The Influence of Investor Sentiment on Stock Market

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Abstract: By combining economics, psychology, and neuroscience, behavioral finance aims to analyze how human emotions and biases influence financial decision-making. The research utilizes the Investor Sentiment Index (CICSI) as a tool to measure market sentiment and examines its correlation with variables such as IPO first-day returns, turnover rate, and new account openings. The findings demonstrate that investor sentiment significantly impacts market behavior. This suggests that individual emotions and cognitive biases play a crucial role in shaping market trends. These conclusions provide valuable insights for investors, financial analysts, and policymakers seeking to better understand and predict market behavior. By incorporating behavioral finance insights into traditional financial models, a more comprehensive understanding of financial markets can be achieved, enabling informed decision-making.

Keywords: sentiment, IPO first-day earnings, turnover rate, number of newly opened accounts

1. Introduction

Due to the progress of global economy and the development of Internet finance, there are lots of abnormal phenomena in the financial market [1]. For example, when the price falls sharply, there is no positive news can make people believe the rational return of price to value; when the price rises, people frantically pursue the premium of ten or one hundred times [2]. This madness cannot be demonstrated by models, which is typically reflected in the stock market. The emergence of behavioral finance makes people have a further study of various financial manifestations [3]. Behavioral finance tries to reveal the irrational behavior and decision-making rules of financial markets [4]. This paper goes deep into the stock market to study its specific performance, and attempts to study the impact of investor sentiment on stocks, so as to complement the theory of behavioral finance.

In this paper, the investor sentiment index (CISCI) is used to specifically reflect the level of investors' emotions, so that the indescribable emotions have an intuitive performance. In this paper, the stock turnover rate, the number of new accounts, IPO first-day earnings and the CISCI at the same stage were compared and used Spearmen correlation test to analyze the correlation between them, and it was found that investors in the high mood period had a greater impact on stock returns than the low mood period. In the following sections, this paper will review the literature to form research hypotheses, then give the construction method of CISCI and specific data of stock market changes,

and then form charts based on the data for analysis and verification, and finally give conclusions and suggestions.

2. Literature Review

Based on the research results of psychology on people's decision-making behavior, behavioral finance has explained many unsolved mysteries in the financial market and become an important field of finance research [5]. Nowadays, it has developed into a modern theoretical system with efficient market hypothesis as the core and capital asset pricing model, mean variance model, option pricing model and other classical models [6]. The intersection of psychology and finance has become an increasingly important area of research, particularly in the field of behavioral finance [7]. By incorporating insights from psychology into financial analysis, researchers have been able to explain a number of phenomena that had previously been difficult to understand.

This interdisciplinary approach has yielded insights into three key areas of financial markets: First, behavioral asset pricing, this involves investors' irrational investment behavior and investment psychology [8]. Second, individual investment behavior, based on psychology and sociology to explain the behavioral deviation of investors [9]. Third, corporate finance, the impact of investors' irrationality on initial public offering (IPO), equity refinancing (SEO) and other issues [10]. Researchers in this area seek to explain deviations from rational decision-making and the impact of these deviations on asset prices. Individual investment behavior examines how psychology and sociology influence the behavior of individual investors [11]. This field seeks to understand why investors may make decisions that are contrary to their own financial interests and how these decisions can impact their portfolios. Finally, corporate finance explores the impact of investors' irrationality on issues such as initial public offerings and equity refinancing. This paper focuses on the impact of investors' irrationality on stock markets, using the investor sentiment index as a key measure. This paper attempts to analyze and find out the relationship between investor sentiment and the key factors affecting the stock market, as well as the role of psychology in financial decision-making, so as to prove the impact of investor sentiment on the stock market. As more and more investors participate in financial markets, the importance of understanding the impact of investor sentiment becomes increasingly apparent, making this an important area of study.

