Research on the Influence of Investor Sentiment Based on Principal Component Analysis on Shanghai Composite Index

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Abstract: In recent years, great changes have taken place in Chinese financial market, and Chinese stock market has also experienced multiple bull and bear markets. Behind the sharp rise and fall of the stock market, the change of investor sentiment plays an important role. This paper uses principal component analysis to construct an investor sentiment index with the following six indexes: market turnover, market trading volume, number of IPOs, consumer confidence index, number of newly opened accounts and P/E ratio, and excludes the influence of three macroeconomic factors: consumer price index, producer price index and Chinese macroeconomic prosperity index. Then, based on the time series data of investor sentiment and the closing price of Shanghai Composite Index, this paper builds a linear regression model for analysis, and finds that the former has a significant positive impact on the latter. Finally, on this basis, this paper puts forward relevant policy recommendations.

1. Introduction

1.1 Research Background

Irrational behavior caused by investor sentiment will lead to sharp fluctuations in the stock market in a short period of time, which cannot be explained by economic fundamentals. For example, from February 27 to May 30, 2007, the sharp decline of Chinese stock market was caused by the irrational behavior of investors. Therefore, the impact of investor sentiment on the stock market has become a topic of widespread concern among scholars.

The traditional financial theory holds that the stock price is based on the expected profit of listed companies, but beyond that, the formation of the stock price depends on the investor sentiment to a large extent. However, there is no unified standard for the definition of investor sentiment. Some people think that the process of investors forming investment ideas is investment sentiment, while others think that investment sentiment is the subjective preference of investors for future stock price fluctuations, and more people think that investor sentiment is the overall optimistic or pessimistic degree of investors for the stock.

In Chinese stock market, the interests of many small and medium-sized investors cannot be reasonably protected. It is common for market makers to operate secretly and raise stock prices. Many investors are inexperienced at the beginning of their investment, and often affected by a variety of factors. This shows that the study of stock market price should not only be based on the existing data, but also from the perspective of behavioral finance.

1.2 Research Content and Framework

Based on the above background, this paper is divided into five parts:

The first part, introduction, mainly introduces the development background of Chinese stock market, briefly expounds the related concepts of investor sentiment, and the relationship between investor sentiment and the development of stock market. At the same time, the main frame of the article is given.

The second part, literature review, mainly introduces the definition of investor sentiment by different scholars, and the construction methods of index; in addition, it combs the research results of domestic and foreign scholars on the relationship between investor sentiment and stock market.

The third part, the construction of investor sentiment index, selects six indicators as proxy indicators, and uses principal component analysis to construct a composite index of investor sentiment; then it removes the influence of macro factors to get a new investor sentiment index.

The fourth part is the research on the influence of investor sentiment on the closing price of Shanghai Composite Index. After the unit root test and Granger causality test are carried out on the investor sentiment index and the closing price of Shanghai Composite Index, a regression analysis model is established.

The fifth part, conclusions and suggestions, combined with the previous research results, summarizes the conclusions of this paper, and puts forward some suggestions for the development of Chinese market.

2. Literature Review

2.1 Research on Investor Sentiment

As for the definition of investor sentiment, different scholars have different definitions from different perspectives. For example, from the perspective of investment income expectation, Baker and Wurgler (2006) believed that investor sentiment is a belief based on information that reflects investors' investment risk and expected return. Shleifer (1997) believed from a psychological point of view that investor sentiment is due to the belief or expectation formed by the improper use of Bayesian theorem. And Delong et al. (1990) believed that investor sentiment is the deviation between the subjective and objective beliefs of traders under the condition of existing information.

As for the specific investor sentiment index, the most famous one is BW index that constructed by Baker and Wurgler (2006). It is based on six single indexes, namely the number of IPOs, first-day return, discount rate of closed-end fund, trading volume, stock issuance ratio and dividend income, and excluding the impact of macro economy.

In addition, other scholars choose different proxy variables to construct investor sentiment index according to different research problems and backgrounds. For example, Uygur and Tas (2012) used the weekly and daily volume changes of NASDAQ, Dow Jones, S&P 500, Nikkei 225, Hang Seng, FTSE 100, CAC4, DAX and ISE indexes as proxy variables to construct investor sentiment index. Seok and Cho et al. (2018) used relative strength indicators, psychological line index, adjusted turnover rate and logarithm of trading volume to construct investor sentiment index.

