

# The Impact of Investor Sentiment on Stock Market

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**Keywords:** Stock; investor sentiment; Return

**Abstract.** The purpose of the stock market is to focus on capital, improve investment and financing efficiency, optimize the allocation of resources, to achieve benefit sharing and risk sharing. However, the immaturity of the stock market, such as low efficiency of investment and financing, uneven distribution of resources, income and risk mismatch and other issues, leading to the stock market can not achieve its purpose. China's stock market development history is not long, in many ways is not perfect; at the same time China's small and medium-sized investors lack of professional knowledge reserves, investment philosophy is not mature, there are more irrational and speculative small and medium investors, its investment Decision making is easier for investors to influence emotions. China's stock market shows the market as a whole immature and investors immature.

## 1. Introduction

Investor sentiment theory was first proposed by DeLong in 1990. Investor sentiment was supported by the majority of scholars. Investor's emotional image depicts the psychological activities of investors, reflecting the expectations of investors on the market, behavioral finance theory is one of the important issues. Gallimore et al. (2002) argue that investor sentiment plays a very important role in investment decision-making. Individual investors are prone to cognitive bias and behavioral bias in investment decisions, mainly influenced by investor sentiment. Scharfstein et al. (1990) and Kumar et al.

## 2. Research Design

**2.1 Data Sources** This paper chooses the daily volume, daily rate of return and daily theme as the basic data of the study, the study of the sample range from January 7, 2013 to August 30, 2016, a total of 884 trading days. The object of study for the Shanghai Composite Index market, the daily trading volume of the daily rate of return data from the CSMAR (Guotai Junan database), to examine the investor sentiment when the Eastern wealth of the stock under the Shanghai Stock Index of the daily theme of the title of the title content for the study.

**2.2 The Establishment of Bullish and Bearish Sentiment Keyword Dictionary** Through the preparation of the web crawler program to download the contents of the sample section of the posting content download, and through the word frequency statistics program on the theme of the word segmentation and frequency statistics, artificial selection of representatives of the emotional color of the investor and the emotional mood of a total of 394, and then through repeatedly, these keywords are divided into two categories, the obvious with a sadness, anxiety, panic and the market bearish keywords to form a keyword dictionary, defined as "empty side" keyword dictionary, a total of keywords 212 One. On the contrary, the obvious with a happy, love, expectations and the market to see more keywords to form another keyword dictionary, defined as "multi-party" keyword dictionary, a total of 160 keywords.

**2.3 Variable Description** On the basis of establishing the dictionary of more and more empty keywords, this paper uses the keyword dictionary to calculate the frequency of the subject of the study area, and the calculation of the frequency of the key words. And the proportion of emotional changes

in order to more effectively in the long and short emotional expression of the more effective time to distinguish between investors long and short emotional intensity. This article defines the formula for the change of emotional ratio between long and short sides:

$$\text{The change rate of investors' bullish sentiment} = \frac{\text{Bullish frequency statistics}}{\text{Bullish frequency statistics} + \text{Bearish frequency statistics}} - \frac{\text{Bullish frequency statistics previous day}}{\text{Bullish frequency statistics previous day} + \text{Bearish frequency statistics previous day}}$$

$$\text{Investors are changing the proportion of bearish sentiment} = \frac{\text{Bearish frequency statistics}}{\text{Bullish frequency statistics} + \text{Bearish frequency statistics}} - \frac{\text{Bearish frequency statistics previous day}}{\text{Bullish frequency statistics previous day} + \text{Bearish frequency statistics previous day}}$$

In the literature of investor sentiment, some researchers use semantic analysis method to analyze the emotions that investors in the text want to express. The main objects of the analysis are financial blogs, financial statements and investors during the period of issuance of new shares. Discussion content. Unlike other researchers, this article only examines the emotional keywords used by investors in the subject postings of the SSE Index, and changes the frequency of these keywords as an agent variable of investor sentiment, so there is no semantic analysis. The reason is that, first of all, the poster in order to attract other visitors click to reply to his post, the subject posts usually use more intuitive emotional keywords or representatives of investor investment behavior keyword words; Secondly, the study of the sample interval up to nearly four Year, the number of posts reached 723,323, from the time span and the number of samples, it is not applicable to semantic analysis to do research. Daily volume and daily yield were calculated using logarithmic volume and log yield:

$$V_t = \ln(V_t)$$

$$r_t = \ln(p_t) - \ln(p_{t-1})$$

### 3. Empirical Model

**3.1 The Basic Description of the Variable Statistics** Figure 1 to Figure 6 shows the main study of the time series chart. From Fig. 3 and Fig. 4, the time series graphs of the frequency and frequency statistics of both sides can be seen. Due to the limitation of economic conditions and network development speed, the network discussion is not very intense. Later, due to the improvement of the above conditions, There is a significant difference, so this article has research significance and reference value

