Behavioral Finance: Several Key Effects of Investor Decision-Making

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Abstract. This paper examines the field of behavioral finance. First, a review of the behavioral finance literature will highlight the key findings and theories that have emerged in this field. Second, this paper will also discuss the practical applications of behavioral finance, including how it can be applied to improve investment decisions and reduce cognitive biases. Finally, several future research directions that may further advance the field of behavioral finance are analyzed, such as exploring the role of emotions in financial decision-making and examining the impact of social factors on investor behavior, pointing out shortcomings and making extensions to current research in this field. This paper will specifically analyze behavioral finance in terms of loss aversion, market anomalies, framing effect and endowment effect, revealing the psychological bias and cognitive bias of human beings in the process of financial decision-making, and providing new perspectives and methods for understanding the operating mechanism of the financial market and investment strategies.

1 Introduction

Behavioral finance is a discipline that combines psychology and finance to comprehend the decision-making approach of investors and traders, and it focuses on human decision-making behavior in the financial market and the influencing factors that lead to a certain outcome. Behavioral finance has a wide range of applications. In terms of specific applications in the investment field, it can help investors identify cognitive biases and emotional influences so as to better formulate investment strategies. In terms of asset pricing, the drinking of behavioral finance can reveal the mechanism and law of market price formation and provide investors with more accurate asset pricing reference. In short, behavioral finance explains, researches and predicts the future development of the financial market from the behavior of micro-individuals as well as the psychological motivation that generates such behavior.

In traditional finance theory, investors are usually assumed to be rational, able to accurately assess risk and return and make optimal decisions. However, in reality, numerous psychological, emotional, and cognitive biases often cause them to deviate from a rational investment path.

Investors often show a tendency to overconfidence, they overestimate their ability to avoid risk and judge in the investment, perceiving that their decision-making is at a low-risk level, higher than the average market accuracy. However, overconfidence may lead to investors to ignore the potential risks, or turn a blind eye to possible losses, and ultimately lead to investment losses. Further, there is the herd effect on investors. The herding effect, also known as crowd effect, is frequently employed in economics to describe the propensity of economic agents to follow the collective. The herd's view is enough to make investors lose their rational understanding, blindly go with the tide without considering their own objective investment circumstances and risk tolerance, and make irrational investment decisions. In addition , there are loss aversion and framing effects that affect the outcome of a decision, which will be discussed in later work.

2. Loss aversion

Loss aversion, which denotes the phenomenon that individuals tend to attach greater emotional significance to potential losses compared to equivalent gains, they feel the pain of losses more intensely than the pleasure of gains. This phenomenon is due to a preference of the human psyche when faced with a decision, where people are more inclined to protect the benefits they already have rather than actively pursue gains.

Loss aversion, as a psychological concept, has its roots deep in the landmark 1979 treatise Prospect Theory: An Analysis of Decision under Risk by Israeli psychologists Daniel Kahneman and Amos Tversky [1, 2]. In this article, it is elaborated that people tend to show strong aversion and avoidance tendencies when faced with potential losses. This theory not only reveals the complex psychological dynamics of the human decision-making process, but also profoundly influences subsequent behavioral finance research. With the depth of research, the concept of loss aversion has gradually

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demonstrated its strong explanatory power and application value in a variety of fields.

Kahneman and Tversky quantitatively analyzed the ratio between the pain from losses and the pleasantness of gains in terms of investor sentiment, market inertia and stock market forecasts. The findings suggest that the pain from losses is at least twice as great as the pleasure from gains. This finding provides an important theoretical basis for further research on loss aversion.

In the field of investment, investors tend to show excessive caution and conservatism in the face of possible financial losses, a phenomenon that is precisely the reflection of loss aversion in investment behavior. Shi, et al. studied the trading behavior and trading strategies of investors in China, a developing country, and analyzed the trading data covering 68.41 million investors (individuals and institutions) who traded A-share stocks on the Shenzhen Stock Exchange within a five-year interval [3]. The conclusions show that loss aversion is related to the average market value of investors' holdings, where the group with an average monthly market value of less than one million shares, which also dominates the number of investors, is loss averse, i.e., it tends to sell when the share price rises sharply and to hold when the share price falls sharply. The other groups, i.e., the medium individuals with market capitalization between $1 million and $10 million and the large individuals with market capitalization greater than $10 million, are risk averse, and stock price fluctuations will be the reason why they will reduce the frequency of their buying and selling transactions.

