

Exploration of the Interaction Mechanism between Market Pricing Bias and Stock Returns from a Behavioral Finance Perspective

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Abstract: Traditional financial theory, grounded in the "rational agent hypothesis" and the "efficient market hypothesis," posits that market prices fully reflect all available information and that stock returns are solely determined by systemic risk. However, frequent occurrences of asset price bubbles, crashes, and anomalies (such as momentum effects and value effects) in real markets indicate that market pricing biases are ubiquitous and difficult to eliminate entirely through arbitrage. Behavioral finance, by incorporating psychological theories, uncovers the driving role of investors' irrational behavior in pricing biases and further delves into the dynamic feedback mechanism between pricing biases and stock returns. From a behavioral finance perspective, this paper systematically reviews the causes and manifestations of market pricing biases, as well as their impact pathways on stock returns, and analyzes how the interaction between the two contributes to market dynamic imbalances. The research finds that the combined effects of investors' cognitive biases, emotional contagion, and limited arbitrage create a complex mechanism of "self-reinforcement" or "mean reversion" between pricing biases and returns. This has significant implications for the optimization of asset pricing models and the design of market regulatory policies.

Keywords: Behavioral Finance; Emotional Contagion; Market Regulatory Policies

1. Introduction

Since Fama (1970) proposed the Efficient Market Hypothesis (EMH), traditional finance has for a long time viewed financial markets as a "rational machine" with complete information transparency and operational efficiency. This

theoretical framework assumes that market participants can quickly and accurately process all available information, allowing asset prices to instantly and fully reflect the value of this information. However, as research progressed, particularly after the 1980s, a series of empirical studies began to reveal a range of anomalies in financial markets, known as "market anomalies." These anomalies include, but are not limited to, the size effect (where smaller-cap stocks tend to have higher average returns than larger-cap stocks) and calendar effects (such as the "January effect," which indicates that stocks tend to perform well at the beginning of each year). The existence of these anomalies suggests that stock returns cannot be fully explained by traditional financial theory models such as the Capital Asset Pricing Model (CAPM). These findings pose a challenge to the EMH of traditional finance, prompting scholars to re-examine the behavioral patterns and decision-making processes of market participants [1].

Against this backdrop, behavioral finance emerged and gradually developed into an important branch of finance. By combining psychology with economics, behavioral finance delves into the irrational behaviors of investors in financial markets. These irrational behaviors include, but are not limited to, overconfidence (where investors tend to overestimate their judgment abilities and information accuracy) and loss aversion (where investors have a much stronger aversion to losses than to gains). These behavioral biases not only affect individual investors' decisions but also lead to systemic pricing biases at the macro level, thereby influencing the distribution of returns across the entire market (Baker&Wurgler,2018) [2]. Understanding the interaction mechanism between these pricing biases and returns is crucial for revising and improving existing asset

pricing models. At the same time, it provides a deeper theoretical basis for regulators, helping them better identify potential market risks and adopt effective regulatory measures to prevent market volatility and protect investors' interests. Therefore, research in behavioral finance not only enriches the theoretical system of finance but also provides more comprehensive and in-depth guidance for the practice of financial markets (Barberis& Huang,2021) [3].

2. From Bounded Rationality to Market Anomalies

2.1 Cognitive Biases and Irrational Decision-Making

One of the core hypotheses of behavioral finance is that investors frequently exhibit systematic cognitive biases in financial markets, which significantly influence their investment behaviors and decision-making processes. Specifically, overconfidence is a common psychological phenomenon that leads investors to overestimate their information processing abilities and the accuracy of their predictions. This, in turn, prompts them to engage in excessive trading, which not only increases transaction costs but may also hinder investment performance (Barber & Odean, 2000) [4]. On the other hand, the anchoring effect manifests when investors, when valuing assets, often rely excessively on historical prices or other information that may not be directly related to current market conditions. This excessive focus on initial information limits their ability to adapt to new information, resulting in inadequate price adjustments. Furthermore, loss aversion is another crucial psychological characteristic of investors. It describes investors' much higher sensitivity to losses compared to gains. This asymmetric response pattern makes investors more conservative when facing losses and relatively aggressive when realizing profits. This phenomenon, known as the "disposition effect," refers to investors' tendency to sell profitable stocks prematurely while holding onto losing stocks for too long (Frydman&Wang,2020) [8]. These systematic cognitive biases collectively influence financial markets, causing prices to deviate from rational expectations, thereby constituting an important supplement and challenge to traditional financial theory from the perspective of behavioral finance.

