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Original Paper

The Impact of Psychological Factors on the Asymmetry of Stock Market Volatility in China

—An Empirical Study Based on EGARCH Model

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Abstract

The asymmetry of stock market volatility has existed for a long time. Most of the early scholars' research on this phenomenon is based on the assumption of efficient market. In recent years, with the development and deepening of behavioral finance theory, psychological factors have been added to the research process as an important variable to better explain the asymmetry of stock market volatility. Therefore, on the basis of this analysis, this paper uses the basic theories of overconfidence, disposal effect, herding effect and framing effect of behavioral finance to analyze the impact of different psychological conditions on stock market volatility. This paper collects all the closing price data of the Shanghai and Shenzhen 300 index, and processes the logarithmic rate of return, then introduces the proxy variable turnover rate of psychological factors into the mean equation of EGARCH model, establishes a modified EGARCH model, and obtains the empirical results that psychological factors do have an impact on the asymmetry of volatility in China's stock market. It is concluded that: first, there is asymmetry of volatility in China's stock market, Investors will respond significantly more to bad news than to good news. Second, when investors are hit by bad news, their expectations for the future become worse, which will increase the turnover rate and finally obtain a lower yield; When investors are hit by good news, their expectations for the future become better, which will reduce the turnover rate and finally obtain a higher yield. Finally, according to these two conclusions, positive and feasible suggestions are given.

Keywords

Asymmetry, Psychological factors, EGARCH model

1. Introduction

Whether for theoretical researchers or investors, studying the volatility of the stock market has always been an important topic in the study of the stock market. Traditional stock market research is based on the assumption of efficient market. Similarly, the impact of "good" news and "bad" news on the stock market should be the same, but the actual volatility of the stock market is asymmetric, which invisibly ignores the risks borne by investors and brings potential crises to the stock market. Therefore, on the basis of assuming that the stock market is an inefficient market, this paper believes that psychological factors are the main reason for the asymmetry of stock market volatility. Using the relevant basic theories of behavioral finance, and introducing the turnover rate of proxy variables of psychological factors into EGARCH model, this paper analyzes the empirical result of the asymmetry of stock market volatility, and finally gives positive and effective suggestions for this phenomenon.

2. Theoretical Basis for the Asymmetry of Stock Market Volatility in China

Traditional financial theory research is based on the assumption of efficient market theory, but the reality is that investors in China's stock market show obvious irrational behavior. The irrational situation of the market is reflected in the fact that the price of stocks can not reflect the real value of stocks, as well as the irrational behavior of investors in the stock market, which makes the assumption of efficient market basis seriously questioned. Foreign Studies on the asymmetry of stock market volatility were earlier, and Black (1976) first proposed the asymmetry of stock market volatility. Booth and Koutmos (1995) proved the asymmetry of potential earnings volatility between New York, Japan and London stock markets through GARCH model. Unlike Booth and Koutmos, Rocking and Crouhy (1997) used asymmetric GARCH to study the stock markets of 21 major countries in the world, such as the United States, Britain, Japan, France, Germany and China, and found that there is widespread asymmetry in volatility.

Although China's stock market started late and was not sound enough, scholars I have studied deeply on the asymmetry of stock market volatility. When Chen and Huang (2002) proved that China's stock market has asymmetry of volatility, they innovatively used GJR GARCH-M model to achieve good empirical results. When Chinese scholars study the mismatch of stock market volatility, they are not only limited to whether it exists, but also find differences through the comparison of different stages. Lu and Xu (2004) divide the volatility of the stock market into bull market and bear market. In the case of bull market, the volatility caused by positive interference shocks is greater than that caused by negative interference shocks. In the case of a bear market, the volatility caused by positive interference shocks is smaller than that caused by negative interference.

Researchers have questioned the rationality of three basic assumptions about efficient markets: the hypothesis of "rational person", the hypothesis of "irrational investor investment decisions offsetting each other" and the hypothesis of "arbitrageurs correcting market deviations". Therefore, the revision of the traditional financial theory hypothesis that investors are not rational, the market is not completely

effective, but it has a strong explanatory power for the mismatch of stock market volatility. Therefore, researchers tend to analyze the price fluctuation of the stock market from the perspective of behavioral finance. Next, we will explain some of the behavioral finance theories about the mismatch of stock market volatility.