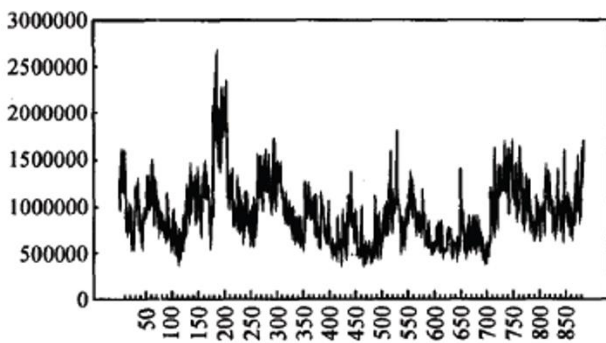


Figure 1. Daily volume time series

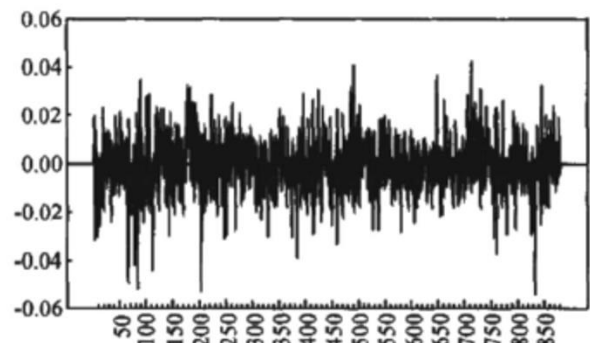


Figure 2. Daily rate of return

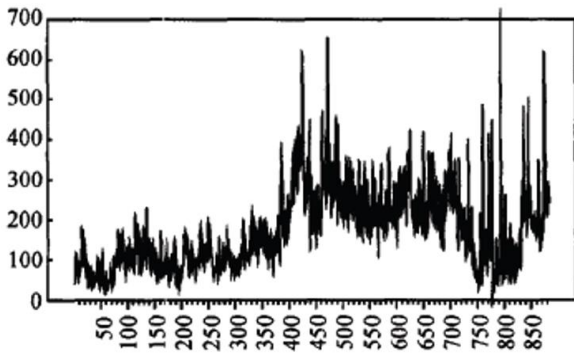


Figure 3. Daily Bullish Frequency Statistics

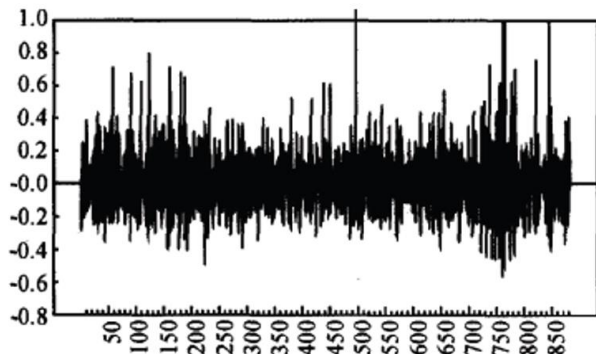


Figure 4 Bullish investor sentiment ratio change time series

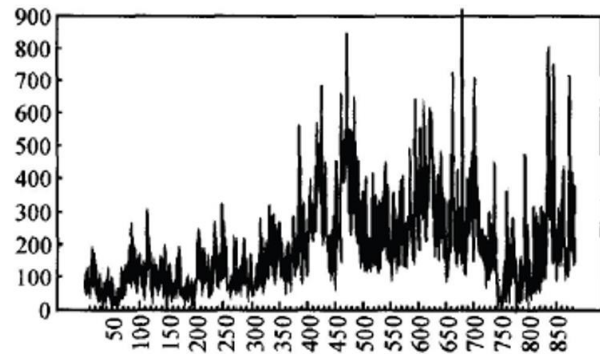


Figure 5 Daily Bearish Frequency Statistics

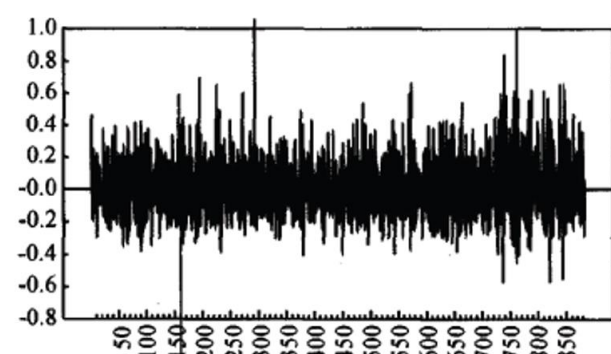


Figure 6 Bearish investor sentiment ratio change time series

**3.2 Unit Root Test** In order to ensure the validity of the empirical results, to avoid "pseudo-regression", before the establishment of the model to be smooth test variables. Table 1 shows the unit root test results for each variable.

Table 1 Variable unit root test result

Var	Vol	Rate	Bullish	Bearish	Non - trading hours
Sym	$V_t$	$R_t$	$Y1_t$	$Y2_t$	$Y3_t$
	-6.2343	-29.024	-18.8794	-22.2423	-33.0211

Table 1 shows that all variables are tested at 1% significance level, the study variables do not exist unit root, indicating that all sequences are stationary sequence, so this article can do further research.

#### 4. Conclusion

In this paper, the word frequency statistics method, through the Oriental wealth online index index from January 7, 2010 to August 30, 2013 the theme of the title content of the word frequency statistics, the establishment of a network of investors to measure the mood of the "investor sentiment" and This paper analyzes the relationship between the turnover of long and short investor in the network forum and the turnover and yield of the SSE index market. conclusion as below:

i. Granger causality analysis shows that the change of the proportion of investors and the ratio of emotions and turnover are Granger causality. Granger causality relationship between non-trading period and multi-party emotional proportion change and profitability are Granger causality relationship. Further explain the network forum investors, empty emotions and trading market turnover there is a mutual influence, and this effect is asymmetric, investors empty side emotions and the volume of the interaction than the investor sentiment obvious. Internet forum investors, empty emotions and the impact of the impact of the existence of asymmetry.

ii. Through the establishment of three VAR models and their impulse response analysis, this paper investigates the relationship between the investor sentiment ratio and the volume, the change of the investor's negative emotion ratio and the turnover and the non - Emotional relationship between the

changes in turnover and the volume and yield of the dynamic relationship between the empirical results show that the network forum investors multi-party emotional changes on the yield and volume have an impact, which, the impact of the yield on the impact of the larger, But the impact of time lag is less than the impact on the volume; network forum investors empty side of the emotional changes only impact on the volume, and the lag is longer, the future rate of return has no effect.

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