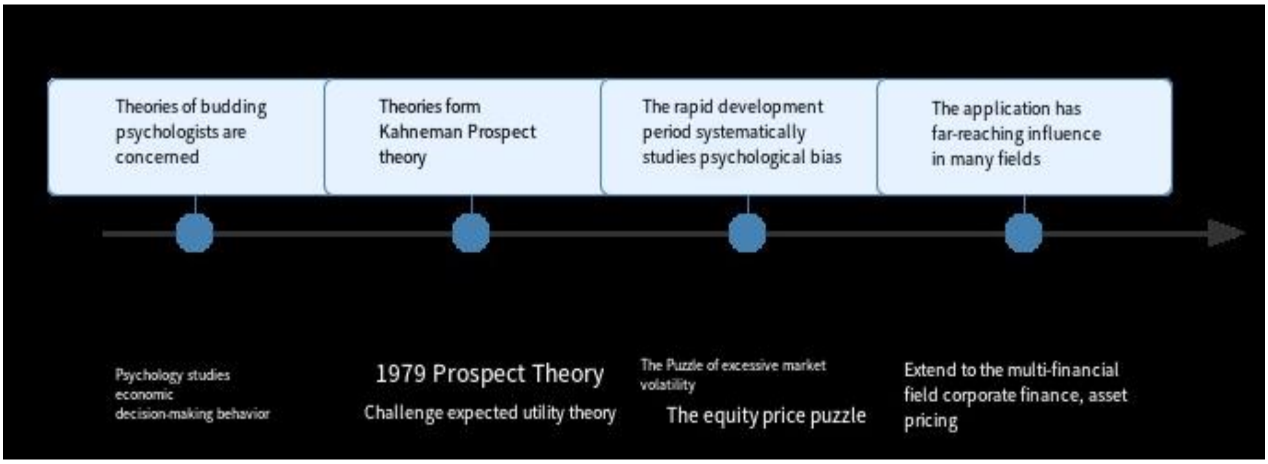

Figure 1 The emergence and development of behavioral finance theory

2.2. Core viewpoints of behavioral finance theory

The core ideas of behavioral finance theory can be summarized as follows:

Investors are not completely rational, and behavioral finance theory states that cognitive biases and emotional factors often affect the decision-making process of investors, causing their behavior to deviate from rational expectations.

Markets are not always efficient, and the traditional efficient market hypothesis asserts that all relevant information is quickly and accurately reflected in asset prices, but behavioral finance theory holds that investors' irrational behavior and market friction can lead to persistent pricing biases and anomalies[9].

Arbitrage activities are restricted by a variety of factors. According to behavioral finance theory, there are many obstacles to arbitrage in the actual market, such as transaction costs, potential risks and constraints of laws and regulations. These factors make it impossible for arbitrageurs to completely eliminate the problem of mispricing in the market.

Psychological factors play an important role in financial decisions. Behavioral finance theory points out that investors' psychological characteristics, such as overconfidence and loss aversion, will have a significant impact on investment decisions and market behaviors.

2.3. Comparison between behavioral finance theory and traditional financial theory

The differences between behavioral finance theory and traditional finance theory can be seen more clearly by looking at the table below.

Table 1 Comparison of behavioral finance theory with traditional finance theory

Comparative dimensions	Traditional financial theory	Behavioral finance theory
Investor hypothesis	Perfectly rational	Limited rationality
Market efficiency	Markets always work	Markets can be inefficient
Price formation	Reflecting fundamental value	Affected by psychological factors
Risk attitude	Consistent risk aversion	Variable risk attitude
Information processing	Fully effective	There are biases and errors
Decision model	Expected utility maximization	Prospect theory, etc.
Arbitrage view	Unlimited arbitrage possibilities	There are limits to arbitrage

The table shows that behavioral finance theory modifies and complements traditional financial theory in many aspects. This new perspective provides more effective tools to explain many anomalies in the real market, and also brings new methods for investment strategy and risk management.

3. The main manifestation of investor decision-making bias

3.1. Overconfidence bias

Investors tend to overestimate their own judgment and knowledge level, think that they can beat the market or make better investment decisions than most people, this is called overconfidence bias, this situation is very common among investors, especially after a successful investment experience, the performance is more prominent[10].

Investors tend to overestimate the accuracy of their predictions of market movements, believing that they have unique information or analytical tools to determine whether stock prices will rise or fall. They tend to underestimate the risk and think that the possibility of adverse events is very low, so they take on more investment than they can afford. In addition, such investors often buy and sell stocks frequently, resulting in high transaction costs and showing the behavior characteristics of excessive trading.