2.1 Overconfidence Theory

A review of the psychological literature suggests that most people are overconfident, especially in their abilities, and tend to view their luck as low. In the dictionary of psychology, overconfidence is defined as "the baseless elevation of the accuracy of one's own judgments, opinions and opinions, or the overestimation of one's own abilities, skills and knowledge. The judgment of one's own comprehensive strength obviously exceeds the actual situation."

The impact of overconfidence on stock market volatility is mainly reflected in two aspects: Investor overconfidence and market maker overconfidence. Investors' overconfidence will be manifested in too believing in their own ability, viewing their own luck components very low, or even ignoring their own luck components, resulting in overestimation of information, which will form a situation of too optimistic or too pessimistic outlook, which will eventually lead to the deviation of stock prices from the real price of stocks, distort the stock market, increase the volatility of the stock market, and bring great risks to investment. The impact of market maker's overconfidence on the stock market is contrary to that of overconfident investors. Market maker's overconfidence will be manifested in more revealing some internal information, while increasing inventory, which will make the price closer to the real value of the stock and reduce market volatility. In short, the impact on the volatility of the stock market depends on the power of investors and market makers, while in China, retail investors are the main body, the power of retail investors is greater, and retail investors can better affect the volatility of the stock market. Overconfidence among retail investors increases volatility.

2.2 Disposal Effect Theory

Disposal effect, also known as the "win lose" effect, refers to that investors usually sell profitable stocks when dealing with profitable stocks, and investors are risk averses at this time; When investors dispose of loss making stocks, they often choose to continue to hold stocks, when investors are risk appetite. An important theory in behavioral finance is prospect theory, whose S-shaped value function can well explain the reasons for the disposal effect. The value function judges profit and loss by reference point, which is the price of the stock at the time of purchase.

The research results of domestic researchers on the "disposal effect" of China's stock market show that compared with mature foreign capital markets, the "disposal effect" of Chinese investors is still very obvious, manifested in that the proportion of profitable stocks is much greater than that of loss making stocks, and the time of holding loss making stocks is also longer. Lu (2003) analyzed in the form of a questionnaire that individual investors in China also tend to "win and lose", and calculated that the probability of individual investors selling profitable stocks is about twice that of holding loss making stocks. This effect shows that in the rising stage of the stock market, investors tend to sell stocks that

have made profits; Investors tend to hold on to the stock market during the downturn. This will "iron" the fluctuation of stock price and restrain the fluctuation of China's stock market.

2.3 Herding Theory

Herding theory, also known as herd behavior and herding behavior, usually refers to people's tendency to learn and imitate in the case of uncertain information and the interaction of groups, and better people's way of thinking and behavior, which is a special irrational behavior. Because even the best people, without complete information, are interacting with others and prone to making wrong choices. Referring to the existing literature, economists can be divided into the following three categories from the perspectives of insufficient information, human irrationality and principal agency: herding like effect based on information similarity, herding effect based on incomplete information and herding effect based on principal agency.

Herding like effect based on information similarity, which is mainly analyzed from the perspective of institutional investors. Stein et al. (1992) pointed out that institutional investors have high homogeneity, because the information obtained by institutional investors is roughly the same, and they use similar technologies, models and investment strategies, so institutional investors tend to reach agreement in the stock market. Herd like effect mainly refers to institutional investment. From the perspective of its impact on stock market volatility, if institutional investment is in a relatively mature situation, it will have a good inhibitory effect on stock market volatility, but if it is in an immature situation, it will aggravate the volatility of the stock market.

Herd effect based on incomplete information refers to the objective existence of asymmetric and incomplete information in the stock market, and investors need to spend a lot of cost to try to find accurate, timely and effective information. The characteristics of China's stock market are that there are more retail investors and fewer institutional investors. Institutional investors have the scale advantages of capital, technology, talents and so on. Moreover, retail investors have no way to compare with institutional investors in the payment of information costs. This also leads to the disadvantage of individual investors in obtaining returns through effective information. This is to make individual investors look around for "insider information", a little wind and grass will have a tendency to chase the wind. This will be the case in the stock market volatility, because the so-called "insider information", coupled with the sensitivity of individuals themselves, will exacerbate the stock market volatility.

