

# Investor sentiment and stock prices

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**Abstract:** *With the development of China's stock market, emotions play an important role in stock price fluctuations. This paper selects the monthly data of the investor sentiment composite index and the closing price of the CSI 300 Index from January 2017 to November 2022, uses the least squares method to study the long-term and short-term relationship between investor sentiment and stock market prices, and then analyzes the dynamic relationship between the two based on the VAR model by using the impulse response function. The study found that investor sentiment and stock market prices have a stable equilibrium relationship in the short and long term, and in the short term, the two will produce a positive impact on each other, but this positive impact will not last long.*

**Keywords:** *investor sentiment, stock prices, behavioral finance*

## 1. Preface

### 1.1. Research Background

#### 1.1.1. Practical background

Frequent events such as the "black swan" and "grey rhino" have put forward new requirements for understanding and predicting market conditions. In addition to the "hard" indicators that measure the market and the economy, market participants urgently need emotional "soft" indicators to reflect current and future market volatility. With the development of behavioral finance in recent decades and being widely accepted by the academic and practical circles, investor sentiment has been regarded as an important phenomenon in the international financial markets. Investor sentiment is the expectation of investors on the future returns and risks of assets, and it is a belief formed by investors based on the expectation of the future cash flow and investment risks of assets. But this belief does not fully reflect the existing fact, investors information acquisition and processing process of decision-making behavior inevitably affected by psychological bias, sometimes insufficient response to the message or overreaction, for assets can create the future cash flow size and risk change, it is difficult to make an accurate assessment. This is a "subjective and objective" comprehensive evaluation of the future value of the assets by investors. Optimistic or pessimistic investors can drive asset value well above or below the underlying value predicted by traditional valuation models. From a theoretical point of view, the restrictions of arbitrage and the changes of noise traders will make the stock pricing deviate from the fundamentals, thus leading to the fluctuation of stock yield, that is, the growth of stock profits is attributed to the optimism of investors, while the subsequent change of earnings is related to the fluctuation of investor sentiment. Many studies have shown that emotions will affect investors' decision-making behavior, especially when the emotion is very social, people's behavior will tend to be consistent under the action of the social interaction mechanism, resulting in everyone to make the same mistake and market mispricing phenomenon[1-2].

#### 1.1.2. Theoretical background

Traditional financial theory assumes that all investors are rational and homogenous, the market information is symmetrical, and the stock prices can reflect all the information that investors need, so that no one will earn excess profits, and the market is effective. However, the stock market often encounters abnormal phenomena that cannot be explained by the classic financial theories, such as the herd effect, the sharp rise and fall of stock price, the mystery of stock premium, the mystery of closed-end fund, the media effect of financial asset price bubble and so phenomena. Especially in the market noise period, the return of the market price speed even change direction will be beyond the scope of traditional finance in order to find able to better explain these points of theory, economists proposed behavioral finance theory of psychology, economics and sociology, as a result, most of the financial abnormalities can get rational explanation. According to behavioral finance, market

information is asymmetric and investors' rationality is limited, which leads to irrational market performance. Therefore, it is necessary to study the psychological activities of investors. Nowadays, the development of the Internet has led to great changes in information dissemination, including the diversification of information media, complex communication channels and the authenticity of information, which leads to more obvious psychological changes of investors, unreasonable investment behavior and a great impact on the normal operation of the stock market. At present, the relationship between investor sentiment and stock market volatility has attracted the attention of scholars, and what role of investor sentiment plays in it is a subject worthy of further study.

## ***1.2. Literature review***

### ***1.2.1. Research on investor sentiment***

In 1963, the term "investor sentiment" appeared. Researchers compiled the bear market sentiment index based on the stock market data and the stock market situation at that time, but the definition of the concept of investor sentiment has not been unified. Lee Shleifer & Thaler (1990) believes that the reason for investor sentiment is that the irrational psychology hinders the correct cognition of investors, and the cognitive deviation leads to the imbalance of investors' judgment on the stock market. Wang Meijin, Ji'an-jun sun (2004) found that the change of investor sentiment and Shanghai and Shenzhen two city earnings between significant relationship, and significantly reverse correction Shanghai and Shenzhen two city earnings volatility, and through the risk reward affect earnings, the Shanghai and Shenzhen two cities not only has the same investor behavior and risk return characteristics, and have not reached weak type effective. Baker & Wurgler (2006) explains investor sentiment from the perspective of investment return, and defines it as a subjective belief reflecting their own risk attitude and expected return. Yi Zhigao and MAO Ning (2009) believe that investors' expectations of return on assets and risk are closely related to investors' own educational experience, investment experience and knowledge, information and preferences. Wang Chun and Zhang Wei (2012) agree with Baker & Wurgler's definition of investor sentiment, believing that the purpose of studying investor sentiment is to explore how irrational investors' behavior can affect the change of stock prices. The research results of Yao Yuan, Zhong Qi, et al. (2019) show that the more noise traders, the greater the impact on the stock market, and the stronger the volatility of the stock market. The study by Wang Daoping (2019) shows that in the same period, Chinese investors' confidence in domestic economic fundamentals and the fluctuation of Chinese stock market will affect their confidence in the international economic and financial environment; In the medium and long term, the change in confidence in domestic economic fundamentals and domestic economic policies in Chinese investor sentiment is an important reason affecting the excessive volatility of Chinese stock market[3-4].