Research shows that overconfidence bias will make investors tend to concentrate investment and ignore the importance of diversification, and this bias may also exacerbate market volatility and promote bubbles. According to the survey of China Securities Investor Protection Fund in 2022, about 45% of individual investors feel that their investment ability is above average, which indicates that overconfidence is widespread among Chinese investors The phenomenon[14] of overconfidence.

3.2. Representation bias

Representational bias is the tendency for investors to make decisions based on superficial features or stereotypes, ignoring fundamental information and statistical laws. This tendency makes it easy for investors to mistake short-term trends for long-term trends, or to place too much weight on recent market performance and not enough on long-term averages.

In the investment world, representation bias often manifests itself in several forms. Investors may treat stocks or funds that have performed well in the recent past as good long-term investment choices, ignoring the law of "mean reversion." They may also focus too much on a company's brand power or industry popularity and not focus on core factors such as financial health, and some may treat historical patterns as certain trends that will repeat in the future, such as "three years of bull market, three years of bear market."

Investors may make unreasonable asset allocation choices due to representativeness bias. In a bull market, they tend to overchase popular stocks, leading to overvaluation, and in a bear market, they may underestimate the value of high-quality assets due to excessive pessimism. According to a 2021 survey by the Securities Association of China, about 60% of individual investors admit that market hot spots or concepts have influenced their investment decisions. This indicates that representativeness bias is common[13] in investment behavior.

3.3. Anchoring effect

Anchoring effect refers to the tendency of people to over-rely on the first information when making judgments and use it as a reference point for subsequent decision adjustment. In the field of investment, this phenomenon may cause investors to have unreasonable dependence on certain prices or data, thus affecting the objectivity and accuracy of decision making.

The anchoring effect is often shown in the behavior of investors, which is mainly reflected in several aspects. Investors tend to focus on the highest or lowest price of a stock in history, and take it as a basis to measure whether the current stock price is reasonable. For example, a stock has reached a high of 100 yuan, even though the fundamentals have changed significantly, many people may still use 100 yuan as a psychological reference standard. In addition, analysts' forecasts or guidance from a company's management may influence investors to view these expected figures as a yardstick for evaluating a company's performance. When it comes to asset allocation, investors tend to stick to certain traditional ratios, such as the 6:4 allocation of stocks and bonds, while ignoring their actual needs and changes[5] in the market environment.

Investors may make unreasonable buying and selling choices due to anchoring effect. For example, some investors pay too much attention to the purchase price and are unwilling to cut their losses in time, while others miss the appropriate selling opportunity because they fixate on a certain expected target price. According to a survey by China Securities Investors Protection Fund in 2022, about 55% of individual investors will refer to the buying of stocks when deciding to sell the price of entry. This reflects the anchoring effect to some extent.