The herding effect based on principal agency is empirically found by Scharfstein (1992) that there will be herding effect based on the reputation of fund managers. Agent 1 and agent 2 have the same reputation. Agent 1 invests in a shares when considering higher returns. Agent 2 will also invest in a shares in order to maintain his reputation or maintain the same reputation as agent 1 for his own reputation. In this case, if both lose money, it only proves that both are stupid; If both are profitable, it only proves that both are smart. Whether it is a loss or a profit, the same result is that the changes in both reputations are the same. But if agent 1 chooses to invest in a shares and agent 2 chooses to invest

in B shares, the result must be a little better, so it will be foolish and smart. Such a result is what one of the agents does not want to see. In order to protect his reputation, he will adopt the strategy of herding and imitating each other's investment. Like such herding, the impact on the volatility of the stock market depends on the maturity of investors.

2.4 Framing Effect Theory

Framing effect, also known as background dependence and framing dependence, refers to that when people form cognition, due to the limitation of ability, they will be affected by the background of expression, the description and performance of things, and form irrational cognition. On the same issue, different expressions are likely to form completely different judgments. Specifically, the context includes the way the problem is presented, comparing different scenarios, what people thought before it happened, and the order and manner in which the information is described. For China's stock market, the degree of market is not high, the volatility of the stock market is vulnerable to political influence, and the market situation of retail investment is more likely to form frame dependence. It is an enterprise with government background and support, which is sought after by investors, regardless of the core elements such as the quality of the company's own assets, profit margins and profitability, and blindly invests. Such "black swan" events have been common. If the framing effect occurs when investors invest blindly, fundraisers cover up facts and exaggerated propaganda blindly, and the shadow of the government exists everywhere, it will only increase the volatility of stock prices in the stock market, which is not conducive to the development of the stock market.

3. An Empirical Analysis on the Asymmetry of Stock Market Volatility in China

3.1 Modeling

At first, in order to study the abnormal data of stock market volatility, it has experienced the development from arch family model to GARCH family model, and then to EGARCH model. On the basis of arch family models, GARCH model relaxes the structural requirements for dynamics, introduces the p-order lag term of conditional variance into the original relationship, and obtains the general form of GARCH (P, q):

$$h_t = \alpha_0 + \alpha_1 e_{t-1} + \cdots + \alpha_q e_{t-q} + \beta_1 h_{t-1} + \cdots + \beta_p h_{t-p} \quad (1)$$

The sufficient condition for negativity of conditional variance is: $\alpha_0 > 0$, $\alpha_i \geq 0$, $i=1, \ldots, q-1$, $\alpha_q > 0$, $\beta_i \geq 0$, $i=1, \ldots, p-1$, $\beta_p > 0$.

After a lot of practice, it is found that arch model and GARCH model can not well describe the abnormal fluctuations of stock market data, in fact, the reason is that the model has defects: in the setting of their conditional variances, the lag term of the interference term appears in the square situation, and the positive and negative shocks simulated by the interference term will be the same, which means that the impact of conditional variances is the same, This makes it impossible for the model to capture asymmetry. According to the disposal effect of behavioral finance, people reflect differently whether the stock market is a bull market or a bear market, that is, the impact of positive and

negative shocks on the stock market is different. Daniel (1990) proposed EGARCH model, which not only guarantees the negativity of conditional variance, but also characterizes the asymmetry of positive and negative shocks. The form of EGARCH (1, 1) model is:

$$\ln(h_t) = \alpha_0 + \alpha(h_{t-1}) + \gamma|e_{t-1}| + \beta e_{t-1} \quad (2)$$

Among them, α_0=c_0-$c_1 * E|e_{t-1}|$ is a constant term. When β> 1, positive interference will increase volatility, while negative interference will reduce volatility; when 0< β ≤ 1, the fluctuation caused by positive interference is greater than that caused by negative interference; when β = 0, positive and negative interference has the same effect on volatility-1 ≤ β < 0, the fluctuation caused by positive interference is smaller than that caused by negative interference; when β < -1, positive interference reduces volatility, while negative interference increases volatility.

In order to better understand the psychological factors of investment, it is necessary to modify the original EGACHRH model and add some variables that can represent the psychology of investors. Referring to the existing literature, the proxy variables that can be used as psychological factors are: the number of new accounts, turnover rate, consumer confidence index and so on. Baker (2004) studied the relationship between turnover rate and investor sentiment and found that turnover rate can represent investors' investment enthusiasm and trading activity to a certain extent. When investors are more optimistic about the stock market's expectations, they will increase the time they hold stocks and the turnover rate will decline; When investors are pessimistic about stock market expectations, they will reduce the time they hold stocks and the turnover rate will rise.