3. Model Construction and Data Discussion

The paper uses the Investor Sentiment Index (CICSI) to reflect the level of investor sentiment more directly. The construction method of the investor sentiment index is as follows:

$$CICSI = 0.223DCEF + 0.329TURN + 0.272IPON + 0.313IPOR + 0.252CCI + 0.392NIA$$

Then, the correlation coefficient and significance level between three kinds of stock market data and investor sentiment index were obtained by Spearmen correlation test. The following is the construction of Spearmen correlation test.

Confirmation of correlation coefficient:

$$p = \frac{\sum_i (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_i (x_i - \bar{x})^2 \sum_i (y_i - \bar{y})^2}} \xrightarrow{In\ practical\ application} p = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

(n is the sample size and p is the correlation coefficient)
Confirmation of significance:
The confidence interval and zero test for ρ are obtained by Fisher transform

$$F(r) = \frac{1}{2} \ln \frac{1+r}{1-r} = \text{arctanh}(r).$$

F(r) is the Fisher transformation of r

$$z = \sqrt{\frac{n-3}{1.06}} F(r)$$

Is the z-value of r, and the significance is

$$t = r \sqrt{\frac{n-2}{1-r^2}}$$

In this paper, the investor sentiment index (CICSI), IPO first-day earning, turnover rate and new account opening number of Cathay database (CSMAR) during the five-year period from January 2018 to December 2022 are selected as samples to sort out and analyze them. At the same time, the consistent index of market interest rate and macroeconomic prosperity in the same period is selected as a comparative analysis.

4.   Empirical Analysis and Discussion

The following table shows the scatter chart and spearman correlation analysis of Investor Sentiment Index (CICSI) and IPO first-day return (IPOR) (see Fig.1 and Fig.2). From the chart, we can find: The scatter chart shows that investor sentiment index has a positive impact on IPO first-day returns. Spearmen correlation coefficient was 0.835, and was significant at the level of 0.01. The clear positive correlation between first-day returns and sentiment indicators suggests that investor sentiment can push up prices and boost returns.
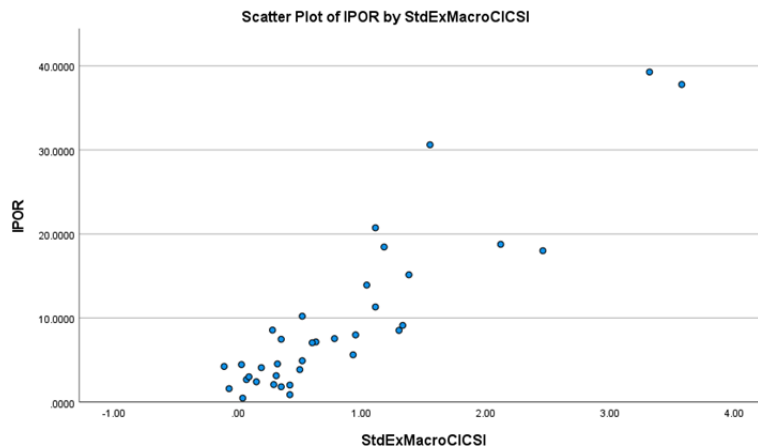

Figure 1: Scatter chart analysis of Investor Sentiment Index (CICSI) and IPO first-day Return (IPOR) during 2018.01-2022.12.

Correlations

			StdExMacroCICSI	IPOR
Spearman's rho	StdExMacroCICSI	Correlation Coefficient	1.000	.835**
		Sig. (2-tailed)	.	<.001
		N	36	36
	IPOR	Correlation Coefficient	.835**	1.000
		Sig. (2-tailed)	<.001	.
		N	36	36

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 2: Spearman correlation analysis of CICSI and IPOR during this period.