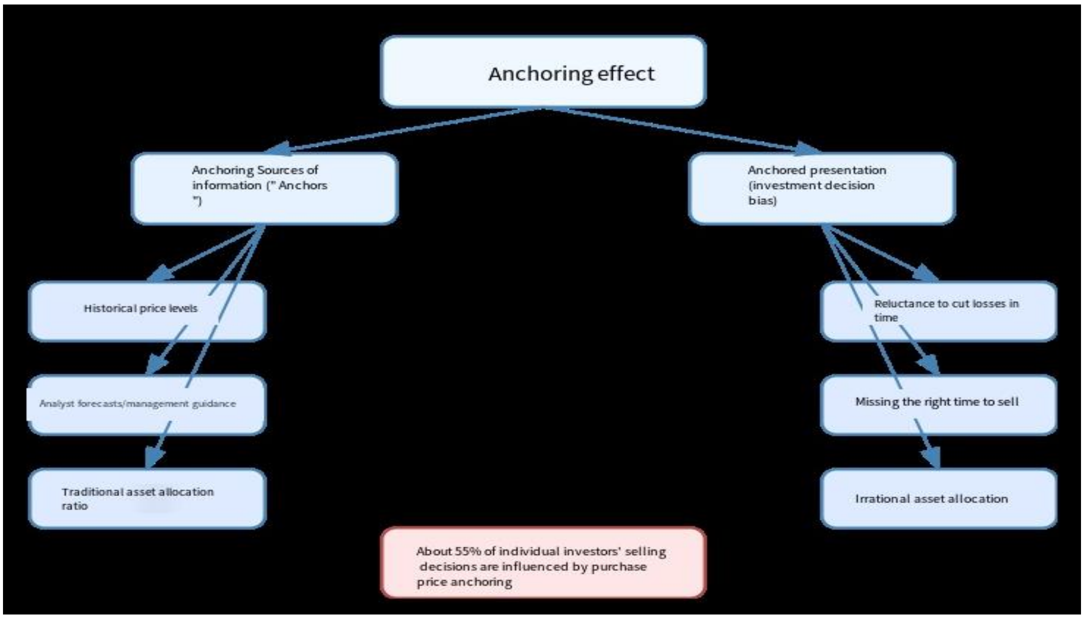

Figure 2 Diagram of investor anchoring effect

3.4. Disposal effect

Investors tend to sell the stocks that make money early, but hold the stocks that lose money for a long time, which is called disposal effect. In 1985, Shefrin and Statman first proposed this phenomenon, revealing the different psychological reactions of investors in the face of profit and loss. This effect is closely related to the loss aversion in prospect theory, indicating people's attitude to loss zone The pain felt is more intense than the joy brought by the same amount of profit.

The disposal effect in investment behavior is mainly reflected in several aspects. Investors are usually in a hurry to realize the paper profits even if the stocks still have the possibility of rising. This approach may be due to the importance of the gains already made and the avoidance of uncertainty The disposition effect may lead to greater losses. In addition, the disposition effect may also prompt investors to sell the losing stocks before the end of the year in order to obtain tax deductions, which is the so-called "tax loss harvest" behavior.

Disposal effect may have an adverse impact on investors' long-term returns, selling profitable stocks in advance may miss the subsequent income opportunities, while holding loss-making stocks for a long time may further expand the loss, China Securities Investor Protection Fund survey in 2021 shows that about 65% of individual investors admit to having the habit of "fast forward and fast out" in investment, that is, dumping to quickly sell profitable stocks. This phenomenon partly explains that the disposal effect is more common[16] among Chinese investors.

3.5. Herd effect

Herd effect, also known as herd effect, refers to the fact that investors are more willing to follow the opinions of the public or the mainstream of the market, rather than relying on their own independent analysis to make decisions. This behavior is very common in financial markets, especially when information asymmetry and market uncertainty are strong.

The herding effect in the investment market is mainly reflected in several aspects. Some investors may blindly chase market hot spots or concepts, which makes certain stocks or industries rise unreasonably in the short term. For example, when the news of emerging technology or policy is released, the related concept stocks will often rise collectively. In addition, when the market fluctuates greatly, investors tend to follow the trend of the broader market, rather than based on the fundamental analysis of individual stocks. Such behavior can further increase market volatility, and investors sometimes rely too much on analyst reports or institutional moves to the point of ignoring their own judgment.

There can be irrational exuberance or panic selling in the market, which is related to herd behavior and also affects the pricing efficiency of the market. As a result, individual investors may take on extra risks or miss out on investment opportunities, as a survey by the China Securities Investor Protection Fund in 2022 showed that about 70 percent of individual investors will refer to human opinions or market sentiment when making decisions. This phenomenon shows that herding is common among Chinese investors.

Herding is not always irrational. In a market with incomplete information, imitating human behavior may be a rational choice in order to obtain more information. However, over-reliance on this practice may lead to market trends deviating from fundamentals to extreme situations.

