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Analysis of the causes of asset pricing anomalies in the Chinese stock market from the perspective of behavioral finance

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Abstract: The long-term existence of asset pricing anomalies constrains the efficient operation of the Chinese stock market, and traditional financial theory is based on the core assumption of complete rationality, making it difficult to provide a re asonable explanation for such market anomalies. Behavioral finance theory breaks through the rational person analysis framework, starting from the irrational behavior of investors, and provides a new research path for analyzing the formation mechanism of asset pricing anomalies. This paper takes the Shanghai and Shenzhen stock markets as the research object, and combines authoritative data from the Securities Association of China and the Wind Database from 2016 to 2025 to sort out typical pricing anomalies such as low Beta, low-volatility anomalies, and ESG. The causes of anomalies are systematically analyzed from the dimensions of investor psychological bias, the contagion of herd behavior, and market structure defects. Research has found that irratio nal decision-making behaviors such as investor lottery preferences and anchoring effects, combined with the market structure dominated by individual A-share investors and agency problems of institutional investors, collectively lead to asset prices deviating from their intrinsic value. This study can provide empirical support for regulating market pricing order and guiding rational investment, and help promote the high-quality development of China's stock market.

Keywords: Behavioral finance; Chinese stock market; Asset Pricing Anomalies; Investor psychological bias; Market structure optimization.

1. Introduction

After years of development, the Chinese stock market has achieved a leapfrog expansion in scale. The total market value of the Shanghai and Shenzhen stock markets has increased from 50.62 trillion yuan in 2016 to 107.99 trillion yuan in 2025, which intuitively demonstrates the vitality of market development. The A-share market currently presents a structure dominated by retail investors. The latest data from China Securities Depository and Clearing Corporation in 2025 shows that individual investors account for 99.76% of the total investor accounts. This structural characteristic not only continuously amplifies the market transmission effect of irrational behavior among investors, but also results in frequent asset pricing anomalies with a significantly longer duration than that in mature markets than mature markets. Even after controlling for multiple risk factors, such anomalies cannot be reasonably explained by traditional financial theory. The traditional Capital Asset Pricing Model (CAPM) assumes that investors are completely rational and have sufficient information symmetry as its core assumptions. Under this assumption framework, typical market anomalies such as excess returns and short-term return reversals in low beta stocks cannot be explained [1]. Behavioral finance theory breaks through the analytical framework of traditional finance theory and focuses on the actual impact of investor psychological biases and group behavior on asset pricing. This research perspective provides a core idea for exploring the causes of asset pricing anomalies. The widespread irrational investment behavior of investors in the A-share market makes it difficult to alleviate pricing anomalies in the long run. The continued existence of such anomalies not only distorts the core efficiency of market resource allocation, but also further exacerbates overall market volatility. The objective existence of arbitrage frictions also eliminates the motivation for the spontaneous correction of pricing anomalies. From the perspective of behavioral finance theory, this paper makes an in-depth exploration into the causes of asset pricing anomalies with the support of verifiable empirical market data from the Shanghai and Shenzhen stock markets. The conclusions of this study not only serve as practical references for optimizing capital market regulation and refining investment decision-making, but also have notable theoretical value and practical implications for the development of the capital market.

2. Definition of Related Concepts

Forged by the profound integration of finance and psychology, behavioral finance draws its theoretical core from Herbert Simon's theory of bounded rationality. Rather than a rigid infusion of psychological concepts into financial research, this interdisciplinary field fundamentally transcends the inherent cognitive framework of the "rational man" that underpins traditional finance. It makes explicit that investors in the capital market do not possess fully rational decision-making abilities: their judgments and choices are bounded by objective factors including cognitive capacity and the limits of information access, ultimately manifesting the behavioral characteristics of bounded rationality. Their investment decisions are easily influenced by psychological factors such as cognitive biases and emotional fluctuations, and they do not simply follow the principle of maximizing utility to make choices. They can only achieve "satisfactory" decisions within their own abilities and information boundaries, rather than absolute optimal decisions.

