Regret, Disgust and Disposition Effect: In-depth Analysis of Investor Behavior and Coping Strategies

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Abstract. This paper systematically reviews the theoretical framework and empirical research progress of regret aversion and the disposition effect in behavioral finance. By integrating Odean's trading data of US retail investors, Locke & Mann's research on the foreign exchange market, and Chen et al.'s analysis of emerging markets in Asia, it summarizes the cross-market performance differences of the disposition effect and its correlation mechanism with regret aversion psychology. Existing studies show that: (1) The disposition effect is universal in global financial markets, but its intensity is affected by market structure, investor composition, and professional level; (2) Regret aversion, as a core psychological mechanism, can be effectively identified through behavioral indicators such as asymmetry in holding time and frequency of stop-loss strategy use. This paper provides a systematic theoretical perspective for understanding investors' irrational decisions, offers suggestions for future research directions, and recommendations were made for individual investors, professional traders and regulatory agencies.

1 Introduction

Traditional financial theory is based on the "rational person" assumption, which makes it difficult to explain the widespread irrational behavior phenomenon in the financial market. This limitation has driven the development of behavioral finance. As the core concept of behavioral finance, regret aversion and disposition effect reveal the systematic psychological biases of investors in an uncertain environment [1]. Regret aversion refers to the painful psychological state of investors who experience negative outcomes due to their decisions, as stated by Kahneman, Tversky and Slovic in 1982 [2], while disposition effect is manifested as the behavior pattern of "selling winners and holding losers" by investors, as stated by Shefrin & Statman in 1985 [3]. A large number of studies have shown that these two phenomena not only affect individual investment decisions, but also may exacerbate market fluctuations and reduce the efficiency of resource allocation.

With the development of global financial markets, the differences in the manifestations and driving mechanisms of regret aversion and disposition effects under different market environments have become a research hotspot. This paper aims to systematically review the

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classic theories and empirical studies, reveal the psychological basis of investors' behaviors, compare the heterogeneous manifestations in different markets, and summarize the development process of research methods, in order to provide theoretical references for subsequent research.

2 Literature review

2.1 Core concept

In the existing studies, the "regret aversion" mentality is an emotional deviation within the framework of prospect theory. Its core feature is that investors experience pain because the decisions they made led to negative outcomes. Kahneman, Slovic, and Tversky discovered that the sense of achievement brought by an investor selling a stock whose price was rising gradually diminished as the stock's price continued to rise, and they began to have thoughts of regret and blame towards themselves [2]. The disposition effect principle, first proposed by Shefrin and Statman, indicates that investors tend to sell profitable assets prematurely and hold losing assets for a long time, which is an irrational behavior [3]. Traditional explanations suggest that this behavior stems from the dual effects of "regret aversion" and "mental accounting" on investors, but subsequent studies have found that regret aversion might be its underlying driving factor.

2.2 Theoretical empiricism and research progress

In behavioral finance, as pointed out by Kahneman and Tversky's prospect theory, investors exhibit a greater aversion to losses than a preference for gains. This phenomenon leads investors to avoid risks in the profit range but seek risks in the loss range, which is highly consistent with the characteristic of "selling profits and holding losses" in the disposition effect [1]. Therefore, subsequent studies further incorporated regret aversion into decision-making models and found that it would strengthen investors' reliance on past decision paths. Empirical studies have shown that the disposition effect is widespread in global financial markets. Odean, in his study of the trading records of 10,000 individual accounts in the US stock market, discovered that the probability of investors selling profitable stocks was approximately 50% higher than selling losing stocks [4]. In the foreign exchange market: Locke and Mann's research indicated that professional traders, through strict stop-loss discipline, could control the intensity of the disposition effect below 0.4%, significantly lower than that of individual investors [5]. In the Asian market research, Chen et al. found through the analysis of the Taiwan stock market in China that the intensity of the disposition effect in emerging markets was significantly higher than that in mature markets, which was closely related to the lower market efficiency and the dominant trading structure of retail investors [6]. In addition, the theoretical mechanism of asymmetric holding time reflecting regret aversion was first modeled and verified by Barberis, N., & Xiong, W. Their research showed that investors extended the holding time of losing positions to avoid triggering regret emotions [7]. Frydman, C., & Rangel, A.'s laboratory study quantified the intensity of regret aversion by observing the changes in selling decisions under price fluctuations [8]; this study also referred to Amihud’s bid-ask spread as a proxy variable for transaction costs [9].