Therefore, this paper selects turnover rate (turn) as the proxy variable of investment psychological factors.

$$\text{TURN} = \frac{\text{Daily trading volume of Shanghai Shenzhen 300 index}}{\text{Total number of shares issued}} \times 100\% \quad (3)$$

The turnover rate (turn) is introduced into EGARCH (1, 1) as follows:

Mean equation:

$$y_t = \vartheta x_t + \partial TURN + \mu_t \quad (4)$$

Equation of variance:

$$\mu_t = v_t h_t \quad (5)$$

$$\ln(h_t) = \alpha_0 + \alpha(h_{t-1}) + \gamma|e_{t-1}| + \beta e_{t-1} \quad (6)$$

The EGARCH model with turnover rate (turn) is similar to the original EGARCH model, y_t&x_t relationship is, y_t is the explained variable, x_t Turn is the explanatory variable, and in equation (3), h_{t-1} takes the first order of lag, which is a reflection of previous information. In equation (3), variable Q is the non opposite part of the response, which is related to people's reflection of information in t-1. $\mu_{t-1} > 0$ means that the information is good information; μ_{t-1} <0 indicates that the information is bad information; μ_{t-1} = 0 indicates that there is no impact of information.

3.2 Sample Selection and Data Processing

The data in this paper select the Shanghai and Shenzhen 300 index as the research object (4667 trading days in total) from January 24, 2002 to March 30, 2021. The logarithm is used to calculate the yield.

The calculation formula is as follows:

$$r_t = \ln(p_t) - \ln(p_{t-1}) \quad (7)$$

Among them, R_ T is the log yield on the t-th trading day, P_ T is the closing price on the t-th trading day.

In order to better study the impact of psychological factors on stock market volatility, we have drawn a fluctuation chart of the closing price of the Shanghai and Shenzhen 300 index, as shown in Figure 1. There are 4667 data of the Shanghai and Shenzhen 300 index, which can be clearly seen from the chart that in 2007 to 2009 and 2015 to 2016, stock prices fluctuated particularly sharply.

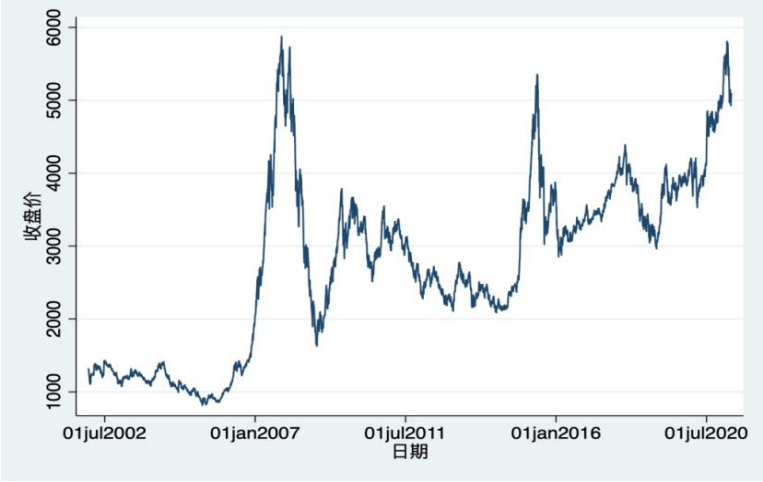

Figure 1. Fluctuation Chart of Closing Price of Shanghai and Shenzhen 300 Index

3.3 Test of Sample Data

3.3.1 Stationarity Test of Data

To establish EGARCH model, we must first test the stationarity of the data, using ADF test of unit root. The stationarity test of the daily log return of the Shanghai and Shenzhen 300 index is as follows: the value of test statistic is - 66.728, and the value of the 1% confidence level is - 3.430. The absolute value of the former is much greater than the absolute value of the latter, indicating that there is no unit root at the 1% confidence level, and its log return is stable. The specific data are shown in Table 1.