The core theoretical support of behavioral finance is the Prospect Theory and the Behavioral Asset Pricing Model (BAPM), in which the Prospect Theory was proposed by

Kahneman and Tversky, accurately capturing the psychological characteristics of investors' loss aversion and clearly revealing the asymmetry of market participants' perception of returns and losses; BAPM further divides market traders into rational information traders and irrational noise traders, incorporating the risk of noise traders into the pricing system, filling the gap in the explanation of the single risk factor in the CAPM model, and making theoretical analysis more in line with the actual operating state of the Chinese stock market [2].

Asset pricing anomaly is a phenomenon of abnormal returns where the actual price of assets deviates from the predicted value of traditional pricing models and cannot be explained by traditional financial risk factors. In the A-share market, it is manifested in typical forms such as Beta anomaly, low-volatility anomalies anomaly, reversal effect, ESG anomaly, etc. Empirical research has also confirmed that A-share pricing anomaly has a long survival period, and its performance is significantly related to the market value and growth attributes of stocks [3].

As an emerging capital market, the Chinese stock market has distinct local characteristics in asset pricing anomalies, which are closely related to the market's unique investor structure, institutional design features, and common behavioral biases among investors. The limited arbitrage mechanism caused by the low scale of securities lending in the A-share market has strong sustainability and is difficult to quickly correct through arbitrage behavior. This market reality also provides a solid research foundation for this paper to explore the causes of A-share asset pricing anomalies from the perspective of behavioral finance.

3. Main Manifestations and Data Evidence of Asset Pricing Anomalies in the Chinese Stock Market

Based on official statistics from the Shanghai and Shenzhen Stock Exchanges, measured data from the Wind database, and empirical research conclusions from domestic financial core journals, there are multiple verifiable asset pricing anomalies in the A-share market, all of which are supported by continuous traceable market data and academic testing. The Beta anomaly is particularly prominent in the A-share market. Market data from 2000 to 2018, after multiple rounds of academic testing, have confirmed that the annualized return of low-volatility anomalies stock portfolios continues to be higher than that of high volatility portfolios. the core logic of "high-risk, high-return" advocated by traditional CAPM models has been significantly invalidated in the A-share market.

Low-volatility anomalies have also existed in the market for a long time, with high volatility stocks being easily overvalued by speculative sentiment, while traditional industry stocks with stable profits and low-volatility anomalies have been in a valuation slump for years. The cumulative return of the CSI A-share low-volatility anomalies index from 2016 to 2025 is 18.7% higher than that of the CSI 300 index, which intuitively confirms the risk-adjusted return advantage of low-volatility anomalies portfolios [4]. ESG anomalies exhibit distinct structural differentiation characteristics. Based on market data from 2009 to 2024 from Huazheng ESG Rating and Zhiding ESG Rating, it was found that the monthly average excess returns of low ESG scoring companies in the small cap sector were 0.77% higher than those of high scoring companies. However, since 2020, the ESG premium of large cap stocks has gradually turned from negative to positive. This feature remains robust after being tested by the the Fama-French Three-Factor Model and industry neutrality test.

The reversal effect is sustained and significant in short-term trading of A-shares. Trading data from 2001 to 2024 shows that high attention stocks often experience significant returns reversal after news is released, and the price correction caused by negative news is much greater than that caused by positive news [5]. The scale effect characteristics of the Shanghai Stock Exchange main board in 2023 are clear, with the P/E ratio of companies with a market value of over 100 billion yuan increasing by 1.6 percentage points compared to the beginning of the year, and the average stock price increase outperforming the overall market by 21 percentage points. The valuation recovery of blue chip stocks in the overall market is significantly better than that of small and medium-sized stocks. The reason why pricing anomalies such as A-shares can persist for a long time is mainly due to the low scale of securities lending and high arbitrage costs. The arbitrage restrictions formed by market friction make it difficult for arbitrage behavior to quickly correct price deviations, which has also become a unique operating characteristic of emerging markets in A-shares.

4. The Core Psychological Causes of Asset Pricing Anomalies from The Perspective of Behavioral Finance

Individual psychological biases among investors is the core intrinsic driving force behind the formation of A-share asset pricing anomalies. According to data disclosed by China Securities Depository and Clearing Corporation in July 2025, the total number of A-share investors exceeded 240 million, with individual investor accounts accounting for 99.76%. In the first half of 2025, the proportion of new accounts opened by individuals also reached 99.63%. The market structure dominated by retail investors continues to amplify the distorted effect of psychological bias on asset pricing, manifested in four typical irrational cognitive biases.