3 Summary of research methods

3.1 Review of research on disposal effects

The research methods for studying the disposal effect have evolved from questionnaire surveys to transaction data analysis. Early studies mainly relied on self-reported data from investors, which had obvious recall biases and social expectation effects. Odean (1998) pioneered the use of pure transaction data analysis methods, quantifying the intensity of the disposal effect (DE = PGR - PLR) by calculating the difference between "realized profit ratio" (PGR) and "realized loss ratio" (PLR). The definition of profit/loss opportunities was based on the comparison of the current price of the held stocks with the purchase cost, and this method became the benchmark for subsequent research [4].

Cross-market comparison is an important paradigm in the study of disposition effects. Different market studies have adopted representative data samples: the research on the US stock market used the stock trading records of 10,000 retail accounts by Odean in 1998 [4]; the research on emerging markets in Asia by Chen et al. in 2007 was based on 3,210 accounts classified as institutional or individual [6]; the research on the foreign exchange market by Locke & Mann in 2005 analyzed the real-time trading data of 436 professional traders [5]. Through a unified methodological framework, these studies revealed the gradient differences in the intensity of disposition effects from emerging markets in Asia, the US stock market to the foreign exchange market.

The introduction of market characteristic variables has enriched the research dimensions of the disposal effect. The bid-ask spread indicator proposed by Amihud in 2002 is widely used as an proxy variable for transaction costs, and market volatility (standard deviation of daily returns) and institutional characteristics (such as limit-up and limit-down restrictions) have also been proven to have a significant impact on the intensity of the disposal effect [9].

3.2 Regret and dislike of research reviews

The quantitative methods for measuring regret and aversion have shown diversified development. Early studies mainly relied on psychological experiments and questionnaires, which had problems of strong subjectivity and low external validity. In recent years, research has shifted to extracting objective indicators from transaction behaviors:

Hedging time asymmetry: Barberis and Xiong proposed to use the ratio of "loss-hedging time to profit-hedging time" to reflect the degree of regret aversion, and subsequent empirical studies observed similar patterns [7]. Empirical data show that this ratio is 2.8 among retail investors in the US stock market, 3.0 among retail investors in emerging Asian markets, and only 1.1 among professional foreign exchange traders, indicating that professional investors can effectively overcome this deviation.

Callback reaction coefficient: Frydman and Rangel conducted a behavioral experiment and found that after the price adjustment, the probability of selling by retail investors showed an opposite pattern compared to that of professional traders, providing a dynamic measurement indicator for regret aversion [8].

Stop-loss discipline: Locke and Mann conducted a study and found that the stop-loss execution rate of professional traders (89%) was significantly higher than that of retail investors (10%-15%), indicating that systematic risk management can effectively mitigate the impact of regret aversion [5].

These methods have avoided the bias of self-reporting, providing more objective behavioral evidence for the research on regret aversion. At the same time, the multi-index cross-validation has enhanced the reliability of the research conclusions. For instance, the significant correlation between the holding time ratio and the pullback reaction coefficient ($r = 0.72$, $p < 0.01$) jointly supports the theoretical prediction of regret aversion.

4 Market optimization suggestions

4.1 Introduction to the research framework

Based on the behavioral finance theory and cross-market empirical findings, this paper constructs a three-dimensional coping framework of "institution - organization - individual", aiming to systematically alleviate the negative impacts of regret aversion and disposal effects: The regulatory level dimension: Through market system design, behavioral monitoring, and information disclosure optimization, reduce systematic behavioral deviations; The financial institution level dimension: Develop investment tools based on behavioral characteristics, strengthen investor education; The individual investor level dimension: Through trading discipline and cognitive intervention, reduce irrational decisions.

4.2 Characteristics

The characteristics of regret aversion and disposition effect discussed in this article are shown in Table 1.