The second part of the chart shows the scatter chart and spearmen correlation analysis of the Investor sentiment index (CICSI) and market turnover rate (TURN) last month, which can be found that the investor sentiment index has a positive impact on the market turnover rate last month (see Fig.3 and Fig.4). Spearmen correlation coefficient was 0.825, which was significant at the level of 0.01. The correlation between investor sentiment and market turnover indicates that positive investment sentiment can improve the trading level of the market and increase the activity of stock trading, whereas bad sentiment may play a negative role in the stock market.
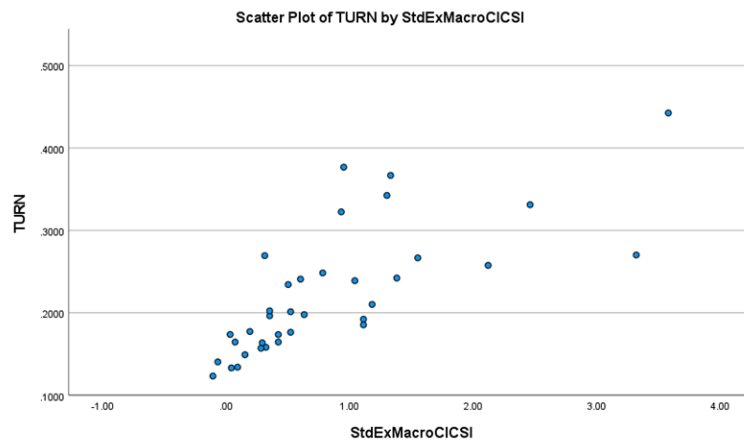

Figure 3: Scatter chart analysis of Investor Sentiment Index (CICSI) and Market turnover rate (TURN) during 2018.01-2022.12.

Correlations

			StdExMacroCICSI	TURN
Spearman's rho	StdExMacroCICSI	Correlation Coefficient	1.000	.825**
		Sig. (2-tailed)	.	<.001
		N	36	36
	TURN	Correlation Coefficient	.825**	1.000
		Sig. (2-tailed)	<.001	.
		N	36	36

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 4: Spearman correlation analysis of CICSI and TURN in this period.

The third section shows the scatter chart and spearmen correlation analysis of the Investor Sentiment Index (CICSI) with new account openings (NIA) in the previous month (see Fig.5 and Fig.6): The scatter chart shows that the investor sentiment index had a positive impact on the number of new accounts opened last month. Spearmen correlation coefficient was 0.566, which was significant at the level of 0.01. Compared with the correlation between IPO first-day earnings and market turnover rate and investor sentiment as high as 0.8, the correlation between the number of new accounts and investor sentiment last month is low, just reaching 0.566. It can be seen that investor sentiment has a certain impact on the number of new accounts opened, but the impact is low. Judging from the overall trend of the scatter chart, good investment sentiment can increase the number of new accounts to a certain extent and promote the capital inflow in the stock market.
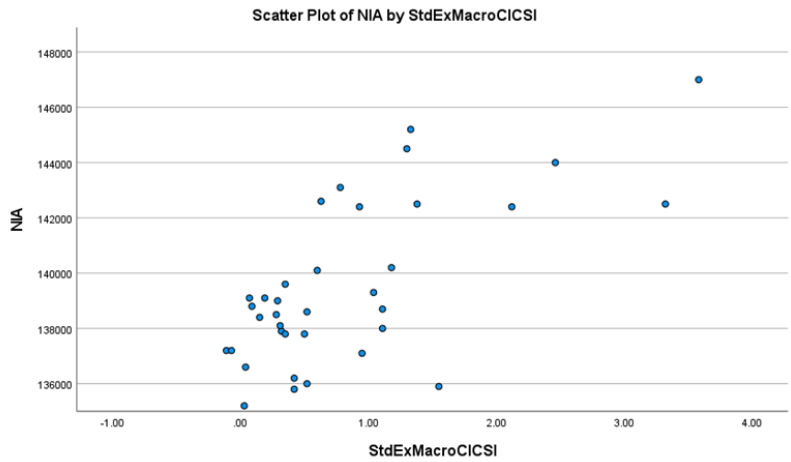

Figure 5: Scatter chart analysis of Investor Sentiment Index (CICSI) and Number of new accounts opened (NIA) during 2018.01-2022.12.