Lottery preference is the most common cognitive bias among retail investors, who gravitate toward lottery-type stocks with low prices, high volatility and high skewness to blindly drive up their short-term valuations yet overlook the inherent weaknesses in these stocks' long-term returns. Empirical evidence from the A-share market spanning 2004 to 2023 indicates that portfolios of high idiosyncratic volatility stocks yield an average return in the subsequent month that is stably around 2 percentage points lower than that of low idiosyncratic volatility stock portfolios, a return reversal characteristic that directly verifies the distorting effect of lottery preference on asset pricing [6].

The anchoring effect displays distinct scenario-specific features, with investors typically taking stock issuance prices and 52-week historical highs as fixed reference anchors—this bias is particularly pronounced in a bullish market with low information transparency. According to statistics from the Securities Times in 2025, the average first day increase of 100 new A-shares in 2024 reached 253%, with many stocks experiencing an increase of over 500%, significantly deviating from the reasonable valuation range of fundamentals; When the stock prices of mergers and acquisitions are close to historical highs, short-term

premiums generally reach 25% to 40%, and subsequent price reversals occur frequently, which is a typical market performance of anchoring bias.

The disposal effect is extreme in the A-share market, coupled with the limit up and limit down trading system and investors' loss aversion psychology, resulting in a significant asymmetry in the disposal behavior of individual investors towards profit and loss stocks. According to data from the Shanghai Stock Exchange in 2024, the average period for retail investors to hold profitable stocks is only 17 days, while they hold loss making stocks for as long as 102 days. Retail investors rush to close out their positions when floating profits on their holdings exceed 15%, yet cling to positions or even add to them against the trend amid a drawdown of over 25% [7]—this contradictory irrational trading behavior directly distorts the inherent logic of asset pricing.

Memory bias further amplifies such pricing distortions: investors retain vivid memories of short-term profit experiences yet easily fade the memory of losses, and this selective recall continuously reinforces their overconfidence. Actual market trading data shows retail investors have an average holding period of merely 14 days, far shorter than that of institutional investors, and often fail to time their trades appropriately. Even so, more than 70% of retail investors believe their investment ability outperforms the market average, and their frequent trading continuously drives stock prices away from corporate fundamentals, emerging as a key driver of the persistence of asset pricing anomalies.

5. The Interactive Influence of Market Structure and Behavioral Bias

China's stock market exhibits a notable reciprocal amplification effect between its inherent structural characteristics and investor behavioral biases, whose joint action further expands the impact of asset pricing anomalies and extends their duration. In terms of market participant structure, the A-share market has long maintained a retail-led operational pattern. Public data from China Securities Depository and Clearing Corporation shows that individual investor accounts account for 99.76% of the total, with their annual trading value consistently making up over 60% of the market's total for a long time. Most of these investors lack systematic research expertise and risk assessment capabilities, and their investment decision-making is highly susceptible to market sentiment. Irrational operations such as herding and chasing gains while cutting losses are common, which directly exacerbates the degree to which stock prices fluctuate and asset prices deviate from their intrinsic value [8].

Institutional investors should be responsible for the core functions of price discovery and market stability, but due to external constraints such as short-term performance evaluations and industry ranking competition, there are prominent agency problems. Most active equity funds exhibit significant style drift in order to achieve short-term performance surpassing benchmarks, and tend to allocate high volatility stocks to gain excess returns. They not only fail to correct pricing deviations through arbitrage operations, but also contribute to market anomalies such as low-volatility anomalies to a certain extent.

At the market institutional level, issues such as limit up and limit down restrictions and insufficient timeliness of information disclosure have reduced the efficiency of market information transmission and further strengthened investors' cognitive biases. The limit up mechanism can easily trigger irrational expectations of price increases, which, combined with investors' loss aversion, significantly amplifies the impact of disposition and anchoring effects. At the same time, some listed companies have governance shortcomings, non-standard market value management operations, and even cater to market speculation, directly disrupting the normal asset pricing order.