### ***1.2.2. Research on the construction method of investor sentiment index***

Investor sentiment index refers to the use of different constructs to measure investor sentiment reflected by data information. Investor sentiment index mainly selects the single index method and the composite index method. The single index- -Poji is the basic component of the composite index. The selection of the indicators is more flexible, mainly including direct market survey data and indirect market variables, but the composite index has more theoretical advantages. The more famous and authoritative composite index of investor sentiment is the BW index proposed by Baker & Wurgler in 2006. By selecting six variables and using principal component analysis to construct a BW index reflecting investor sentiment, Baker & Wurgler proves that investor sentiment can predict the returns of stocks. Yi Zhigao, Mao Ning, Ma Yong, Li Xiang, Li Yuan, Wu Feifei and Hu Changsheng, respectively, selected a comprehensive index according to the consumer confidence index to better measure the investor sentiment of the Chinese stock market. Principal component analysis can eliminate the influence of noise on investor's mood, overcome the noise needs to meet the discrete state, and obey the constraint of Gaussian distribution, which is more compatible with the actual situation and persuasive.

### ***1.2.3. Literature review***

Through the review of the existing literature, it can be seen that the research on investor sentiment has been very detailed, and the scholars have deeply discussed the impact of investor sentiment on the stock market. It is found that the change of investor sentiment can explain the existence of high risk and low return and differences in the stock market bubble, and different stock market conditions have different effects of investor sentiment. However, the above research results are not in-depth enough for the long-term and short-term research. Therefore, this paper intends to explore the different

performance of the correlation between stock prices and investor sentiment in the long and short term, in order to provide a new idea for the study of the volatility of stock returns and investors' investment decisions.

In conclusion, this paper uses the principal component analysis method to construct the investor sentiment index, and uses the VAR model to explore the impact of investor sentiment on the stock price.

### **1.3. Research means**

The literature review was conducted first. Through a lot of reading literature research related to the topic of this paper, the relevant concepts such as investor sentiment and related theories such as market effective hypothesis, behavioral finance theory to form a whole impression, understand the history of the securities market and frontier dynamic and in the process of reading literature learning related mathematical model and empirical method, lay a certain foundation for the follow-up research in this paper.

Secondly, we construct theoretical models for research. Based on the model constructed by predecessors, it introduces investor sentiment, conducts a series of derivation and analysis, and extracts feasible proposition assumptions for the empirical test of the later article.

Finally, an empirical analysis was performed. Firstly, the research on investor sentiment affecting their investment behavior and then the stock price is reviewed. On the basis, the theoretical hypothesis is proposed to analyze the logical relationship between investor sentiment and the stock price. Secondly, the investor sentiment, investor behavior and stock income are reviewed, analyzed and derived the research hypothesis. Using Stata and Eviews software, to study the impact of investor sentiment on stock prices.

### **1.4. Research Significance and innovation**

Under the background of the special system of China's securities market, this paper analyzes the different degrees of long and short term influence of stock prices from the perspective of investor sentiment. It is beneficial to improve the investment efficiency of investors and improve the cognition of the factors causing the volatility of the securities market, and expand the application field of behavioral finance in the capital market. A comprehensive analysis of the influence mechanism of the change of investor sentiment on stock returns, thus forming a more rigorous research logic, is conducive to China's financial regulatory authorities to accurately grasp the law of stock market fluctuations and prevent and defuse systemic financial risks[5-6].

## **2. Research theory**

### **2.1. Effective market hypothesis**

The effective market hypothesis has three assumed bases from strong to weak.

The first is the weak effective market hypothesis. Weak effective is not equal to the market in the worst condition, but the stock market price has very comprehensively reflects the relevant historical information, such as stock price and stock volume, and historical data does not predict the future of the stock market to help investors to obtain excess returns although from the past data mining value information is very difficult, but there are still some investors to collect information from other channels to profit.