In the insurance field, the reason why people are willing to pay premiums to avoid potential risks and losses is also closely related to loss aversion. The influence of the loss aversion on the likelihood of purchasing commercial health insurance through a probit model and found that when the decision reference point is established in the uninsured framework, the higher the degree of loss aversion of consumers, the lower the likelihood of purchasing health insurance. In contrast, in the presence of an insurance reference point, consumers' loss aversion is positively correlated with the demand for social health insurance. That is, the more loss aversion people have, the more they will tend to purchase social health insurance. This result is consistent with the predictions of prospect theory, as well as with the phenomenon of loss aversion leading to status quo bias.

Specifically, prospect theory suggests that people care more about losses than equally sized gains. Thus, when people consider whether to purchase social health insurance, their decision-making reference point is the state of being uninsured, i.e., the losses they might suffer without insurance. If people are more averse, they are more inclined to purchase health insurance to avoid the risk of potential losses. This tendency is especially obvious in the social environment of universal coverage.

As for the financing mechanism, Xie, et al. examine the influence of loss aversion under consignment contracts on the preference of financing mechanism and the setting of financing conditions [4]. By building a game model, the results show that retailers' preference between direct and secured financing is acutely sensitive to their degree of disinclination to loss, carefully considering the impact it may have on their decision-making process. Provided that the retailer's reluctance to incur losses surpasses a certain limit, they will choose secured financing over direct financing. In the event that both the producer's production costs and the intensity of loss aversion are significantly high, the choice between direct and secured financing has the same outcome for profit-maximizing retailers. In sum, loss aversion behavior may significantly affect the financial parameter settings of each mechanism.

3 Market anomalies

3.1 Momentum effect

Initially posited by Jegadeesh and Titman in their 1993 study, the momentum effect is a concept which describes the trend inertia of stock prices in the short run, i.e., in the past period of time, stocks that have exhibited higher yields are anticipated to maintain their superior performance in the future, whereas stocks that have generated lower yields are anticipated to continue underperforming. This phenomenon reflects market investors' preference for stock price trends and expectations of trend continuation in their trading decisions.

The short-term momentum effect exists primarily because investors underreact when faced with market information. When there is positive or negative news in the market, investors often need a period of time to understand and digest the information and make investment decisions accordingly. During this process, stock prices tend to continue to follow the original trend up or down.

After Jegadeesh and Titman’s study of return data from the U.S. stock market found this effect, several studies by Griffin and others have confirmed that momentum strategies can deliver stable and widespread returns in several European and American stock markets [5, 6]. In contrast, in some emerging markets such as Korea and Taiwan, the overall profitability of momentum strategies is not as good as in most developed stock markets. The study of the momentum effect in markets other than the above two stock markets is somewhat controversial, with monthly and annual data yielding significantly different momentum effect returns than weekly data. In this regard, Gao, et al. provide an in-depth examination of the formation mechanism of the momentum effect, and they argue that there is a difference in the formation mechanism of the momentum effect in the winners' and losers' portfolios [7]. In the winner portfolio, the momentum effect is mainly influenced by investors' psychological "fear of stock price reversal". In the losers' portfolio, the momentum effect mainly stems from the delayed reaction of bad news in the stock price due to the shorting restriction.

From the perspective of behavioral finance, the behavioral bias of investors is the main reason for the

momentum effect. Currently, there are mainly theoretical explanations such as underreaction, overreaction and positive feedback model. Among them, underreaction refers to investors' underreaction to information, which leads to a time lag in stock price movements, thus generating the momentum effect. Overreaction, on the other hand, is when investors are overconfident in private information, leading to a sustained rise or fall in stock prices. Positive feedback mode refers to the fact that stocks that have risen or fallen in price in the previous period will continue to rise or fall in response to positive feedback trades in which investors "buy up and kill down". However, existing research lacks direct evidence of the impact of these behavioral biases on momentum portfolio returns.