In China, many scholars also have constructed different investor sentiment indexes. Ma and Zhang (2015) used the average monthly return of Shanghai A-share on the first-day, total IPO volume, weighted turnover rate of total market value and the number of newly opened accounts of Shanghai A-share as proxy variables to measure investor sentiment, and excluded the influence of annual consumer price index and macroeconomic prosperity index, to construct the investor sentiment index.

Rao and Tu (2016) selected six indexes, namely weighted market turnover rate of Shanghai and Shenzhen stock market, Shanghai and Shenzhen stock fund index, trading volume of Shanghai and Shenzhen Composite Index, to construct sentiment index of bull market, bear market, shock period and the whole range by principal component analysis.

Meng (2016) used text mining technology and Shanghai Composite Index as a reference to filter the keyword thesaurus that can best reflect the behavior of investors in China from the thesaurus of CNKI, Sina Weibo and Baidu, and then used factor analysis to build an investor sentiment index of Shanghai stock market.

Based on the monthly data of Shanghai and Shenzhen stock markets, Zhang and Yu (2019) selected six single indicators, namely turnover rate, number of newly established funds, trading volume, number of newly opened investor accounts, P/E ratio and consumer confidence index, and used principal component analysis to build an index.

2.2 Research on Investor Sentiment and Stock Market

When investors are in the market, there is also a correlation between investor sentiment and the stock market. in this respect, scholars at home and abroad have also conducted relevant in-depth research.

Barberi et al. (1998) believed that there are two kinds of psychological cognitive errors when investors make investment decisions, namely selectivity bias and conservatism bias, which will lead to stock price underreaction or overreaction. As mentioned earlier,Baker and Wurgler (2006) found that investor sentiment has a greater impact on stocks with high subjective valuation and difficult arbitrage. In addition, Sayim and Rahman (2015) analyzed the trading activities of the Turkish stock market and found that the rise of rational component of investor sentiment would have a significant positive impact on the yield and significantly reduce the volatility of the stock market.

Wen et al. (2014) found that in Chinese stock market, positive sentiment has a significant positive impact on stock returns, while negative sentiment has no significant impact on stock returns; in addition, the volatility of investor sentiment has a significant impact on stock returns. Lu and Zhou (2015) found that investor sentiment has a significant positive impact on the A-share market and H-share market in the same period under the control of Fama French three factors and macroeconomic variables. Xiong and Chen (2015) found that investor sentiment is an important factor affecting the cross-sectional income difference between high idiosyncratic volatility stocks and low idiosyncratic volatility stocks in Chinese stock market. Zhao (2016) found that investor sentiment has a significant driving effect on Chinese stock market prices. At the same time, Chinese Growth Enterprises Market is more vulnerable to emotional fluctuations. Shi et al. (2017) believed that the influence of the attention of stocks and snowballs, which represent individual investors' attention, on the stock market is greater than the influence of news attention and news confidence index that represent institutional investors' attention. In addition, Wang and Zhou (2019) found that due to the existence of noise traders, when investor sentiment is high, people's demand for stock trading volume will increase, stock prices will rise, and stock returns will increase.

Generally speaking, most scholars have found that there is a significant relationship between investor sentiment and stock market.

3. Construction of Investor Sentiment Index

3.1 Selection of Investor Sentiment Variables

The accuracy of investor sentiment indicators is directly related to the results of the empirical model. In order to get an accurate and effective investor sentiment index, this paper draws on the research methods and ideas of BW index, combines with the actual situation of Chinese stock market and the availability of data, selects market turnover (TURN), market trading volume (MTV), number of IPOs (IPON), consumer confidence index (CCI), number of newly opened accounts (NOA) and price earnings ratio (PE) to construct the sentiment index needed for empirical analysis.