The second is the semi-strong effective market hypothesis. Finally, the strong and effective market hypothesis. The market state means that the effectiveness of the market reached the highest value, in this stage, contains public or internal private information have been fully integrated into the stock price, and stock price in turn projected the current operation of listed companies, so if all market participants can make completely rational analysis and judgment, so it is possible to obtain excess returns.

If we judge that the market is in the weak and effective state, then the market cannot be in the semi-strong or strong stage; while the market is in the weak state, and when the market is in the strong and effective stage, the weak and semi-strong state must exist. This is similar to the inclusion relationship in mathematics. Therefore, there will not be a certain stage in the market for a long time,

and the same state of different markets is not the same. As the development of China's securities market is slower than that of developed countries, it is understandable that the market is in a state of low efficiency.

At present, whether the market has excess stock market is determined by scholars as a measure of whether the stock market is effective. In investors is a rational man, the effective market hypothesis theory application got great recognition, but under the empirical test, but found about abnormal stock prices, investor behavior research and effective market hypothesis voice, stock earnings volatility beyond the normal range, share price boom in the effective market hypothesis was questioned.

## 2.2. Behavioral finance

Through a large number of research and analysis of psychology, sociology and economics, the theory of behavioral finance is put forward to make up for the deficiency of modern finance theory (such as effective market hypothesis). After deeply analyzing the differences between traditional theory and behavioral finance theory, scholars introduced the psychological factors of investors in investment decisions, and found that behavioral finance theory can reasonably explain the abnormal phenomena in the securities market, and revealed the mechanism of these abnormal phenomena.

This paper mainly applies to the theory of expectation. "Expectation" is the expression of various risks. Investors do not follow the various axioms of utility theory, but make arbitrary choices according to their own psychological activities. In general, an investor's reaction to the same scenario depends on his profit-loss status. Assuming the same amount, investors are more depressed when they lose money, but less happy when they make money. Simply put, a person is more painful to lose a penny than to find a penny. The expectation theory is the concept of utility in terms of a value function. Since the expectation theory was put forward, great progress has been made in the research of theory and application. Using the value function, it is found that many differences that can not be explained by the traditional financial theory can be reasonably revealed. The Allais paradox, the mystery of stock premium and other phenomena can be explained by the loss aversion of investors.

## 3. Study design

### 3.1. Construction of investor sentiment indicators

Table 1: Investor sentiment indicator system

metric	economic implications	Relationship with investor sentiment
Number of new Investor accounts opened last month (NEW)	Reflect the enthusiasm of OTC or potential investors for the capital markets or the need to participate in securities trading	syntropy
Consumer Confidence Index (CCI)	It reflects consumers' evaluation of the current economic situation and the subjective feelings of the economic outlook and the psychological state of future income	syntropy
Last Month Trading Volume (TURN)	It reflects the participation of investors in stock investment and the liquidity of the market	syntropy
Number of IPO (IPON)	Reflects the number of companies offering initial public offerings	syntropy

Referring to the research of Yi Zhigao and MAO Ning (2009), considering the problem of data availability, this paper selects four important indicators from the domestic financial market to construct the investor sentiment index system, as shown in Table 1.

The number of new investor accounts opened (NIA) last month reflects the enthusiasm of over-the-counter investors to participate in the floor trading. When investors are bullish on the stock market, the investment enthusiasm is high, prompting them to open accounts into the market to invest. On the contrary, when investors are not optimistic about the market and expect the future trend of the market to show a downward trend, investors will wait and choose to delay entering the market or invest in other products with less risk.

Consumer confidence index (CON) in theory, investor confidence index should be more than consumer confidence index can reflect investor mood change, but considering the availability of data, and many scholars also found that CCI can better measure the change of investor sentiment, such as Xue Fei (2005) research found that the National Bureau of Statistics of CCI can reflect the mood of

Chinese investors, so this paper selects CCI as emotional proxy index[7-9].

Last month's trading volume (TURN) partly reflected the liquidity of the market (Baker & Stein, 2004), and it also reflects the participation of investors and stocks when investor sentiment is high. Considering that the size of China's stock market is in a period of rapid development, both the number of stocks and the market value of stocks are constantly expanding, and the transaction scale is bound to continue to rise. Therefore, the monthly trading volume (Shanghai and Shenzhen) is divided by the monthly circulating market value (Shanghai and Shenzhen) to eliminate the impact of market size expansion.

In the stock market, there is often the phenomenon of "hot market" and "cold market". The low IPO return is the result of the market timing choice, that is, the IPO timing choice problem. Therefore, the number of IPOs (IPON) can better reflect the enthusiasm of investors, and is a positive indicator of mood.

