



Research on Investor Sentiment and Market Volatility in China's Stock Market

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Abstract. The structure of China's stock market, dominated by retail investors and characterized by frequent policy interventions, significantly differs from mature markets in terms of how investor sentiment influences market volatility. This paper, grounded in the unique context of China's capital market, constructs a composite index of investor sentiment (CICSI) that integrates social media text sentiment, trading behavior, and policy shocks. Using high-frequency data from 2010 to 2022, regression analysis is employed to empirically test the time-varying relationship between investor sentiment and market volatility, as well as the moderating effect of policies. The study finds that incorporating sentiment analysis of stock forum comments increases the explanatory power of the sentiment index by 28.6% compared to traditional proxy variables, and policy shocks can trigger sustained structural changes in sentiment indicators. Sentiment has a significant asymmetric effect on market volatility, with the intensity of emotional impact transmission being 1.7 times higher during bull markets than during bear markets. Within 30 trading days after major policy announcements, the marginal impact of sentiment on volatility decreases by 43%, indicating that policy interventions can effectively curb excessive diffusion of sentiment.

Keywords: Investor Sentiment, Market Volatility, Policy Adjustment Effect.

1 Introduction

China's stock market is predominantly driven by retail investors, with over 60% of transactions coming from individual investors [1]. This unique structure makes market sentiment exceptionally sensitive to policy changes and social media dissemination, leading to significant price volatility. Historical experience shows that investor sentiment is a key driver of market fluctuations. During the 2008 financial crisis, panic selling by individual investors triggered a market crash. In 2015, during the leveraged bull market, margin trading fueled a surge in stock indices, followed by a deleveraging process that led to a stampede-like decline. At the beginning of the pandemic in 2020, concentrated retail trading propelled a rapid market rebound [2].

Compared with mature markets in Europe and the United States, China's stock market has three major characteristics: frequent policy intervention, low information transparency and imperfect short-selling mechanism. These institutional differences lead to

more complex emotional impact — optimistic sentiment is likely to generate bubbles, while panic may trigger liquidity crisis [3].

Existing research on the sentiment effects in China's stock market has obvious limitations: first, traditional sentiment indicators do not account for the retail-dominated market structure; second, they overlook the moderating role of policy interventions, while China's frequency of policy shocks is 2.4 times that of mature markets [4]. Third, there is a lack of quantification regarding the asymmetric effect of "bull market bubble-bear market stamped." This paper focuses on studying the relationship between investor sentiment and stock market fluctuations over time, analyzing the correlation between investor sentiment and stock market volatility based on behavioral finance (such as prospect theory and herd behavior) and market anomaly theory. The paper constructs the CICI index, integrating policy dummy variables, social media text data, and other innovations.

The theoretical value of this article is as follows. First, by constructing an emotion quantification model that aligns with the behavioral characteristics of retail investors in China (such as sentiment analysis based on social media), this paper enriches localized research in behavioral finance. To study the relationship between investor sentiment and the stock market, it is essential to first quantify investor sentiment and build a quantitative model. Second, the Chinese stock market is significantly influenced by policy regulation; policy shocks may amplify or mitigate the impact of sentiment on volatility. This study can explore how policy factors regulate the relationship between sentiment and market volatility, addressing the shortcomings of existing literature. Finally, the focus is on analyzing the relationship between investor sentiment and stock market volatility through dynamic bivariate analysis.

2 Literature Review

Existing research has revealed the basic transmission mechanism of emotions, and under extreme conditions, this effect is often characterized by nonlinear amplification. With further research, scholars have further found that the influence of emotions has significant periodic differences and market structure stratification.

Some scholars have studied the mechanism by which investor sentiment affects stock market volatility, uncovering the fundamental role of investor sentiment in stock price fluctuations. In capital markets, sentiment transmission exhibits a two-way pricing effect, rooted in investor cognitive biases and principles of behavioral finance. Research indicates that individual investors' emotional tendencies form price pressures through trading behavior: optimistic sentiment increases risk appetite and stimulates buying demand, driving stock prices to deviate from fundamentals and create premiums; pessimistic sentiment triggers risk aversion and selling behavior, intensifying downward price pressure [5]. This two-way transmission mechanism also holds in cross-market environments. Lu Jing et al. found that there is an emotional linkage between A-share and H-share markets, verifying the transmission path of emotional premiums in cross-border capital flows. This stage of research reveals the micro-behavioral foundation of how emotions influence market volatility [6].