Table 1. ADF Test of Daily Log Yield of Shanghai and Shenzhen 300 Index

	t value	Critical 1%	Critical 5%	Critical 10%	p value
first phase	-66.73	-3.43	-2.86	-2.57	0.00

3.3.2 Test of Arch Effect

After passing the ADF test, it is followed by testing whether there is an arch effect. The test of arch effect on the samples of log returns of Shanghai and Shenzhen 300 index lags behind 20 orders, and the

p value of the data is less than 1 thousand, which is a high rejection of the original assumption that there is no arch effect, and there is arch effect in the sample data.

3.4 Descriptive Statistics of Sample Data

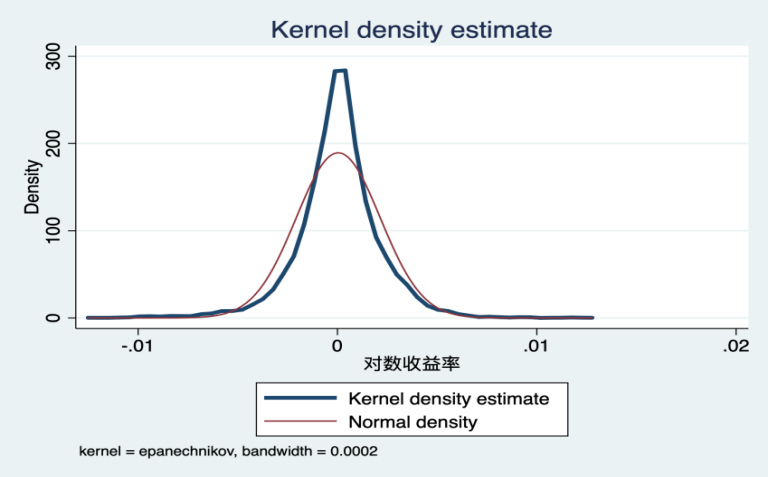

Figure 2. Core Density Chart of Daily Log Yield of Shanghai and Shenzhen 300 Index

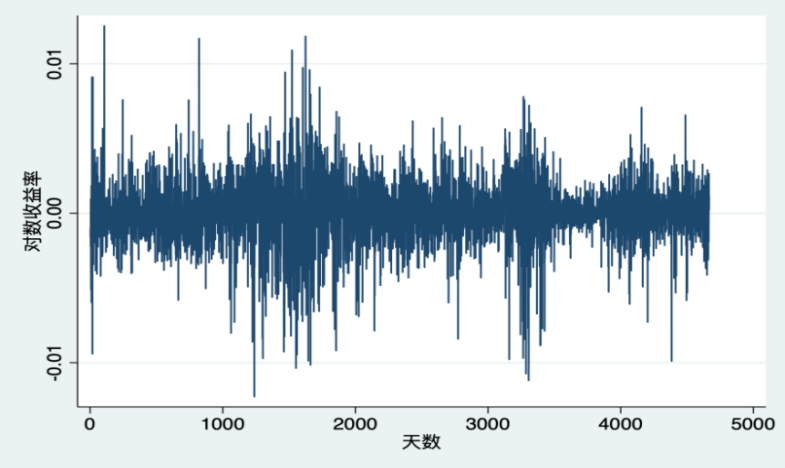

Figure 3. Fluctuation Chart of Daily Log Yield of Shanghai and Shenzhen 300 Index

Table 2. Description Statistics of Daily Log Return of Shanghai and Shenzhen 300 Index

Observable	Number of observations	mean value	Max	Min	sample standard deviation	skewness	kurtosis	J—B value
Daily log yield of Shanghai Shenzhen 300 index	4666	0.0000392	0.0125324	-0.0122664	0.0021075	-0.2995	6.967	3130

From Figure 2, Figure 3 and Table 2, we can get:

3.4.1 The skewness of the daily log yield of the Shanghai and Shenzhen 300 index is - 0.2995, and the skewness of the standard normal distribution is 0. This shows that the subjects are left leaning. The kurtosis of daily log returns are 6.967, and the kurtosis of standard normal distribution is 3, which also shows that the log returns of the sample have the characteristics of spikes. These show that compared with the normal distribution, the yield has the characteristics of "peak and tail".

3.4.2 J-B tests the skewness and kurtosis of the daily log yield of the Shanghai and Shenzhen 300 index and the joint test of the two, which are highly significant at 1 ‰ and highly reject the original assumption that the yield is a normal distribution. That is to say, there is a significant difference between the skewness and kurtosis of the daily log yield of the Shanghai and Shenzhen 300 index and the skewness and kurtosis of the normal distribution.