### **3.2. Data source and pre-processing**

#### **3.2.1. Data and processing of investor sentiment indicators**

A-share listed companies from 2017 to 2021 are selected as the sample. The stock trading data of listed companies are from the Wind Database, the database of the National Bureau of Statistics, and the official website of China Securities Registration and Clearing. Principal component analysis is used to extract information from numerous variables to construct comprehensive investor sentiment factors. This paper adopts the stock price change index, selects the closing price representative of CSI 300 index, the sample of CSI 300 index is selected by the scale and liquidity, and investors' trading provides liquidity for the market, which can well reflect the situation of the whole market.

#### **3.2.2. Description of the control variables**

Considering the macroeconomic cycle variables of representative and monthly data available, this paper respectively from three aspects of production, consumption and economic boom selected the added value of industrial production, consumer price index, industrial factory price index and macroeconomic climate index four indicators as economic fundamentals of fundamental factors.

### **3.3. Study hypothesis**

Through the sorting of the above literature and data, the transmission mechanism of media attention influence on stock price is to cause investors' emotional change or information asymmetry through media information, leading to the change of stock price. Based on this, the following assumptions are made:

H1: Investor sentiment is influenced by media attention and then affects stock prices.

To test the above hypothesis, this paper will measure its impact on stock prices by constructing investor sentiment indicators. The empirical analysis of the influence of investor sentiment on China's stock price mainly uses VAR model, Granger causality test and impulse response function.

### **3.4. Model construction**

To verify the impact of investor sentiment on the stock price, the VAR model is adopted. Traditional econometric method (such as structural methods such as equation model) is based on the economic theory to describe the variable relationship model, but economic theory is usually not enough to provide a dynamic link between variables rigorous theoretical support, and because the endogenous variables can appear in the left end of the equation and can appear in the right end of the equation makes estimation and inference become more complex. VAR models are often used to predict interrelated time-series systems and to analyze the dynamic shocks of random disturbances on variable systems so as to explain the influence of various economic shocks on the formation of economic variables. Therefore, the vector autoregression model is used to analyze the relationship between investor sentiment and stock price. The measurement software used was stata and Eviews.

4. Analysis of the empirical results

4.1. Principal component analysis

Table 2: KOM and Bartlett tests for sentiment indicators

KMO	Bartlett
0.673	625.857

First, the KMO test and Bartlett spherical test were performed, and the KMO value, greater than 0.5, indicated suitability for component analysis. The Bartlett values were significant, indicating collinearity between these variables and requiring principal component analysis.

Table 3: Factor feature values and cumulative variance contribution rates

variable	eigenvalue	Cumulative variance contribution rate
Number of new investors / households (new)	2.19943	0.5499
Consumer Confidence Index (CCI)	1.18348	0.8457
Volume / 10-thousand shares (TURN)	0.45106	0.9585
Number of IPO (IPON)	0.166023	1.000

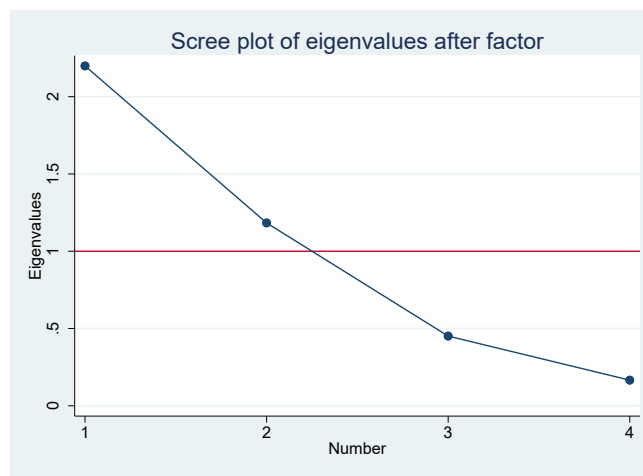


Figure 1: Gre plot of principal component analysis

Secondly, the principal components were extracted from the eigenvalue and cumulative variance contribution rate, see Table 2 and Table 3. The principal components with eigenvalue greater than 1 were extracted, and the cumulative variance contribution rate of the two principal components was large. Draw the gravel diagram, as shown in Figure 1. Judge the number of principal components selected according to the slope of the curve in the gravel diagram. There are two variables above the 1 value, and the cumulative variance contribution rate of the two principal components extracted is large. Therefore, the main components are the number of new investors and the consumer confidence index.

Table 4: Factor load matrix

variable	factor1	factor2	uniqueness
Number of New Investors (NEW)	0.5982	0.7134	0.1331
Consumer Confidence Index (CCI)	-0.5409	0.7165	0.194
Trading Volume (TURN)	0.9129	0.2489	0.1047
Number of IPO (IPON)	0.8459	-0.315	0.1852

Then, in the reporter load matrix, the uniqueness values of the variables were less than 0.6, all normal with no outliers, as shown in Table 4 and Table 5.