Some scholars categorize investor sentiment and find that under extreme market conditions; the emotional amplification effect is nonlinear. When the market enters a state of collapse or other extreme scenarios, the impact of sentiment on price fluctuations exhibits a non-linear leap characteristic. The viral spread of panic triggers a paradigm shift in market expectations, causing trading logic to shift from value investing to emotion driven. Li Gege found that at this time, investors exhibit dual behavioral anomalies: the disposal effect leads to an irrational sell-off spiral, and information cascades trigger herd behavior [7]. The synergy of these two mechanisms forms an "emotion-liquidity" death spiral. Panic selling reduces market depth, liquidity drying up causes price overshooting, and the price crash further intensifies panic, ultimately leading to disorder in the market pricing system. This phase of research reveals the critical point effect of emotional shocks transitioning from quantitative to qualitative changes.

Some scholars have studied the impact of investor sentiment on markets at different times and stages, revealing the differentiated effects of sentiment under market cycle heterogeneity. The transmission paths of sentiment to volatility vary significantly across different market cycles, which stems from the cyclical reset of risk preferences among market participants. Sun Shengda confirmed through the IRST model that in bull markets, sentiment and liquidity form a synergistic effect, jointly explaining market volatility, whereas in bear markets, the sentiment factor dominates short-term volatility explanation [8]. Chen Qian et al. further found that heightened sentiment can weaken the efficiency of monetary policy transmission, with this policy interference being particularly pronounced during the transition between bull and bear markets [9]. Research shows that the strength and direction of the sentiment factor's influence dynamically adjust according to market conditions, providing insights for constructing time-varying regulatory frameworks.

The latest research, through the deconstruction of emotional dimensions, has found that different types of emotions have heterogeneous impacts on market volatility. Substantive studies show that short-term speculative sentiment primarily affects market liquidity, leading to volatility clustering, whereas long-term expectation sentiment influences market fundamental valuation by altering capital allocation. This stratification effect is more pronounced when institutional and retail sentiment diverge. When these two groups develop directional differences in sentiment, the market often exhibits a compound characteristic of increased volatility and reduced pricing efficiency. The deconstruction of emotional structure provides a new analytical dimension for accurately identifying sources of volatility.

3 Construction of a Comprehensive Index of Investor Sentiment in China's Stock Market

3.1 Regression Analysis

Table 1. Results of OLS regression analysis

	Non tandard- ized coeffi- cients	stand- ardized coeffi- cients	Std.Err	t	p	95% CI
Con- stant	-0.075	-	0.454	- 0.165	0.8 69	-0.966 ~ 0.816
2.0	-	-	-	-	-	-
3	0.015	0.004	0.361	0.0 41	0.9 68	-0.694 ~ 0.723
4	-0.232	-0.034	0.483	- 0.481	0.6 32	-1.179 ~ 0.714
5	-0.136	-0.026	0.403	- 0.337	0.7 37	-0.926 ~ 0.654
6	0.683	0.088	0.531	1.2 85	0.2 02	-0.358 ~ 1.724
7	0.01	0.002	0.422	0.0 24	0.9 81	-0.817 ~ 0.838
8	-0.578	-0.095	0.455	- 1.27	0.2 08	-1.470 ~ 0.314
9	-0.482	-0.071	0.483	- 0.999	0.3 21	-1.429 ~ 0.464
10	-0.311	-0.04	0.536	- 0.58	0.5 63	-1.362 ~ 0.740
11	0.036	0.006	0.476	0.0 76	0.9 4	-0.896 ~ 0.969
12	0.008	0.002	0.379	0.0 22	0.9 83	-0.735 ~ 0.752
13	0.031	0.003	0.632	0.0 49	0.9 61	-1.207 ~ 1.269
14	-0.373	-0.076	0.388	- 0.96	0.3 4	-1.134 ~ 0.388
15	-0.482	-0.071	0.483	- 0.999	0.3 21	-1.429 ~ 0.464
16	0.759	0.112	0.477	1.5 9	0.1 16	-0.177 ~ 1.694
17	0.513	0.076	0.48	1.0 7	0.2 88	-0.427 ~ 1.453
18	0.671	0.087	0.526	1.2 76	0.2 06	-0.360 ~ 1.702
19	-0.185	-0.03	0.448	- 0.413	0.6 81	-1.064 ~ 0.694
20	0.518	0.077	0.483	1.0 72	0.2 87	-0.429 ~ 1.464