3.4.3 It can be observed from Figure 3 that the yield of the Shanghai and Shenzhen 300 index fluctuates greatly, and the fluctuation range is within the range of plus or minus 0.015. And it can be observed that after large fluctuations, often followed by large fluctuations, such as 1500 days, the yield fluctuates greatly, followed by large fluctuations, and the volatility is not one day, but for many days, showing a phenomenon of concentration. It can also be observed that small fluctuations are followed by smaller fluctuations, such as 3500 days, which is the opposite of 1500 days. When the yield fluctuation is very small, it lasts for many days with smaller fluctuations, that is, volatility agglomeration.

3.4.4 By adopting the information criterion method of 10-order lag, the AIC and BIC of the daily log yield of the Shanghai and Shenzhen 300 index reach the minimum in order 4, which determines that the lag order of the daily log yield is 4.

Therefore, the mean equation takes the following form:

$$y_t = \vartheta y_{t-4} + \mu_t \tag{8}$$

3.4.5 Through the autocorrelation and partial autocorrelation test chart of sample data, we can know that the autocorrelation chart of daily log return runs out of the confidence interval at the fourth and sixth orders, and the others are in the confidence interval. There is weak autocorrelation, and the partial autocorrelation chart of daily log return runs out of the confidence interval at the fourth, 16th, 23rd, 30th, 32nd and 40th orders. The others are in the confidence interval. Compared with the autocorrelation coefficient, the partial autocorrelation coefficient is strong, but the overall partial autocorrelation is weak.

3.4.6 Fitting Model

The parameters are estimated by fitting the EGARCH model with statase15, and the results are shown in Table 3.

Table 3. Results of EGARCH Model Parameter Estimation of Shanghai Shenzhen 300 Index

Observable	estimated value	standard deviation	Z statistics	p statistics
∂	-0.0036118	0.0023811	-1.52	0.029
α_0	-0.0852444	0.0303928	-2.80	0.005
α	0.9924712	0.002439	406.91	0.000
γ	0.1406667	0.0145292	9.68	0.000
β	-0.0178465	0.007779	-2.29	0.022

Therefore, the modified EGARCH (1, 1) is as follows:

Mean equation:

$$y_t = \vartheta x_t - 0.0036118\text{TURN} + \mu_t \quad (9)$$

Equation of variance:

$$\ln(h_t) = -0.0852444 - 0.9924712\ln(h_{t-1}) - 0.1406667|e_{t-1}| - 0.0178465e_{t-1} \quad (10)$$

The coefficient of the parameter equation is highly significant at the 5% level, and the fitted model meets the statistical requirements. β=- 0.0178465 is in the range of - 1 to 0, and the coefficient of turn is - 0.0036118, which shows that there is an obvious leverage effect in the daily log return of the Shanghai and Shenzhen 300 index, that is, the volatility caused by negative interference shocks is greater than that caused by positive interference shocks. This also shows that on the basis of volatility asymmetry, the turnover rate and the average return have an inverse relationship, that is, the higher the turnover rate, the lower the average return. The lower the turnover rate, the higher the average yield.

3.4.7 Evaluation of Fit Models

When evaluating the fitting model, the basic idea is that if the setting of the fitting model is appropriate, the residuals should be standardized and should be a random sequence of i.i.d, that is, there is no sequence correlation and arch effect. When evaluating the model, the steps taken are to predict first, and then to test the normal distribution and sequence correlation. The variance of prediction conditions is h_t. The residual of the mean equation is e_t. Yes, e_t the descriptive statistics of T are shown in Table 4.

Table 4. Descriptive Statistics of the Residual of the Mean Equation

Observable	Number of observations	mean value	Max	Min	sample standard deviation	skewness	kurtosis
e_t	4666	-0.0000254	0.0124679	-0.0123309	0.0021075	-0.2995263	6.967411

Then set the standardized residual as Z_ t. The square of the normalized residuals is Z_ T2,

z_{t1} The expression is:

$$z_t = {e_t}/{\sqrt{h_t}} \tag{11}$$

z_{t2} The expression is：

$$z_{t2} = z_t^2 \tag{12}$$

Set standardized residuals z_t. It is to test whether the setting of the mean equation is reasonable. z_{t2} is to test whether the arch effect of the variance part is still obvious.