Table 5: Principal component scores

variable	f1	f2
Number of New Investors (NEW)	0.57893	0.17452
Consumer Confidence Index (CCI)	0.16578	0.57532
Trading Volume (TURN)	0.45832	-0.18585
Number of IPO (IPON)	0.14849	-0.46600

Then, the principal component score is calculated to prepare for calculating the investor sentiment indicators. Based on the feature value and contribution rate and the component matrix:

$$Z1=0.57893 \text{ NEW}+0.16578 \text{ CCI}+0.45832 \text{ TURN}+0.14849 \text{ IPON}$$

$$Z_2=0.17452 \text{ NEW}+0.57532 \text{ CCI}-0.18585 \text{ TURN}-0.46600 \text{ IPON}$$

Finally, the comprehensive index is calculated, and the extracted principal components are combined into investor sentiment indicators according to the proportion of the variance contribution of individual principal components to the cumulative variance contribution of the extracted principal components. According to the formula: the ratio of the comprehensive principal components = the ratio of the respective weight to the total weight multiplied by the sum of the corresponding principal components, the comprehensive mood index is:

$$\text{settlement} = 0.6502Z_1 + 0.3497Z_2$$

**4.2. Stability test**

*Table 6: Stability test results*

variable	p price	ADF statistics	The 1% cut-off value	The 5% cutoff	The 10% cut-off value
settlement	0.4592	-1.646	-3.559	-2.918	-2.594
Indicators of investor sentiment	0.0009	-4.133	-3.559	-2.918	-2.594
First-order differential closing price	0.0000	-7.473	-3.567	-2.923	-2.956
First-order differential investor sentiment indicator	0.0000	-9.702	-3.567	-2.923	-2.956

For subsequent modeling of the time series, the two sequences were first tested for stationarity. The ADF test value of investor sentiment is -4.133, which is less than the critical value of -3.559, which is stable, and the P value of 0.0009 is less than 0.05 for subsequent modeling. The closing price ADF test value of CSI 300 index is -1.646, greater than the critical value of -2.594, non-stable, P value is 0.4592 is greater than 0.05, the original sequence of non-stationary sequence is treated by difference method, after the first order difference, the ADF value is -7.473, less than the critical value of -3.567, that is, the closing price variable of CSI 300 index after the first order difference is stable, so there is no problem of false regression, as shown in Table 6.

**4.3. VAR model**

It can be seen from the stability test that the investor sentiment index is deceiving to me. After the monthly closing price and the first order difference is stable, VAR modeling can be performed. To obtain the regression equation.

Closing price = 235.4562 investor sentiment indicator + 3157.404+, which is the residual difference.

*Table 7: Results of the ADF test for the residuals*

variable	p price	ADF statistics	The 1% cut-off value	The 5% cutoff	The 10% cut-off value
residual	0.0424	-2.926	-3.559	-2.918	-2.594

The residuals of the model are tested, see Table 4. From Table 4, at the level of 5% significance, the P-value of the residual test is less than 0.05, through the stationarity test. There is a long-term equilibrium relationship between the investor sentiment indicator variable and the closing price variable, as shown in Table 7.

In order to investigate the short-term dynamic relationship between investor sentiment index and closing price after the first order difference, the above model is modified:

D. The closing price = 70.38346 investor sentiment indicator - 0.672197 +, which is the residual difference.

According to the model, there is a short-term dynamic relationship between investor sentiment and the monthly closing price. The first-order difference coefficient of investor sentiment is positive, and the change of sentiment has a positive stimulating effect on the stock price. It also shows that there is a stable equilibrium relationship between investor sentiment and stock price fluctuations in the short term. As can be seen from the equilibrium relationship, China's stock market is still an emerging market, specifically whether the stock price is still impacted by investor sentiment. The reason may be that there are many individual investors in the Chinese market, and their ability to predict the market is not systematic, and they are easy to blindly follow the trend of investment [10-12].

**4.4. Model robustness test**

There are two methods to test the stability of VAR model: feature root table method and feature root

map method. In this paper, the feature root map method is used to test the stability of VAR model. The results show that the modules of all feature roots are in the unit circle and the model is stable, as shown in Figure 2.