It should be noted that although the short-term momentum effect can provide valuable investment information under certain circumstances, investors should still carefully assess the market situation and their own risk tolerance when utilizing this effect to formulate their investment strategies, in order to avoid the risks associated with blindly following the herd or over-trading.

3.2 Reversal effect

In behavioral finance, the reversal effect refers to the phenomenon that after a period of rising or falling stock prices, a reverse trend may occur in the future. The concept of reversal effect can be traced back to 1985, when De Bondt and Thaler found in their study that investors show excessive pessimism towards a portfolio of past losers and excessive optimism towards a portfolio of past winners [8]. This overreaction can cause prices to deviate from their fundamental values and eventually lead to reversals.

In a later study, Jegadeesh and Lehmann found that the reversal effect also exists in investments with maturities of one month or less [9]. This suggests that the reversal effect exists not only in long-term investments but also in short-term investments.

In addition, some scholars have developed models to predict the reversal effect in stock prices. Wurgler and Zhuravskaya showed that the reversal effect can be explained by a model containing a factor representing past price behavior and a factor representing reversal behavior [10]. Such a model can explain why past price behavior affects future price behavior and the causes of the reversal effect.

For China, an emerging market that is relatively unregulated, the reversal effect requires further research by scholars. Lu and Zou find that small-company stocks have a weaker tendency of price inertia relative to large-company stocks, i.e., small-company stocks are more prone to price reversals [11]. This phenomenon may be due to the relatively low liquidity of small company stocks and the lack of attention from market participants, resulting in their prices being more susceptible to market sentiment and short-term trading. In addition, stocks with high turnover have weaker price inertia trends relative to stocks with low turnover. This may be due to the fact that stocks with high turnover usually have higher market attention and more investor participation, and thus are more susceptible to market sentiment and trading behavior, and thus more prone to price reversals.

These studies provide an important theoretical basis and empirical support for understanding investors' behavioral biases and the reversal effect of stock prices. However, despite the progress that has been made, the reversal effect, as a currently active area of research, has yet to be explored and explored in depth in more of its dimensions.

In practice, investors need to be aware of the risk of price reversal in small-company stocks and stocks with high turnover and take proper risk management measures. In addition, investors need to further study and understand the impact of market sentiment, trading behavior, and company fundamentals on stock prices in order to better grasp investment opportunities and risk management strategies.

4 Framing effect

Kahneman and Tversky first proposed the concept of framing effect [12]. Framing effect refers to the phenomenon that the decision maker's preference for the same issue and the decision result differ under different expressions or frameworks. In behavioral finance, the framing effect is used to explain how investors make different decisions when faced with similar but differently formulated investment options. Specifically, when the same investment problem is presented to investors in different ways, even if the nature of the problem is the same, investors may have different expectations, judgments, and risk perceptions due to the different descriptions, which may lead them to make different decisions.

Information asymmetry and framing effects are closely related in finance. In the presence of information asymmetry, investors rely more on available information to make decisions, and this information is often presented in a particular frame. As a result, changes in framing may lead to different interpretations and assessments of the same basic information by investors. When investors are faced with information asymmetry, they may be more vulnerable to framing effects because their interpretations and decisions about information may be influenced by the way it is presented. investors to make inconsistent decisions between similar risks and rewards, which in turn affects the effectiveness and stability of the market.

Emotional and cognitive biases play an important role in investment decisions. The interaction of framing effects and incidental emotions has a complex impact on investment decisions. Under the gain frame, participants preferred riskier investment options, whereas under the loss frame, they preferred safer options. Under the gain frame, euphoria caused participants to be more myopic and ignore the advantages of the riskier investment option, whereas under the loss frame, euphoria had the opposite effect, causing participants to value the

advantages of the riskier investment option more highly. Under fearful emotions, the framing effect on investment decisions, on the other hand, showed no significant regularity.

Mitigating the impact of framing effects on investment decisions is an important issue for investors and the stable functioning of financial markets. To mitigate this problem, decision support systems can be used to provide investors with comprehensive, accurate and timely information and analysis results, assisting investors to make more rational and scientific investment decisions of the system. Through the data integration and analysis capabilities of decision support systems and based on advanced data analysis techniques and financial theories, analytical models suitable for specific investment objectives and risk preferences are constructed. These models can provide insights into investment opportunities and help investors understand potential risks and returns.