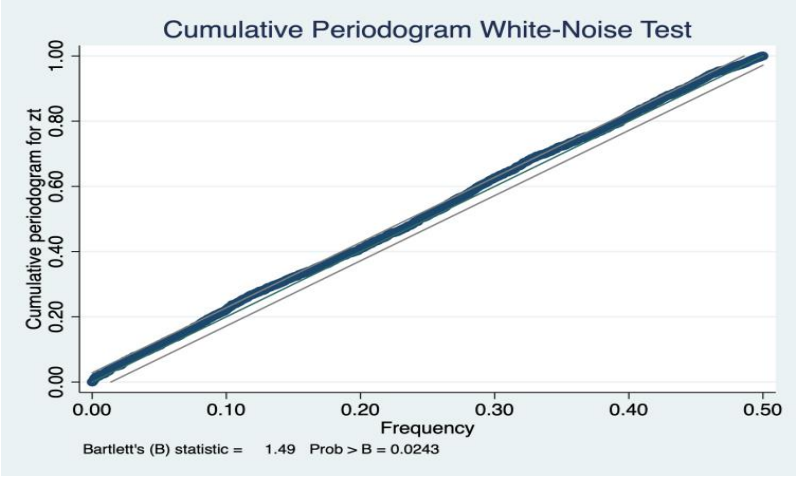

Figure 5. Normal Distribution Test Chart of Standardized Residuals

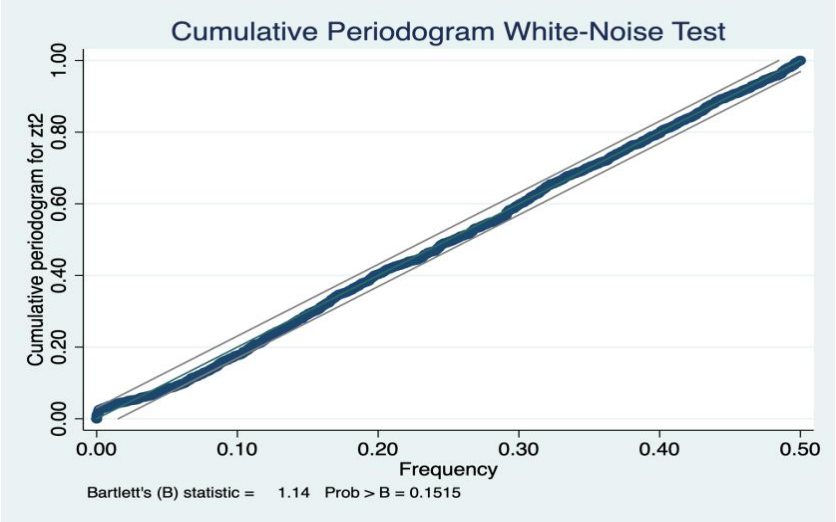

Figure 6. Normal Distribution Test Chart of Standardized Residual Square

Through the standardized residual z_t and the z_{t2} can be seen from Figure 5: z_t distribution of the whole sequence of T is generally within two confidence intervals. Judging from the image, the distribution of standardized residuals is close to the random distribution. And the p value is 0.0243, at the 1% level, there is no way to reject the original assumption that the standardized residuals obey white noise. As can be seen from Figure 6: z_{t2} is obviously better than that of z_t is within two

confidence intervals, and the p value is 0.1515, and there is no way to reject the original assumption that the square of the standardized residuals obeys white noise.

Table 5. Ljung Box Statistics

Observable	LAGS	Q value	P value
z_t	10	18.491	0.0472
z_{t2}	10	8.874	0.5541

It can be seen from Table 5 that when testing whether the fitted model has sequence correlation, the Q value and P value lagging by 10 orders are observed through Ljung box statistics. Normalized residual Z_ The p value of T is 0.0472, and there is no way to reject the original hypothesis that there is no sequence correlation, while the standardized residual square Z_ The p value of T2 is 0.5541, which can accept the original hypothesis that there is no sequence correlation.

Through the test of normal distribution and sequence correlation, the variance equation fits better, because the standardized residual square Z_ T2 not only meets the requirements of independent identically distributed, but also meets the requirement that there is no obvious arch effect. However, the fitting of the mean equation is still insufficient, because the standardized residual Z_ In the sequence correlation test of T, it is found that there is still sequence correlation, which is considered that there is still room for improvement in the mean equation.