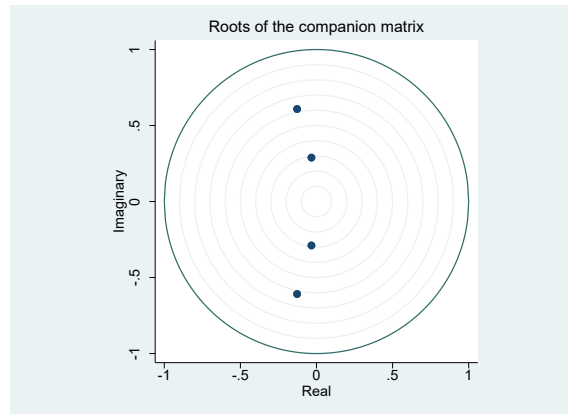


Figure 2: Robustness test of the VAR model

The graph and the unit root are in the unit circle, so the VAR model is robust and can lay the foundation for the following analysis and inspection.

4.5. Granger causality test

The Granger causality test was used to examine the causal relationship between economic time series variables. Table 8 shows the results of the VAR model performing the Granger causality test.

Table 8: Results of the Granger causality test

hypothesis	P price	result
Investor sentiment is not the reason for d closing price	0.06544	Refusing the null hypothesis
The d closing price is not the reason for the d investor sentiment	0.002077	Refusing the null hypothesis

As can be seen from Table 8, the P values are all less than 0.1, indicating that at the 10% significance level, the null hypothesis does not valid, namely that investor sentiment and the closing price influence each other. Investor sentiment as the price changes is obviously the characteristics of retail investors, retail on the operation of listed companies and the future development prospects without accurate judgment, when the stock price rise, investors will tend to chase, and when the stock price fell, investors are eager to sell, characterized by "chase after go up an exodus" phenomenon. On the contrary, institutional investors are rational, have the ability to predict stock price changes, and hold good performance stocks, and can rationally buy and sell stocks. If institutional investors are majority in the market, price changes will not cause violent fluctuations in investor sentiment, sentiment is not easy to have a significant impact on prices.

4.6. Pulse response function analysis

The following is a positive standard deviation impact on the investor sentiment index, the pulse response function of the stock closing price, and a positive standard deviation impact on the stock closing price, and the pulse response function of the investor sentiment index is shown in Figure 3.

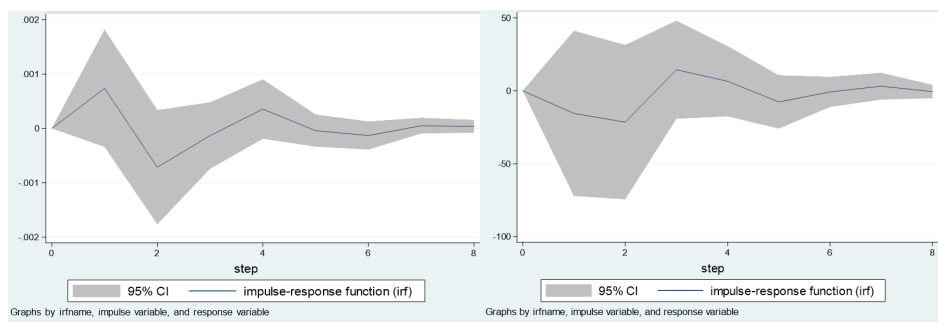


Figure 3: Pulse response results in Fig



Figure 3 shows that the stock market price in the early investors has a positive impact, which means that if the stock prices rise, can quickly stimulate investors' sentiment, but as time goes on, the impact will gradually decline, investors high sentiment will gradually weaken, the reason may be that investors have risk aversion, and risk aversion is greater than the preference. After a stock price rises for a period of time, they are worried that the stock price will fall, and the high mood will gradually calm down over time, when investors often choose to sell the stock in time to lock in profits. Some investors may even appear pessimistic mood, think after the stock prices will fall, so in the stock prices fell this time, will have a negative impact on investor sentiment, but these impact finally slowly tend to 0, change the impact of investor sentiment will soon dissipate, will not exist for a long time.

Investor sentiment also has a positive impact on stock market prices, which means that high investor sentiment can stimulate stock price increases, which is in line with our stock market situation.

## **5. Conclusion and Suggestions**

### **5.1. Conclusion**

In recent years, in the face of phenomena in the financial market, investors' irrationality has become one of the priorities of behavioral finance research, and scholars focus on the deviation of stock price caused by investors' irrational behavior. Investor sentiment is regarded as a key factor in the future forecast of stock prices. On the basis of the study of basic value and price, the study of investor sentiment is included in the price analysis system. The investor structure of individual investors determines that the returns in China's stock market may be influenced by investor sentiment to some extent; at the same time, the stock price may give feedback on investor sentiment and thus influence the behavior decision. Based on the above assumptions, this paper focuses on China's stock market, takes the investor sentiment in behavioral finance as the core, and analyzes the impact of investor sentiment on China's stock market.