2.2 Behavioral Explanation for Market Inefficiency

Traditional financial theory often posits that arbitrageurs, as rational participants in the market, will promptly identify and exploit pricing deviations through trading, effectively eliminating these deviations and maintaining market efficiency. However, behavioral finance proposes the concept of "Limits to Arbitrage," offering a significant revision to this traditional view. Specifically, arbitrageurs face multiple challenges in practice, which limit their ability to correct market pricing deviations. Firstly, fundamental risk implies that arbitrageurs cannot fully hedge against fluctuations in the true value of the assets they hold, exposing their arbitrage strategies to potential losses (Shleifer & Vishny, 2018) [5]. Secondly, the presence of noise traders can cause irrational behavior in the market to deviate from the fundamental value of assets for extended periods. This deviation not only increases the uncertainty of arbitrage strategies but may also lead to further distortions in market prices. Finally, institutional constraints in reality, such as short-selling restrictions and the cost of capital, also pose substantial obstacles to arbitrage behavior. These obstacles reduce the efficiency and effectiveness of arbitrage activities, allowing market pricing deviations to persist. Therefore, the theory of limits to arbitrage reveals that arbitrage behavior in the market is not as perfectly effective as envisioned by traditional theory but is constrained by various factors, providing a new perspective for understanding market anomalies and price fluctuations [6].

3. Mechanisms Behind Market Pricing Deviations

In financial markets, investor sentiment and herd behavior, biases in information processing, and characteristics of market structure collectively influence the asset pricing process, leading to the formation and persistence of pricing deviations. Specifically, the contagion model of sentiment reveals that investor sentiment can quickly spread through channels such as social media and news reports, forming an overall optimistic or pessimistic outlook for the market. This sentimental atmosphere profoundly affects investors' trading decisions (Lou& Polk,2021) [7]. Meanwhile, the herd effect is significantly present, as individual investors often tend to abandon independent analysis and instead

imitate the investment decisions of others. This behavioral pattern further exacerbates the degree of deviation in market prices. At the level of information processing, investors exhibit clear characteristics of attention-driven trading. They are more inclined to focus on recent market dynamics or extreme information while neglecting the decisive influence of long-term fundamental factors on asset values (Boehmer et al.,2021) [9]. Additionally, the representativeness heuristic is also one of the important factors leading to pricing deviations. Investors are prone to erroneously extrapolating short-term market trends as long-term patterns, which triggers overreactions and further distorts market prices.

The characteristics of market structure also have a significant impact on pricing deviations. In markets with insufficient liquidity, asset prices are more susceptible to the influence of short-term supply and demand relationships, leading to price distortions (Bouchaud et al.,2022). Furthermore, with the rise of algorithmic trading and high-frequency trading, the procyclical nature of programmed trading may further amplify pricing deviations, intensifying market volatility. In summary, these factors intertwine and interact, constituting the complex causes of pricing deviations in financial markets [10].

4. The Impact Pathways of Pricing Deviations on Stock Returns

In financial markets, pricing deviations not only trigger short-term price dynamics but also shape the long-term pattern of investment returns. The momentum effect reveals that asset prices tend to continue deviating from their fundamental values along the existing trend. This trend-following movement creates short-term excess return opportunities for investors, reflecting the inertia and overreaction of market sentiment. However, over time, sentiment-driven pricing deviations will eventually revert to fundamentals, leading to a long-term price reversal effect. This means that asset prices that have previously overshot on the upside or downside will ultimately converge towards their intrinsic values (Da & Gao,2021) [11].

Furthermore, the long-term effects of pricing deviations are manifested in the differentiated performance of value and growth stocks. Value stocks, which are overly pessimistically viewed by the market and trade below their intrinsic

values, often outperform growth stocks that are favored by investors over the long term. This phenomenon is known as the value premium (Fama& French,2020). Meanwhile, the accumulation of pricing deviations can create a positive feedback loop, pushing asset prices further away from their fundamental values. This continues until the market can no longer sustain such irrational overvaluation or undervaluation, ultimately releasing the accumulated risk in the form of a price crash and leading to the bursting of bubbles. These short-term and long-term effects collectively reveal the impact of pricing deviations on financial market stability and the complex challenges they pose for investors.

5. From Price Discovery to Market Imbalances

In financial markets, the impact of returns on investor behavior and the role of mean reversion mechanisms collectively shape the dynamic equilibrium of the market. Specifically, short-term high returns often exhibit a self-fulfilling prophecy effect, attracting more investors to chase gains, thereby further pushing up asset prices and forming market bubbles. This phenomenon reflects a positive feedback mechanism in investor behavior, where increased profits elevate investors' risk tolerance, prompting them to increase leverage and thus exacerbating market pricing deviations (Greenwood&Jin,2021) [12]. This reinforcing effect of behavior may lead to excessive deviations of market prices from their fundamental values.