Correlations

			StdExMacroCICSI	NIA
Spearman's rho	StdExMacroCICSI	Correlation Coefficient	1.000	.566[**]
		Sig. (2-tailed)	.	<.001
		N	36	36
	NIA	Correlation Coefficient	.566[**]	1.000
		Sig. (2-tailed)	<.001	.
		N	36	36

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 6: Spearman correlation analysis of CICSI and NIA in this period.

In order to exclude the influence of other factors on stock returns, this paper also selects the consistent index of market interest rate and macroeconomic prosperity in the same period (see Fig.7-Fig.10). Correlation analysis was carried out with IPO first-day returns respectively, and the results are shown in the following table. It can be seen that neither the market interest rate nor the degree of macroeconomic prosperity has much correlation with stock returns, and the scatter chart clearly shows that the two have little correlation with short-term stock returns.
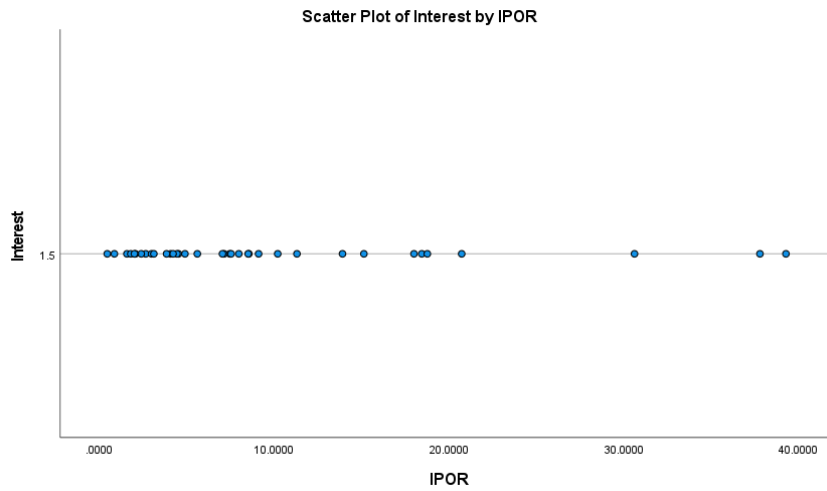
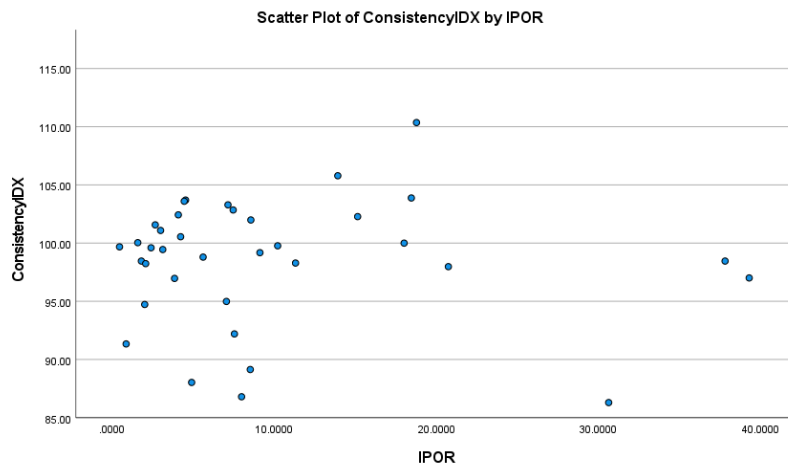Figure 7: Scatterplot analysis of IPO first-day return (IPOR) and interest rate levels during 2018.01-2022.12.

Figure 8: Scatter chart Analysis of IPO first-day Return (IPOR) and Economic sentiment Index during 2018.01-2022.12.