After sorting out the domestic and foreign literature and theories related to investor sentiment, this paper uses the principal component analysis method to construct the Chinese investor sentiment index. On this basis, the VAR model is used to deeply analyze the impact of investor sentiment on the volatility of China's stock market. Empirical results show that: (1) investor sentiment is an important factor affecting the stock market volatility, investor sentiment and stable equilibrium relationship between stock price changes (2) the stock market price fluctuations can affect investor sentiment, investor sentiment and mutual influence mechanism between the stock price, in the short term will produce a positive impact, namely the rising stock price can stimulate investor sentiment, and investor sentiment will also make the stock price rise but the positive impact time will not last for a long time.

### **5.2. Suggestions**

#### **5.2.1. Suggestions to investors**

The large proportion of individual investors has always been one of the characteristics of China's stock market. The gap between the number of individual investors and institutional investors has caused many problems in the market. The adequacy of market information disclosure in China is not high. Individual investors are influenced by their professional knowledge and investment experience, and their behavior decisions are usually irrational, and the herd effect is obvious in chasing the rise and killing the fall. Compared with individual investors, institutional investors are more professional and have rich investment experience. They can usually to make rational decisions and set long-term expected goals. Based on the differences in the number and characteristics of individual investors and institutional investors, this paper puts forward countermeasures and suggestions for institutional investors and individual investors respectively.

Strengthen training for institutional investors to strengthen their strength. The reason why institutional investors generally outperform individual investors in behavioral decision-making is their professional knowledge and rational judgment. In the face of market changes, decisions produce small deviation, high stability of investment returns, and low probability of serious losses. However, due to the inadequate disclosure of information in the market, the prevalence of agency problems, and the absolute disadvantage in the market number, institutional investors are still not strong enough. Therefore, the purpose of strengthening training for institutional investors to strengthen their strength is to improve the proportion of investors in the market, which is of great significance for optimizing the

investor structure. With the continuous improvement of the market, the feasibility of strengthening product innovation and reforming the management system is constantly improving, and it is expected to improve the current situation of institutional investors in the market in terms of scale and quality.

Strengthen education for individual investors, cultivate rational thinking, and enhance risk awareness. As the main subject in China's market, the influence of individual investors on the stock market cannot be underestimated. Individual investors' level of professional knowledge is not high, the risk awareness is not strong, the behavior decision is not rational, and the herd effect is very serious. On the one hand, individual investors should actively cultivate rational thinking and avoid blind obedience. The herd effect in China's market is significant. Most investors lack the ability to think independently, or they are unwilling to adhere to their own judgment, and blindly follow the group to make decisions. This kind of strong imitation of the irrational behavior is easy to make the stock price fluctuate violently and deviate from the actual value, so that it is difficult to achieve good investment performance. Therefore, individual investors should learn to summarize their past investment decisions, analyze the reasons for past successes and failures, do not be too confident in the face of success, and do not regard failure as accidental. Although should not rely too much on the information of the past, but it is very important to sum up experience, the failure of the past is largely the consequences of irrational decisions, investors should get warning from the actual loss, although it is difficult to improve from a failure of all performance, but gradual progress will present good feedback after accumulation. Individual investors should first be aware of their lack of professional level, and in the psychological state will not have the motivation to improve themselves. While realizing their own shortcomings, you should be in awe of the market. This awe does not encourage investors to wait or exit the market, but in the face of the rapidly changing market and the huge volume of information, investors cannot have the knowledge capacity covering the whole market, so it is impossible to fully grasp the market trends. Individual investors need to improve from themselves to take action. Now the Internet platform can provide a lot of information, whether real-time news or professional courses, can get suitable information from the network, in the process of learning this need to insist for a long time, individual investors to cultivate their firm faith, only enough effort, to establish independent thinking ability, make decisions and judgment can give good performance feedback. On the other hand, individual investors can obtain professional guidance from the outside, among which investor education is the most common method. In addition to their low professional level, individual investors have a serious defect in their lack of risk awareness. A large proportion of investors do not regard buying and selling stocks as investment, but give them the nature of lottery and lack a correct understanding of the financial market. The stock market is very mysterious for many individual investors, especially those who are not in the economic and financial industry, and their understanding of the stock market is generally low. The desire to make profits from financial markets you don't know is speculative. Individual investors lack of understanding of risk lead to frequent trading and decision-making, the lack of rational behavior usually unable to obtain expected earnings, and investors may not attribute investment failure to themselves, but narrowly defined as bad luck, not sum up experience from failure, cause always unable to improve investment performance. Regular investor education organized by relevant departments is an effective way for individual investors to obtain professional guidance from the outside. The form of investor education forum can be held regularly or irregularly to guide investors to join in the study. The investor education forum comprehensively explains the risks to investors in the market, allowing investors to reduce their speculative psychology, establish a correct understanding of risks, evaluate their own risk tolerance level, and learn to control the risk at an acceptable level through asset allocation. In addition to the investor education forum, relevant departments can also set up official website accounts such as microblogs and public accounts through the Internet, so that investors are not limited by time and space to learn, and open the online interactive platform to give investors opportunities to ask questions and communicate. Different from the information searched by investors themselves, the information published by the official website account is reliable and will not mislead investors and save investors the time and energy needed to retrieve large amounts of information. Individual investors improve their investment ability through both internal and external aspects, which not only helps to make rational decisions to earn profits, but also contributes to maintaining the stability of the financial market.