Table 1. Iinvestor Sentiment Indicators

Index name	Indicator symbol	Relevant explanations
Market turnover (100 million yuan)	TURN	It directly reflects the investment enthusiasm of investors affected by supply and demand
Market trading volume (100 million shares)	MTV	
Number of IPOs	IPON	Number of IPO shares per month
Consumer confidence index	CCI	It shows consumers' comprehensive judgment on macro issues such as employment, income, price and interest rate
Number of newly opened accounts	NOA	The number of investors at the end of this month minus the number of investors at the end of last month
P / E ratio	PE	Share price divided by earnings per share

3.2 Principal Component Analysis

Principal component analysis can be traced back to the multivariate transformation analysis of non-random variables initiated by K. Pearson in 1901, and then extended to random variables by Hotelling in 1933. Principal component analysis is a multivariate statistical method which uses the idea of dimension reduction to transform multiple indicators into several comprehensive indicators under the premise of little information loss. Generally, the comprehensive index generated by transformation is called principal component, and each principal component is not related to each other, which makes the principal component have some better performance than the original variables. In this way, only a few principal components can be considered in the study of complex problems without losing too much information.

Principal component analysis requires that the first several principal components selected can explain more than 85% of the information of all variables. In the selection process, the less the number of principal components required, the better, and the higher the proportion of information explained, the better. According to the variance contribution rate of each component, they are called the first principal component and the second principal component, and so on.

3.3 Descriptive Statistical Analysis of Sentiment Proxy Indicators

After collecting and processing the data of the above six indicators, the descriptive statistical analysis is obtained, and the results are as follows:

Table 2. Descriptive Statistical Results

	N	Minimum	Maximum	Mean	Standard Deviation
TURN	132	16627	366613	88526.37	67172.416
MTV	132	1741	23247	7267.92	4704.246
IPON	132	0	54	17.34	13.258
CCI	132	97.0	126.6	109.811	8.7242
NOA	132	275800	4975300	1171228.03	810769.759
PE	132	17.77	49.06	28.7366	7.17105
Number	132				

According to the results, the sample observation data in this paper is from January 2010 to December 2020, using monthly data, a total of 132 groups of data, and all the data are valid. The difference between the maximum and minimum value of TURN and MTV is nearly 22 times and 13 times respectively, which reflects that when investor sentiment is down, the market turnover is very small and the market trading volume is very inactive. The number of IPO shares per month has little volatility, but its minimum value of 0 also reflects the imperfection of Chinese stock market system to a certain extent. On the whole, the consumer confidence index has not fluctuated much. The difference

between the maximum and minimum of NOA is more than 18 times, reflecting that there is a huge difference in number of newly opened accounts in different investor cycles. Finally, the volatility of P/E ratio is not very big.

3.4 Principal Component Analysis to Construct Investor Sentiment Index

3.4.1 Indicator correlation test

KMO measures the degree of partial correlation and correlation between variables. Bartlett sphere tests whether the correlation matrix is a unit matrix. If KMO>0.5, it means that there is correlation between the indicators and can be used for principal component analysis. The results are as follows:

Table 3. Kmo and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.692
Bartlett's Test of Sphericity	Approx. Chi-Square	692.691
	df	15
	Sig.	.000

It can be seen from table III that the KMO is 0.692>0.5, indicating that there is a correlation between the six selected sentiment proxy indicators. The approximate chi-square value of Bartlett's test of sphericity is 692.691, the degree of freedom is 15, and the P value is 0, which indicates that the hypothesis test is passed in 1% significance level, and these six indicators are suitable for principal component analysis.

3.4.2 Establishment of principal components:

After KMO and Bartlett test, principal component analysis was performed by SPSS to determine the principal components.

Table 4. Total Variance Explained

	Initial Eigenvalues			**Extraction Sums of Squared Loadings**		
	Total	*% of Var*	*Cumulative %*	*Total*	*% of Var*	*Cumulative %*
1	3.471	57.852	57.852	3.471	57.852	57.852
2	1.214	20.234	78.086	1.214	20.234	78.086
3	.794	13.238	91.324	.794	13.238	91.324
4	.307	5.122	96.445			
5	.190	3.172	99.617			
6	.023	.383	100.000			

According to the results in table IV, the explained variance rates of the first, second, third principal component are 57.852%, 20.234% and 13.238%, respectively. The cumulative explained variance rate of the first three principal components is 91.324%, which is higher than 85%. Therefore, the number of principal components is determined as three.