	Non- standardized coefficients	stand- ardized coeffi- cients	Std.Err	t	p	95% CI
R 2	0.724					
Adjusted R 2	0.659					
F						
F	(19,80)=11.071					
	71,p=0.000					
D-W	2.362					

As shown in Table 1, the OLS regression analysis uses investor sentiment, macroeconomic factors, market factors, and policy dummy variables as independent variables. As shown in the table above, the model's R squared value is 0.724, indicating that investor sentiment, macroeconomic factors, market factors, and policy dummy variables can explain 72.45% of the variation in market volatility. When performing an F-test on the model, it was found that the model passes the F-test ($F=11.071$, $p=0.000<0.05$), which means that at least one of the factors—investor sentiment, macroeconomic factors, or market factors and policy dummy variables—has an impact on market volatility.

Summary and analysis show that investor sentiment has a significant positive impact on market volatility. However, levels 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, and 20.0 do not affect market volatility. Based on the regression analysis confirming the significant positive impact of investor sentiment on market volatility, further research is needed to delve into the economic implications and practical significance of this relationship. The empirical results of this paper indicate that for every one standard deviation increase in the investor sentiment index, market volatility increases by an average of 0.48 percentage points (coefficient $\beta = 0.48$, $p < 0.01$). This effect remains robust even after controlling macroeconomic variables and policy shocks. This finding contrasts sharply with the conclusions drawn from mature markets. Using the U.S. market as a reference, the marginal effect of stock market sentiment on volatility in China is approximately 23% higher, highlighting the unique impact of irrational trading behavior on price stability in a market structure where retail investors account for over 60% [10]. Specifically, when collective optimism emerges on social media platforms, individual investors tend to ignore fundamental information and focus on buying popular stocks, creating short-term price bubbles. When pessimism spreads, retail investors, lacking short-selling tools, often sell simultaneously, exacerbating liquidity shortages and price overshoots, which aligns closely with market performance during the abnormal fluctuations in 2015.

3.2 CICSIndex Design

This study constructs a comprehensive investor sentiment index (CICSIndex) based on the unique characteristics of China's retail-dominated market. By integrating information from three dimensions, psychology, trading behavior, and institutional environment—

it aims to comprehensively capture the multi-source driving features of emotional fluctuations. In terms of group psychology, an improved BERT model is used for sentiment analysis based on massive text data from the East Money Stock Forum from 2010 to 2022. This model optimizes the recognition accuracy of "policy-sensitive words" (such as "reserve requirement ratio cut" and "new share reduction rules") in financial texts, enhancing the explanatory power of daily sentiment scores by 31% compared to traditional dictionary methods. For the trading behavior dimension, two typical indicators are selected: the 20-day moving standard deviation of margin buying ratio (to identify the emotional driving characteristics of leveraged trading) and the relative turnover rate of newly listed stocks (to reflect market speculation intensity). These two indicators supplement the shortcomings of textual analysis from the perspectives of capital flow and trading activity. In terms of the institutional environment, an innovative three-level impact assessment system for policy events is introduced, assigning weights to CSRC announcements according to their market impact. For example, major reforms like the establishment of the STAR Market are assigned a weight of 3, while routine regulatory Q&A is assigned a weight of 1. When determining the weights of each dimension through principal component analysis, a rolling window mechanism is specially set up to adapt to changes in market structure. The final index achieves an R^2 of 0.48 in out-of-sample tests for predicting CSI 300 index volatility, which is an average improvement of 65% over a single sentiment indicator.

The CICI index signals 3-5 trading days ahead of traditional sentiment indicators and successfully captured the emotional transmission path of "leverage stampede-liquidity crisis" during the 2015 stock market crash. As China's largest platform for retail investor communication, East Money Stock Bar has over 5 million daily active users, with comments covering all A-shares, making its data highly representative. In the week ending June 12, 2015, the CICI index's textual sentiment component plummeted by 58%, and the abnormal value of margin buying reached a historical peak, issuing a risk warning two weeks before the peak of the CSI 300 Index. This measurement method, which integrates "group psychology-trading behavior-institutional impact," provides a new perspective on how policy interventions can alter emotional transmission. When regulatory authorities signal structural reforms such as expanding the STAR Market, the policy dummy variable in the CICI index effectively mitigates excessive pessimism in textual sentiment, reducing the marginal impact of sentiment on market volatility by 37%. These findings indicate that, within China's unique "retail investors-policy" dual structure, building sentiment indicators must transcend the limitations of traditional financial variables to more accurately capture the interactive effects of irrational trading and institutional changes.

4 Conclusion

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