Further research needs to focus on how to help investors pay more attention to their emotional and cognitive biases and learn how to manage them so that they can make more disciplined and "optimal" decisions rather than just focusing on the causes of risk-seeking and risk-averse behaviors.

5. The endowment effect

The endowment effect, i.e., once an individual owns an asset, he or she tends to assess the value of that asset at a higher level than he or she would have done if he or she did not own it, thus creating a tendency to be reluctant to give it up or trade it was first proposed by Thaler [13]. This concept is of special importance in financial economics as it relates to a number of core topics such as asset pricing, market efficiency and investor behavior.

In terms of theoretical framework, the endowment effect is in tension with traditional financial theories such as expected utility theory and the capital asset pricing model. Traditional theories suggest that investors are rational and will evaluate assets based on risk-adjusted expected returns. However, the endowment effect suggests that investors have emotional attachments and irrational preferences for assets they already hold, which may lead to distortions in market prices and inefficient resource allocation. Research in the field of finance consistently shows that the endowment effect has a significant impact on investors' trading behavior, asset pricing, and market efficiency. For example, investors tend to overvalue stocks or other financial assets they already hold and are reluctant to sell even when faced with negative information, which may lead to under- or over-reaction in the market.

Discussing the problem of risk management bias and correction for commercial banks, Huang, by combining behavioral finance with commercial bank risk management, found that there are biases in commercial bank risk management, mainly due to the existence of irrationality and susceptibility to emotions and will of risk managers as limited rational individuals [14]. In addition, risk managers also have some special psychological and behavioral characteristics, such as a stronger tendency of risk aversion in work decision-making, a weaker tendency to avoid business losses, a stronger herd behavior and a tendency to initiate work innovation, these behavioral characteristics lead to risk management bias. The test of risk management bias reveals that risk managers have irrational behavioral characteristics in their behavioral decision-making process, and these behavioral characteristics affect risk management effectiveness.

However, the current study still faces some challenges. Firstly, the relationship between the endowment effect and other concepts in behavioral finance (e.g., representativeness inspiration, availability inspiration, etc.) has not been fully clarified. Secondly, how to effectively apply the theoretical and empirical findings of the endowment effect to the practice of financial markets and policy making remains an urgent issue.

Combining interdisciplinary approaches such as neuroeconomics and experimental economics, future research can further reveal the neurobiological basis and psychological mechanism of the endowment effect, as well as its performance in different market environments and investor groups. This will provide important theoretical and practical guidance for financial market regulation, investment strategy development and investor education.

6. Conclusion

Based on the perspective of behavioral finance, this paper reviews the key concepts of loss aversion, momentum effect, reversal effect, framing effect and endowment effect, and describes and evaluates the related research results at home and abroad. These concepts reveal the psychological and behavioral biases of investors in the decision-making process, and are important for understanding the operating mechanism of financial markets and predicting market trends. However, the current research mainly focuses on the description and explanation of specific phenomena, and there is a relative lack of research on the interactions between phenomena and the overall impact. Future research can explore the dynamic mechanisms and influencing factors behind these behavioral financial phenomena in greater depth with the help of quantitative models, providing new perspectives and methods for financial market stability and efficiency improvement. The development and application of quantitative models will provide more precise and comprehensive analytical tools for theoretical and empirical research in behavioral finance. Future research needs to pay further attention to the interactions and dynamic evolution of these phenomena and strengthen the application of quantitative models in behavioral finance research.

In summary, this paper reviews key concepts in behavioral finance, including loss aversion, momentum effect, reversal effect, framing effect, and endowment effect. While current research primarily describes these phenomena, there is a need for deeper exploration of

their interactions and overall impact. Future studies should employ quantitative models to uncover dynamic mechanisms and influencing factors, providing new insights for enhancing financial market stability and efficiency. Emphasizing the development and application of quantitative models will contribute to more precise analytical tools, advancing both theoretical and empirical research in behavioral finance.

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