Table 5. Composition Matrix

	Component		
	1	*2*	*3*
TURN	.930	-.219	-.228
MTV	.881	-.391	-.167
IPON	.483	.706	.441
CCI	.388	-.595	.697
NOA	.893	.157	-.179
PE	.805	.369	.044

The component matrix in table V shows that the highest market turnover is 0.930, the highest market trading volume is 0.881, the highest number of newly opened accounts is 0.893, and the highest P/E ratio is 0.805, all of which are on the first principal component; the highest number of IPOs is

0.706, which is on the second principal component; the highest consumer confidence index is 0.697, which is on the third principal component.

3.4.3 Construction of investor sentiment index

Table 6. Component Score Coefficient Matrix

	Component		
	1	*2*	*3*
TURN	.268	-.180	-.287
MTV	.254	-.322	-.210
IPON	.139	.582	.556
CCI	.112	-.490	.877
NOA	.257	.129	-.226
PE	.232	.304	.055

According to the coefficient of each component in Table VI, the expression of principal component can be obtained as follows:

$$
\begin{aligned}
Y_1 &= 0.268\text{TURN} + 0.254\text{MTV} + 0.139\text{IPON} + 0.112\text{CCI} + 0.257\text{NOA} + 0.232\text{PE} \\
Y_2 &= -0.180\text{TURN} - 0.322\text{MTV} + 0.582\text{IPON} - 0.490\text{CCI} + 0.129\text{NOA} + 0.304\text{PE} \\
Y_3 &= -0.287\text{TURN} - 0.210\text{MTV} + 0.556\text{IPON} + 0.877\text{CCI} - 0.226\text{NOA} - 0.055\text{PE}
\end{aligned} \tag{1}
$$

With the variance contribution rate as the weight, the investor sentiment index (ISI) can be derived:

$$ \text{ISI} = 0.57852Y_1 + 0.20234Y_2 + 0.13238Y_3 $$

3.5 Investor Sentiment Index Excluding Macro Factors

In fact, the investor sentiment of the market is not only affected by the psychological factors of investors themselves, but also by the macroeconomic cycle. It is necessary to eliminate the influence of macroeconomic factors to avoid the deviation of the results.

This paper selects consumer price index (CPI), producer price index (PPI) and Chinese macroeconomic prosperity index (MPI) to represent the influence of macroeconomic factors on stock market price. The monthly data from January 2010 to may 2020 are also selected for these three indicators. CPI and PPI are from RESSET Database, and MPI is from Macro Data Network.
By establishing a multiple linear regression model, using TURN, MTV, IPON, CCI, NOA and PE as dependent variables, and CPI, PPI, MPI as independent variables, to perform multiple linear regression, the linear regression model is as follows:

$$
\begin{aligned}
\text{TURN} &= a_{11}\text{CPI} + a_{12}\text{PPI} + a_{13}\text{MPI} + a \\
\text{MTV} &= a_{21}\text{CPI} + a_{22}\text{PPI} + a_{23}\text{MPI} + b \\
\text{IPON} &= a_{31}\text{CPI} + a_{32}\text{PPI} + a_{33}\text{MPI} + c \\
\text{CCI} &= a_{41}\text{CPI} + a_{42}\text{PPI} + a_{43}\text{MPI} + d \\
\text{NOA} &= a_{51}\text{CPI} + a_{52}\text{PPI} + a_{53}\text{MPI} + e \\
\text{PE} &= a_{61}\text{CPI} + a_{62}\text{PPI} + a_{63}\text{MPI} + f
\end{aligned} \tag{2}
$$

The residual sequences obtained, namely a, b, c, d, e, f, are regarded as variables with macroeconomic factors removed, and used as new sentiment proxy indicators, which were represented by TURN', MTV', IPON', CCI', NOA' and PE'. Then the principal component analysis is carried out again to construct a new investor sentiment index.