Correlations

			IPOR	Interest
Spearman's rho	IPOR	Correlation Coefficient	1.000	.
		Sig. (2-tailed)	.	.
		N	36	36
	Interest	Correlation Coefficient	.	.
		Sig. (2-tailed)	.	.
		N	36	36

Figure 9: Spearman correlation analysis of IPOR and interest rate in this period.

Correlations

			IPOR	ConsistencyIDX
Spearman's rho	IPOR	Correlation Coefficient	1.000	.051
		Sig. (2-tailed)	.	.767
		N	36	36
	ConsistencyIDX	Correlation Coefficient	.051	1.000
		Sig. (2-tailed)	.767	.
		N	36	36

Figure 10: Spearman correlation analysis of IPOR and economic climate index in this period.

Through comparative analysis, we conclude that investor sentiment is an important factor affecting short-term stock returns. These findings suggest that investor sentiment is a crucial factor in shaping the behavior of the stock market. The scatter chart analysis reveals that investors' sentiment during periods of high mood has a more significant impact on stock returns than during periods of low mood. Thus, it can be concluded that investor sentiment affects the price fluctuation of the external stock market by influencing internal factors such as IPO returns, turnover rate, and the number of accounts. Overall, investor sentiment is a key factor that can influence the behavior of individual investors and the overall performance of the stock market. When the investor sentiment index is high, it indicates that the level of investor sentiment is rising, and investors may become more optimistic and less rational in their decision-making. This can lead to deviations from the norm and affect the behavior of other investors in the market, resulting in higher turnover rates and the number of new accounts opened.

5. Conclusion

This paper presents compelling empirical evidence that substantiates the hypothesis positing the significant influence of investor sentiment on various stock market indicators. Employing meticulous research methods, the study examines the correlation between investor sentiment and key indicators such as IPO first-day returns, market turnover rate, and the number of newly opened accounts. The results reveal a robust positive correlation between the investor sentiment index and these indicators, underscoring the pivotal role of investor sentiment in shaping stock market behavior.

In the process of research, this paper also tries to use some existing theories to verify and explain the impact of investor sentiment on stocks. The noise trading theory of behavioral finance suggests that some investors may trade based on inaccurate or incomplete information, resulting in a higher level of noise in the market. This can lead to increased volatility and a higher turnover rate, as investors react to perceived signals that may not be based on sound fundamentals. The limited attention theory of behavioral finance also helps to explain the impact of investor sentiment on the stock market. This theory suggests that investors may have limited attention spans, and may focus on a few key pieces of information, while ignoring other important factors that could affect their investment decisions. This can lead to herd behavior and an increased level of market volatility, especially when investor sentiment is high. The core conclusions of the study corroborate the premise that investor sentiment significantly affects stock market dynamics. During periods of elevated investor sentiment, rational decision-making tends to wane, influencing the behavior of fellow investors and culminating in amplified turnover rates and a surge in newly opened accounts. The study also emphasizes the instrumental nature of the sentiment index as a reliable tool for predicting stock market performance and its wider implications for stimulating economic growth.

The paper concludes by furnishing invaluable insights for both investors and policymakers. Investors are admonished to diligently maintain a rational perspective, foster independent thinking, and meticulously analyze price fluctuations to make well-informed investment choices. Additionally, the study underscores the imperative for further research to explore the limitations of the current study and delve into future prospects. Policymakers are urged to account for the impact of investor sentiment on the broader economy and formulate judicious policies accordingly.

In summary, this paper represents a compelling empirical demonstration of the profound influence of investor sentiment on stock market indicators. The findings robustly affirm the central role played by investor sentiment in shaping market behavior. By assimilating these insights from the realm of behavioral finance, investors can navigate the stock market with enhanced acuity, while policymakers can adroitly consider the implications for fostering economic growth. Further research is warranted to scrutinize the limitations and untapped potential of the present study, thereby advancing our understanding of investor sentiment's multifaceted effects.

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