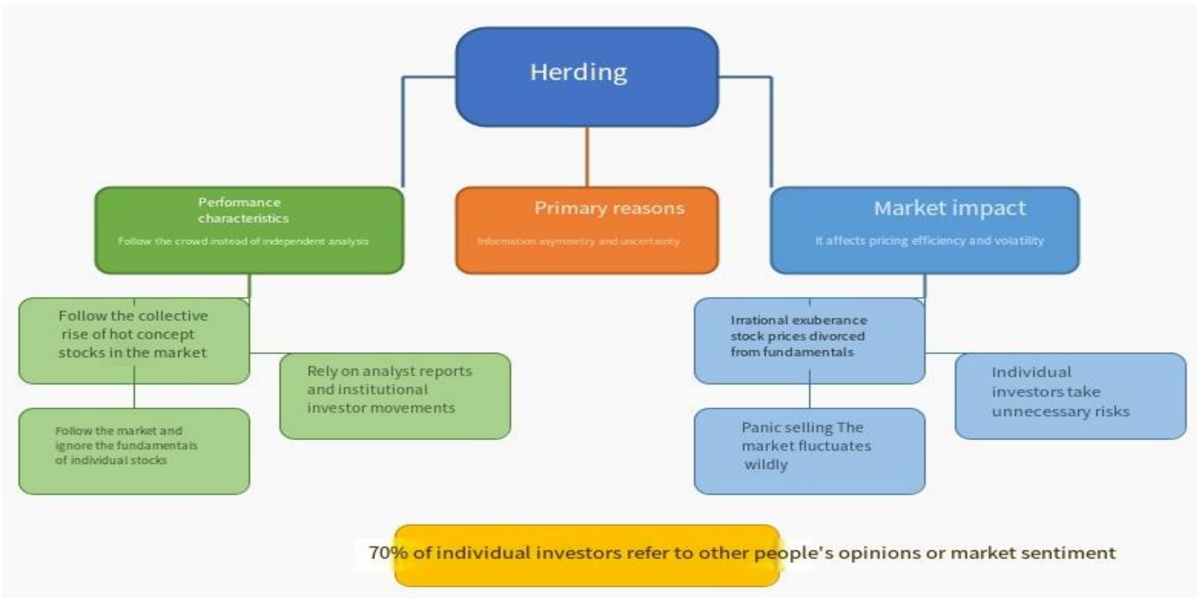

Figure 3 Investor herd effect diagram

4. Analysis of influencing factors of investors' decision deviation from the perspective of behavioral finance theory

4.1. Psychological Factors

Under the framework of behavioral finance theory, a variety of psychological factors will affect investors' decision-making bias, among which overconfidence is a significant psychological factor, which makes investors overestimate their own ability and judgment accuracy. According to the survey of China Securities Investor Protection Foundation in 2022, about 65% of individual investors think their investment ability is higher than the average level. This kind of mentality is easy to lead to excessive trading and higher risk taking, another key factor is loss aversion, investors' pain of loss far exceeds the satisfaction brought by the same income, this tendency makes investors in the face of losses, often unwilling to stop losses in time, but may choose to continue to hold or increase positions, hoping to avoid actual losses by "returning".

Confirmation bias is an important psychological factor affecting investment decisions. Investors tend to look for information that supports their views, and ignore or belittle evidence to the contrary. Such selective attention and interpretation will make investors miss key market signals and delay necessary strategic adjustments In 2010, more than 40% of Chinese individual investors mainly relied on social media to obtain investment information, which easily reinforced existing investment opinions and further exacerbated the role of confirmation bias.

4.2. Cognitive Factors

The representation bias is a typical cognitive bias, which makes investors rely too much on stereotypes or recent experience to make judgments. For example, investors may think that stocks with good recent performance are high-quality stocks, but ignore their long-term performance and fundamentals, according to a 2023 survey by the Securities Association of China, about 5 5% of individual investors choose stocks mainly on the basis of stock price movements over the past year, which indicates that representativeness bias is widespread in investment decisions.

Another obvious cognitive bias is the anchoring effect, which makes investors rely too much on a certain initial value or reference point when valuing or forecasting. In the stock market, investors are often benchmarked against a stock's all-time high or low, which can affect their judgment of the current price. At the same time, availability bias also affects investment decisions. People are more likely to remember recent events or information with significant characteristics and make decisions on this basis. For example, after experiencing a major market fluctuation, investors may believe that the probability of similar events occurring again is higher, which will interfere with their risk assessment and asset allocation[7].

As the complexity of financial markets increases, investor decisions are increasingly influenced by cognitive load. The sheer volume of information and complex financial products make it difficult for investors to deal with everything comprehensively, so they tend to simplify decision-making processes or rely on rules of thumb. This situation further reinforces the role[1] of cognitive bias.

4.3. Emotional Factors

In the decision-making process of investors, emotional factors play an important role, which can easily lead to irrational investment behaviors. Fear and greed are the two basic emotions that affect investment decisions. When the market falls, investors may become overly pessimistic due to fear and hurriedly sell assets, even though the fundamentals of these assets have not changed substantially. When the market is rising, greed may lead investors to blindly chase the rally and ignore potential risks. According to a survey conducted by China Securities Investor Protection Foundation in 2022, about 70% of individual investors admit that they have made investment decisions they regret due to emotional fluctuations.

The propagation of market sentiment is a factor that needs attention. Investors' sentiment is easily affected by people or the overall market environment, which leads to mass irrational behaviors. For example, in some sectors of China's stock market in 2021, excessive speculation occurred. Many investors said that they chose to enter the market after seeing others make money. This reflects the effect of emotional communication on investment decisions.

The study found that investors' daily mood can affect their investment decisions, and seemingly unrelated factors such as weather and sporting event results may indirectly affect investors' judgments by changing their emotional state. In A study of China's A-share market, data showed that investors' optimism usually increases around major festivals, and the market tends to react positively. These results suggest that broader emotional factors[8] need to be looked at when analyzing investor behavior.