3.5.1 Indicator correlation test

Table 7. Kmo and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.700
Bartlett's Test of Sphericity	Approx. Chi-Square	697.147
	df	15
	Sig.	.000

It can be seen from table VII that the KMO is 0.700>0.5, indicating that there is a correlation between the six new proxy indicators, and it is higher than the previous 0.692. The approximate chi-square value of Bartlett's test of sphericity is 697.147, the degree of freedom is 15, and the P value is 0, which indicates that the hypothesis test is passed, and there is a correlation between the six new emotional proxy indicators after excluding macroeconomic factors, so they are suitable for principal component analysis.

3.5.2 Establishment of principal components

Continue to repeat the previous steps, after KMO and Bartlett test, principal component analysis was performed by SPSS to determine the principal components.

Table 8. Total Variance Explained

| | **Initial Eigenvalues** | | | **Extraction Sums of Squared Loadings** | | |
	Total	*% of Var*	*Cumulative %*	*Total*	*% of Var*	*Cumulative %*
1	3.542	59.035	59.035	3.542	59.035	59.035
2	1.335	22.244	81.279	1.335	22.244	81.279
3	.641	10.690	91.968	.641	10.690	91.968
4	.265	4.409	96.378			
5	.189	3.144	99.522			
6	.029	.478	100.000			

According to the results in table VIII, the explained variance rates of the first three component are 59.035%, 22.244% and 10.690%, and the cumulative explained variance is 91.968%, which is higher than 85%. Therefore, the number of new principal components is determined as three, too.

Table 9. Composition Matrix

| | **Component** | | |
	1	*2*	*3*
TURN'	.931	.213	-.225
MTV'	.865	.425	-.171
IPON'	.623	-.598	.401
CCI'	.403	.724	.545
NOA'	.880	-.152	-.275
PE'	.776	-.452	.168

The component matrix in table IX shows that the highest market turnover is 0.931, the highest market trading volume is 0.865, the highest number of IPOs is 0.623, the highest number of newly opened accounts is 0.880, and the highest P/E ratio is 0.776, all of which are on the first principal component; the highest consumer confidence index is 0.724, which is on the third principal component. Compared with the situation without eliminating macro factors, the variables on each principal component change.

3.5.3 Construction of investor sentiment index

Table 10. Component Score Coefficient Matrix

| | **Component** | | |
	1	*2*	*3*
TURN'	.263	.160	-.350
MTV'	.244	.318	-.267
IPON'	.176	-.448	.625
CCI'	.114	.542	.849
NOA'	.249	-.114	-.429
PE'	.219	-.338	.262

Table X shows the score coefficient matrix of components. According to the coefficient of each component, the expression of principal component can be obtained as follows:

$$Y_1' = 0.263TURN' + 0.244MTV' + 0.176IPON' + 0.114CCI' + 0.249NOA' + 0.219PE'$$
$$Y_2' = 0.160TURN' + 0.318MTV' - 0.448IPON' + 0.542CCI' - 0.114NOA' - 0.338PE' \quad (3)$$
$$Y_3' = -0.350TURN' - 0.267MTV' + 0.625IPON' + 0.849CCI' - 0.429NOA' + 0.262PE'$$

With the variance contribution rate as the weight, the investor sentiment index (ISI) can be derived:

$$ISI' = 0.59035Y_1' + 0.22244Y_2' + 0.10690Y_3'$$

In addition, after excluding macroeconomic factors, the cumulative explained variance of principal component analysis is 91.968%, which is higher than the previous 91.324%, and the explanatory power is improved. Therefore, the new investor sentiment index has better effect.

4. Empirical Research on the Impact of Investor Sentiment on the Closing Price of Shanghai Composite Index

4.1 Descriptive Statistical Analysis

The closing price of the stock market can reflect the trend of the stock market. In order to study the impact of investor sentiment on the stock market, this paper also selects the monthly closing price of Shanghai Composite Index from January 2010 to May 2020, and analyzes the investor sentiment index (ISI) and the closing price of the stock market (P).