Table 1. The specific manifestations of different aspects' characteristics.

Feature dimension	Specific manifestations
Multisource collaboration	Integrate regulatory authorities (regulatory constraints), financial institutions (tool supply) and investors (behavior modification) to form a closed-loop system of "external constraints - intermediate services - self-management". For instance, the regulatory authorities set disclosure standards, and financial institutions design intelligent investment advisory tools based on these standards. Individuals then execute stop-loss strategies through these tools.
Behavioral Quantitative Orientation	Based on objective indicators such as the asymmetry of holding time and the difference between PGR/PLR, the abstract psychological biases are transformed into measurable behavioral parameters. For instance, using the "loss holding time / profit holding time" ratio proposed by Barberis and Xiong (for US stock market retail investors, it is 2.8), differentiated intervention strategies are tailored for different investor groups [7].
Cross-market adaptability	To address the disparity in the intensity of disposal effects between emerging markets (such as those in Asia) and mature markets (such as the US stock market) (where the former has a higher intensity of disposal effect), design flexible policy tools. For instance, in emerging markets, strengthen the daily price limit system and investor suitability management, while in mature markets, focus on enhancing information transparency [6].
Dynamic intervention mechanism	Combining Frydman and Rangel's "callback response coefficient", the intervention measures are dynamically adjusted by monitoring the changes in selling decisions under real-time price fluctuations. For instance, when the market pullback triggers a high regret aversion signal, stop-loss reminders are pushed to retail investors [8].

4.3 Advantages and disadvantages

Advantages: The combination of theory and practice: Based on the empirical research of prospect theory and disposition effect (such as Odean's trading data analysis method), it

ensures the scientific nature of the intervention strategies [4]; at the same time, it enhances practicality through the implementation of stop-loss tools, behavior monitoring systems, etc.

Multi-dimensional coverage: From macro-level systems to micro-level individuals, it comprehensively covers the chain of influence of behavioral deviations. For instance, the information disclosure system of regulatory authorities can reduce information asymmetry (reducing the inducement of cognitive biases), and individual training in trading discipline can directly correct the "sell winners and hold losers" behavior [3].

Data-driven decision-making: Relying on quantifiable indicators such as the stop-loss execution rate proposed by Locke & Mann (89% for professional traders vs. 10%-15% for retail investors) to avoid subjective judgment biases and enhance the accuracy of strategies [5].

Disadvantages: Market heterogeneity challenges: The differences in investor structures between emerging and mature markets (e.g., a higher proportion of retail investors in Asian markets) may lead to the differentiation of the same strategy's effectiveness, requiring further refinement of cross-market parameters [6].

Individual cognitive differences: The intensity of regret aversion varies among individuals (e.g., the dispersion of the pullback response coefficients among different investors in Frydman's experiment is relatively high), and standardized intervention tools may not fully adapt [8, 10].

Dynamic environmental adaptability: In the era of algorithmic trading, new trading models (such as high-frequency trading) may give rise to new behavioral biases, and the existing framework has limited ability to respond to unknown biases.

5 Conclusion

This article systematically reviews the theoretical framework, empirical findings, and research methods of regret aversion and disposition effects. Existing studies have confirmed the following: (1) The disposition effect is universally present across markets, and its intensity is influenced by the composition of investors, market institutions, and trading characteristics; (2) Regret aversion, as the core psychological mechanism, can be effectively identified through objective behavioral indicators; (3) Professional training and systematic strategies can significantly reduce the impact of behavioral deviations.

Future research can delve deeper in the following directions: (1) Strengthen cross-cultural comparative studies on the influence of cultural factors on regret aversion; (2) Combine neuroeconomics methods to reveal the neural mechanism of regret aversion; (3) Explore the manifestations of new behavioral deviations in the era of algorithmic trading; (4) Develop more refined behavioral indicators and more robust causal identification strategies. Moreover, how to translate research findings into practical investment education and regulatory policies is also a worthy application direction. This review provides a systematic theoretical perspective for understanding investors' irrational decisions and offers methodological references for subsequent research. With the cross-fusion of behavioral finance with technologies such as big data and artificial intelligence, the study of investor behavior will usher in new development opportunities.

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