4.4. Social Factors

In the face of uncertainty, investors often choose to imitate human behavior, and this tendency may lead to the herd effect in the market, leading to increased price volatility. According to a survey by China Securities Investor Protection Foundation in 2023, about 60% of individual investors said that when making decisions, they would like to make decisions They will refer to the opinions or behaviors of people around them. The herd mentality not only affects individual investors, but also may affect institutional investors under performance pressure.

Social norms and cultural background can influence investment decisions. In traditional Chinese culture, people's attitude toward risk is usually conservative, which may make investors too risk-averse and miss some potential opportunities. The spread of the Internet and social media allows information to spread faster, and the role of social factors in investment decisions has become more rapid and widespread. Statistics show that in 2022, more than half of China's individual investors obtained investment information and advice through social media, a phenomenon that raises the importance[11] of social influence in investment decisions.

Social comparison theory plays an important role in explaining the behavior of investors, who tend to compare their own investment performance with others, which may lead to excessive trading or unreasonable risk selection. For example, during a bull market, the sight of people making money around them may prompt investors to adopt more risky strategies. In addition, social status and identity also have an impact on investment behavior, and some investors may make irrational decisions in order to maintain a certain social image.

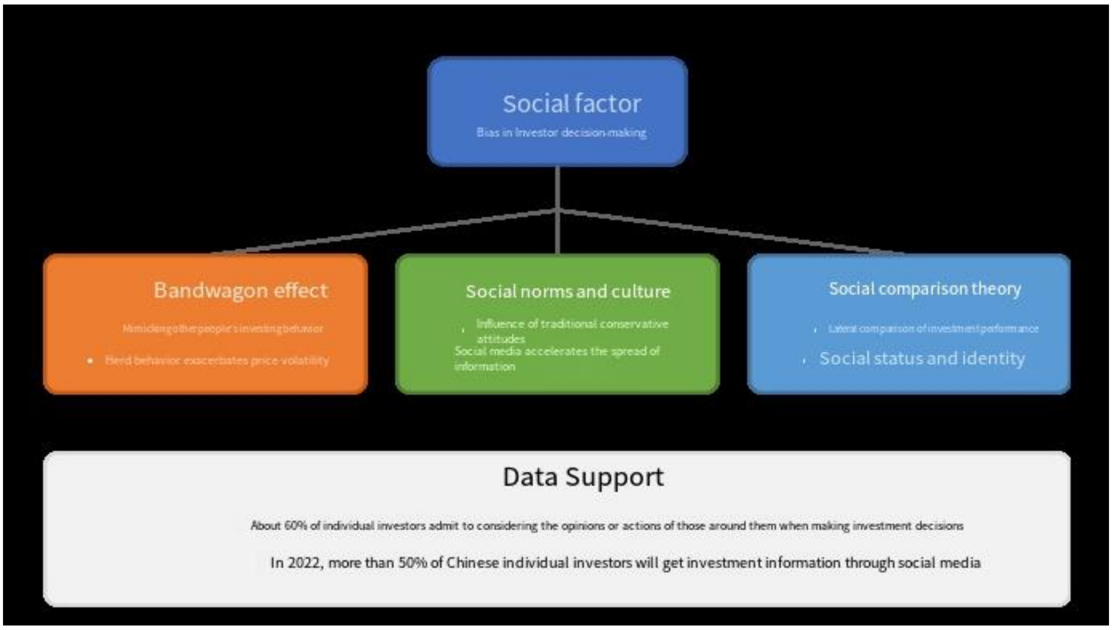

Figure 4 The influence of social factors on investors' decision deviation

5. Conclusions

The influencing factors of investor decision-making bias can be analyzed from the perspective of behavioral finance theory, involving psychological, cognitive, emotional and social aspects. These factors together reveal the complexity of investor behavior and the causes of irrational decision making. Studies show that overconfidence, loss aversion and confirmation bias at the psychological level, representation bias and anchoring effect at the cognitive level, emotional fear and greed, and conformity effect at the social level all have varying degrees of influence on the decision-making process of investors. By examining these factors, we can get a clearer understanding of investor behavior patterns.

These decision-making biases will affect the performance of individual investors and also have an important impact on the efficiency and stability of the market. Overconfidence may lead to overtrading, and the herd effect may lead to market bubbles or crashes. Understanding and managing these biases is very important to improve investment efficiency and maintain market stability.

Investors should improve their self-awareness and pay attention to potential decision-making biases. Regulators and market participants need to strengthen investor education and improve information disclosure mechanisms to help investors make rational choices. Future research could further explore how to reduce the impact of decision bias and apply insights from behavioral finance theory more effectively in investment decision-making and risk management.

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