Table 11. Descriptive Statistical Results

	N	Minimum	Maximum	Mean	Standard Deviation
ISI	132	-1.120157	1.892366	.00000003	.639859598
P	132	1979.21	4611.74	2814.5666	507.74408
Number	132				

As we can see, the maximum value of investor sentiment index ISI is 1.89, and the minimum value is -1.12. Positive ISI means that investors have positive sentiment, negative ISI means that investors have negative sentiment, and the average value of ISI is negative, but it is also very small, indicating that investor sentiment is slightly negative. At the same time, the maximum value of monthly closing price of Shanghai Composite Index is 4611.74, and the minimum value is 1979.21. The gap is more than one time, which indicates that the stock price of the market fluctuated violently from 2010 to 2020.

4.2 Correlation Analysis

In order to intuitively reflect the change trend of investor sentiment index and the monthly closing price of Shanghai Composite Index, the trend charts of the two variables are made by EViews, and the results are shown in Fig. 1 and Fig. 2.
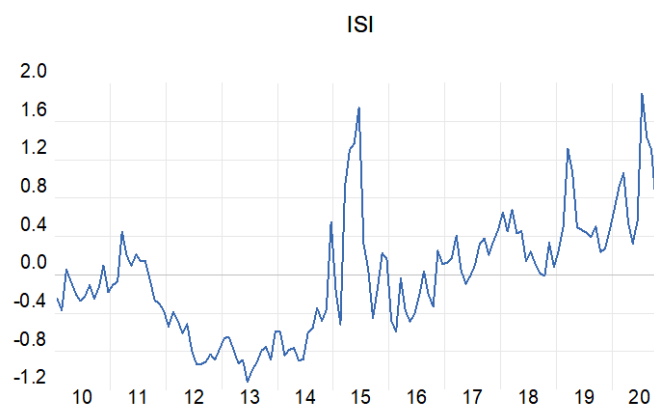

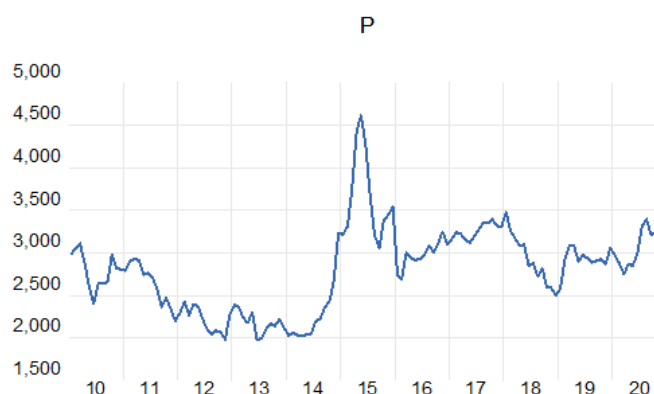Figure 1. Trend chart of investor sentiment index

Figure 2. Trend chart of monthly closing price of Shanghai composite index

As can be seen from the above two figures, the overall trend of the investor sentiment index (ISI) is similar to that of the monthly closing price of the Shanghai Stock Exchange Index (P), but the fluctuation of ISI is more frequent than P, with more peaks and troughs. In addition, it can be found that both of them developed slowly down from 2010 to 2014, and from 2014 to 2015, the two indexes began to rise rapidly, and all reached the highest point in 2015, and then began to decline, and then began to rise slowly after reaching the trough at the end of 2015. Moreover, in 2020, ISI fluctuated significantly, and a large part of it went with COVID-19. In general, there is a high correlation between the ISI and P.

4.3 Stationary Test

From the above sequence chart, it can find that the volatility of investor sentiment index and the closing price is relatively serious, so it needs to use ADF test to judge whether they are stable series.

Table 12. Stationarity Test results

	ISI	P	D(ISI)	D(P)
ADF	-3.794150	-3.206083	-10.43926	-8.915183
1%	-4.029595	-4.030157	-4.030729	-4.030157
5%	-3.444487	-3.444756	-3.445030	-3.444756
10%	-3.147063	-3.147221	-3.147382	-3.147221
Prob.	0.0198	0.0878	0.0000	0.0000
Stationarity	Nonstationary	Nonstationary	Stationary	Stationary

It can be seen from the results in Table XII that the two indexes are both nonstationary time series, while their first-order differential D(ISI) and D(P) are stationary time series, that is, they are both integrated of order one.