### ***5.2.2. Recommendations at the regulatory level***

China's stock market has not developed for a long time. With the gradual development of the market, the supervision is also improving in the exploration. Restricted by personnel technology, professional experience and regulatory concept and other aspects, there is still a lot of room for progress in China's market supervision. Investor sentiment and the operation of the market are closely related to the regulatory level, and the impact of good supervision on investors, the financial market and the society

as a whole cannot be underestimated. In view of the defects existing in the actual situation of the Chinese market supervision mechanism, this paper puts forward the following countermeasures and suggestions.

We will build and improve the market risk index system. Market risk is one of the key observation objects of supervision. The existing market risk indicators in China have problems such as low richness and imperfect system. Relevant departments should strengthen and improve the market risk index system, formulate appropriate indicators from a diversified perspective to reflect the market conditions, eliminate the dark zone of monitoring, and strengthen the analysis of real-time data. Risk index system is mainly used to deal with the abnormal situation in the market, to deal with abnormal situation first need the right early warning plan, and early warning plan is not in when emergency, estimate the hidden dangers in the market, for the record, to in a short time to match the abnormal situation. At the same time, with the continuous development of the financial market, the linkage between different assets shows a trend of strengthening, which leads to the accelerated transmission speed and wider spread of risks, which may cover the impact on the financial market to other fields. This requires the regulatory level to have a macro perspective, not limited to the analysis of the financial market, but to comprehensively consider the setting of the early warning mechanism from the perspective of the whole society, in so as to achieve the maximum utility.

Second, the market regulatory authorities to strengthen prior supervision. Regulation covers the entire market in scope and runs through the beginning and end of financial activities in time. In the classification of supervision before, during and after the event, pre-supervision is the most important. Pre-supervision can not only reduce risks from the source, but also lay a good foundation and guidance for in-process and post-event supervision. The market should give respect to all market entities under reasonable regulations, but the supporting rules and regulations should not be lax. Prior supervision should be strengthened to promote the improvement of the market early warning mechanism and provide the premise for the effective operation of the feedback mechanism required in the supervision process. It is not only of great significance to the market, but also beneficial to guide investors. An orderly regulatory environment is rational to some extent. This is not to return to the traditional idea of completely rational market, but to guide investors to establish rational thinking and maintain their thinking ability when abnormal situations occur. At the same time, strengthening pre-supervision also has a certain role in promoting the professional ethics education of employees. Supervision is about an orderly market, and the higher the requirements for the professional ethics of practitioners. Strengthening supervision can reduce the use of insider trading by warning to practitioners.

Third, raise the cost of breaking the law and maintain market fairness. A key reason for the frequent violations in the market is that the cost of violation is too low. Although most market participants abide by the market order, driven by the nature of profit-seeking, there will always be market players who disregard the requirements of laws and regulations, cross the regulatory bottom line, spread false information in the market, and operate in violation of compliance. In the context of the development of the Internet, the speed of information dissemination is extremely fast, and the influence caused by the spread of false information is very bad. When a large number of investors make decisions based on the false information, the stock price is difficult to maintain within a reasonable range, and the stability of the market may be seriously threatened. First of all, in view of some behaviors of bad nature, a special team can be set up on the basis of existing supervision to focus on such behaviors and similar behaviors in the market, and strive to quickly put forward countermeasures before the event or the initial impact on the market, so as to curb the impact. Secondly, to strengthen the deterrence of forced delisting, to a certain extent, can make further requirements for listed companies. Listed companies have a wide impact on the society. Once bad behavior occurs, they should bear more serious consequences and penalties than ordinary investors. Finally, maintaining market fairness requires the common assistant of every participant in the market. The establishment of supervision channels, improving the supervision mechanism and providing reporting Windows can improve investors' enthusiasm and participation in market supervision.

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