However, the market is not always in a state of irrational exuberance. The mean reversion mechanism, as a self-regulating force in the market, begins to take effect when long-term pricing deviations emerge. On the one hand, the involvement of arbitrageurs serves as an important stabilizer in the market. They identify and exploit pricing deviations, pushing prices back towards fundamentals through contrarian operations, thereby correcting market overreactions. On the other hand, the anchoring effect of fundamentals gradually becomes apparent. As corporate earnings reports are released, macroeconomic data is updated, and other information is gradually disclosed, market participants begin to reassess and revise their expectations, causing asset prices to converge towards their intrinsic values.

In summary, the reinforcing effect of returns on investor behavior and the mean reversion mechanism together constitute the dynamic balance system of financial markets. The former may lead to short-term market overheating and pricing deviations, while the latter, through the involvement of arbitrageurs and the anchoring effect of fundamentals, prompts market prices to revert to their fundamental values in the long term. The interaction between these two forces not only reveals the volatility of market prices but also provides investors with an important perspective for understanding market dynamics and formulating investment strategies.

6. Empirical Research and Policy Implications

In the realm of empirical research and strategy optimization in financial markets, cross-market tests have revealed the differential performance of pricing deviations in different market environments and their impact on investment strategies. In mature markets such as the U.S. stock market, momentum strategies have demonstrated robust excess returns, with annualized returns reaching 12%, indicating strong persistence in market trends (Smith, 2021). However, in emerging markets, reversal effects are more pronounced, reflecting these markets' greater susceptibility to emotional swings and overreactions, leading to prices more easily reversing after deviating from fundamentals. In the case of the Chinese market, studies have shown that policy interventions and a retail-dominated market structure contribute to higher volatility in pricing deviations, increasing market uncertainty and complexity.

To address these challenges, regulators and investors have adopted various measures in terms of strategy optimization. Firstly, investor education is considered a crucial means to mitigate the negative impact of cognitive biases on investment decisions. By enhancing investors' financial literacy and market understanding, they can make more rational investment decisions. Secondly, countercyclical regulation has emerged as an important tool for market supervision. By adjusting transaction costs, limiting leverage ratios, and other measures, it effectively curbs the positive feedback loop in markets, reducing the risk of market bubbles and crashes. Finally, at the level of investment strategies, the improvement of quantitative strategies has become a significant

trend, particularly the optimization of multi-factor models by incorporating behavioral finance factors (such as investor sentiment indicators). This not only enhances the predictive power and robustness of strategies but also provides investors with more refined and personalized risk management tools.

In summary, cross-market empirical tests have revealed the differential performance of pricing deviations in different market environments, while optimizations in regulation and investment strategies aim to reduce the impact of these deviations on investors and market stability, enhancing the efficiency and fairness of financial markets. These research findings and strategies not only provide investors with deeper insights into markets but also offer important references for policymakers in formulating regulations.

7. Conclusion

In financial markets, investor sentiment, group behavior, biases in information processing, and market structural characteristics collectively influence the asset pricing process, contributing to the complex origins of pricing deviations. These deviations not only trigger short-term price dynamics, such as momentum effects and reversal effects, but also shape long-term investment return patterns, including value premiums and bubble crashes. These effects collectively reveal the impact of pricing deviations on financial market stability and the challenges they pose to investors. The reinforcing effect of returns on investor behavior, coupled with the mean reversion mechanism, constitutes the dynamic equilibrium system of financial markets. Short-term high returns attract investors to chase gains, leading to market bubbles. In the long run, the involvement of arbitrageurs and the anchoring effect of fundamentals prompt market prices to revert to their fundamental values. The interaction between these two forces not only uncovers the volatility of market prices but also provides investors with important perspectives for understanding market dynamics and formulating investment strategies. Cross-market empirical tests have shed light on the differential performance of pricing deviations in different market environments and their impact on investment strategies. To address these challenges, regulators and investors have adopted various measures in terms of strategy

optimization, including investor education, countercyclical regulation, and improvements in quantitative strategies. These research findings and strategies not only provide investors with deep insights into markets but also offer significant references for policymakers in formulating regulations, aiming to enhance the efficiency and fairness of financial markets.

In summary, research in behavioral finance has not only enriched the theoretical framework of finance but also provided more comprehensive and in-depth guidance for the practice of financial markets. It helps identify potential market risks, protect investor interests, and promote the healthy development of financial markets.

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