The closed-loop effect formed by the market structure dominated by retail investors, the practical constraints of institutional investment behavior [9], and the operational friction at the institutional level makes it difficult for investors' behavioral biases to be spontaneously corrected by the market, becoming an important incentive for the long-term existence of asset pricing anomalies. This also indirectly reflects the practical necessity of optimizing market structure and improving institutional design.

6. The Governance Implications of Anomalies from the Perspective of Behavioral Finance

By unpacking the formation logic of A-share asset pricing anomalies from a behavioral finance perspective and integrating the interactive features of market structure and investor behavioral biases, we can develop a multidimensional adaptive governance framework to mitigate pricing misalignments in the A-share market and standardize the operational order of the capital market. Given the dominant role of individual investors in the A-share market, a regular investor education system with the coordination and linkage of the Securities Association of China, stock exchanges and securities firms should be established, which delivers targeted guidance to alleviate typical cognitive biases of investors such as lottery preference and the disposition effect [10]. According to the 2024 Investor Service and Protection Report of Securities Companies by the Securities Association of China, the industry-wide investment education activities have covered over 100 million people. Targeted investment education interventions can effectively reduce the frequency of irrational trading and curb behaviors such as herding and chasing after gains and losses from the source.

In the process of institutional investment management, a long-term assessment model should be implemented based on regulatory requirements. The weight of fund managers' mid-to-long-term income assessment for three years or more should be increased to over 80%, and the assessment tendency of short-term performance ranking and scale expansion should be weakened. Institutions should be guided to adhere to the value investment concept and perform market pricing correction functions with professional investment research capabilities. At the same time, it is imperative to continuously optimize the basic system of the capital market, rely on official designated platforms to improve the information disclosure mechanism, enhance the timeliness and transparency of information transmission, and resolve the problem of market information asymmetry [11]; Reasonably adjust the limit up and limit down trading rules to reduce the amplification effect of the trading system on investors' irrational behavior.

In addition, it is necessary to strengthen the full cycle supervision and restraint of listed companies. In 2024, the CSRC investigated and dealt with 739 cases of securities and futures violations in accordance with the law. By severely

cracking down on market manipulation, illegal market value management and other behaviors, listed companies will be forced to focus on the development of their main business and the enhancement of their intrinsic value. Relying on the collaborative efforts of investor education, institutional assessment optimization, institutional improvement, and regulatory strengthening, it can effectively weaken the interactive amplification effect of behavioral biases and market structure, promote asset prices to return to their intrinsic value, and lay a solid foundation for the long-term healthy and orderly development of the capital market.

7. Conclusion

Taking behavioral finance theory as its analytical framework, this study systematically investigates asset pricing anomalies in China's A-share market by focusing on three core dimensions: their typical manifestations, underlying formation causes, and targeted governance pathways. By collating real trading data from the A-share market and in conjunction with authoritative research findings in the relevant field, this study identifies and validates the typical pricing misalignments in the market, including beta anomalies, low-volatility anomalies, ESG anomalies, reversal effects and scale effects. Research has confirmed that lottery preference, anchoring effect, disposition effect, and memory bias are the core psychological factors driving the formation of anomalies. The interactive amplification effect formed by the investor structure dominated by retail investors, short-term institutional assessment constraints, and imperfect market systems further prolongs the persistence of anomalies, collectively constituting the inherent logic of low pricing efficiency in A-shares.

There are still certain research limitations in this paper. The study mainly focuses on the macro correlation between typical psychological biases and market structure, without conducting detailed tests on the heterogeneity of anomalies between different industries and market capitalization sectors. At the same time, the analysis is based on whole market data, and the characterization of micro trading behavior is not deep enough. The robustness of relevant conclusions in different market cycles still needs further verification.

Future research can combine high-frequency trading data and sub sample empirical analysis to refine the dynamic evolution characteristics of pricing anomalies in different market environments, and can also expand analysis by combining the latest market changes such as registration system reform and institutional investor expansion. The research conclusion of this paper can provide empirical reference for regulatory authorities to optimize the investor education system, adjust institutional assessment mechanisms, and improve market basic systems. It will help weaken the interference of irrational behavior on asset pricing, promote the continuous improvement of pricing efficiency in the A-share market, and assist the capital market in achieving long-term healthy and stable development.

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