4.4 Granger Causality Test

Because D(ISI) and D(P) are stationary time series, Granger causality test can be used to judge whether there is a causal relationship between the two.

Table 13. Granger Causality Test Results

Null Hypothesis	Obs	F-Statistic	Prob.
DISI does not Granger Cause DP	121	2.32016	0.0168
DP does not Granger Cause DISI		4.54473	3.E-05

It can be seen from this table that the P values of both tests are less than 0.05, and both tests reject the original hypothesis in the 5% significance level, in other words, the closing price of Shanghai Composite Index is the Granger cause of investor sentiment index, on the contrary, investor sentiment index is also the Granger cause of the closing price of Shanghai Composite Index. That is to say, investor sentiment will affect the closing price of Shanghai Composite Index, and the change of the

closing price of Shanghai Composite Index will further affect investor sentiment, which forms a cycle of aggravation. When investor sentiment is high or the stock market is prosperous, it may cause the stock price to rise further; otherwise, it may aggravate the downturn of the stock market.

4.5 Regression Model Analysis

After confirming that investor sentiment index is the Granger cause of the closing price of Shanghai Composite Index, this paper studies the influence of the former on the latter by establishing a model:

$$\Delta P = \alpha + \beta \Delta ISI + \varepsilon \tag{4}$$

The regression results are as follows:

Table 14. Model Regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.912526	13.11994	-0.069553	0.9447
DISI	327.8308	39.05609	8.393845	0.0000
R-squared	0.353243	Mean dependent var		3.692977
Adjusted R-squared	0.348229	S.D. dependent var		185.8403
S.E. of regression	150.0332	Akaike info criterion		12.87474
Sum squared resid	2903784.	Schwarz criterion		12.91864
Log likelihood	-841.2954	Hannan-Quinn criter.		12.89258
F-statistic	70.45664	Durbin-Watson stat		2.065964
Prob(F-statistic)	0. 000000			

It shows that the corresponding P value of D(ISI) is 0, and the coefficient is 327.8308, which indicates that in the 5% significance level, investor sentiment index has a significant positive impact on the closing price of Shanghai Composite Index, that is, when investor sentiment rises, the closing price of the stock market will rise, and when investor sentiment falls, the closing price of the stock market will also decrease.

In addition, the goodness of fit of the model is 0.348229, the F statistic is 70.45664, and the corresponding P value is 0, which indicates that the model can well fit the impact of investor sentiment index on the closing price of Shanghai Composite Index.

5. Conclusions and Suggestions

By constructing investor sentiment index, this paper studies the impact of investor sentiment on the closing price of Shanghai Composite Index

First, there is a high correlation between investor sentiment and the closing price of Shanghai Composite Index, which shows that the indicators selected and the investor sentiment index constructed in this paper are reasonable and effective.

Second, through Granger causality test, it is found that investor sentiment will affect the closing price of Shanghai Composite Index, and the change of the closing price of Shanghai Composite Index will further affect investor sentiment, which forms a cycle of aggravation. When investor sentiment is high or the stock market is prosperous, it may cause the stock price to rise further; otherwise, it may aggravate the downturn of the stock market.

Third, through the model regression, it finds that investor sentiment index has a significant positive impact on the closing price of Shanghai Composite Index, that is, when investor sentiment rises, the closing price of Shanghai Composite Index rises, and vice versa.

Based on these conclusions, the following suggestions are offered:

First, the government should actively guide investors. The impact of investor sentiment on stock price fluctuation is cyclical, so it is necessary to establish relevant monitoring and early warning mechanism to track and monitor the spread of investor sentiment, in order to find the changes of investor sentiment as soon as possible, so that effective measures can be taken to avoid the stock market crisis caused by investor sentiment.

Second, it is significant to improve the rules and regulations of the securities market. To formulate the relevant legal system, it is necessary not only to clarify the responsibilities of the regulatory authorities, but also to clarify the standards of listing and IPO. In addition, it is also necessary to clarify the responsibilities and authorities of government departments. And in order to avoid the violation of rules and regulations and legal provisions, the corresponding punishment mechanism should be established.

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