4. Conclusions and Suggestions on the Asymmetry of Stock Market Volatility in China

4.1 Conclusion

From theory and demonstration, we can draw conclusions: 1. There is asymmetry in the volatility of China's stock market, and investors will reflect bad news significantly more than good news; 2. When investors are hit by bad news, their expectations for the future become worse, which will increase the turnover rate and finally get a lower yield; When investors are hit by good news, their expectations for the future become better, which will reduce the turnover rate and finally obtain a higher yield.

The reason for this phenomenon is that there are some problems in China's stock market. From the market point of view, stock index futures, which hedge stock market risks, are not perfect enough to effectively decompose risks. When investors are hit by bad news in the stock market, the risk they bear can not be broken down through other effective ways. In order to reduce the risk of loss, the abnormal turnover rate will increase, which will reduce the yield and increase the volatility of the stock market; From the perspective of the government, policies have a significant impact on China's stock market. Good policies may cause a wave of bull market, and bad policies may cause the stock market to fall into a wave of bear market. Investors' expectations of the stock market are vulnerable to government policies; From the perspective of investors, the main body of investors in China is retail investors, most

of whom aim at short-term investment, with strong speculation and weak ability to bear risks. Therefore, compared with other mature stock markets, disposal effect, overconfidence, herding effect and framing effect occur more obviously, which makes the volatility asymmetry of China's stock market significant. Here are some positive and effective suggestions for these characteristics.

4.2 Advice

4.2.1 Improve the Structure of Investors and Increase the Proportion of Institutional Investors

The development trend of China's stock market should be the gradual reduction of the proportion of retail investors, and the development trend of investment institutions. Compared with retail investors, investment institutions have the advantages of talent, capital, access to information and scale efficiency. From the advantages of talents, investors in institutions have undergone systematic and professional training, with high professional quality and complete knowledge system. Compared with retail investors, institutional investors will appear unfazed in the face of complex and even severe stock market conditions. From the financial advantages, retail investors can not be compared with the strong financial resources of institutional investors. From the advantages of access to information, financiers are more willing to cooperate with investors for their own stock prices and the future of the company, and will only be willing to disclose information to institutional investors. From the perspective of scale efficiency, the ratio of profit to cost will certainly be much higher than that of retail investors. To sum up, the government should constantly improve the investor structure and increase the proportion of institutional investors, both from the perspective of advantages and from the perspective of saving social resources. On the one hand, we should guide the transformation of the value concept of retail investment and reduce our irrational behavior. On the other hand, we should vigorously cultivate investment institutions and increase the proportion of institutional investors.

4.2.2 Improve the Information Disclosure System and Improve the Transparency of Market Information

Listed companies have the failure of disclosure system, which is manifested in inadequate information disclosure and untimely information disclosure. The reasons for this include the imperfect legislative system of information disclosure of listed companies, the lack of regulatory system of information disclosure of listed companies and so on. If the legislative system restricting listed companies is not perfect, it will weaken the binding force on Listed Companies in information disclosure and reduce the pressure on listed companies to disclose information in a timely and accurate manner. And in the absence of clear legal provisions to restrict listed companies, it is a major lack in the regulatory system itself, and the punishment of listed companies for failing to perform their duties can not be determined. Therefore, the government should improve the legal system of information disclosure system of Listed Companies in China, speed up the revision of relevant laws and regulations, and establish a multi-level securities laws and regulations system; The government should also strengthen the supervision of information disclosure of listed companies, restrict some adverse acts of listed companies, and increase the punishment for illegal acts of listed companies. At the same time, in order to maintain the good order of the market, the constraints of listing itself are also essential. Listed companies should strive to

cultivate a good corporate culture and dare to assume social responsibility. Only when the government and listed companies change together can the market mechanism be made more sound.

4.2.3 Cultivate the Concept of Value Investment and Overcome Emotional Investment

As the main body of China's market, retail investors have no advantages in ability, financial resources and information compared with institutional investors, so their own weakness is difficult to overcome. Therefore, if we want to get returns, on the one hand, we must cultivate the correct concept of value investment, that is, to replace those stocks that chase the rise and kill the fall with the company's own value as the standard of investing in stocks. In the stock market, the fluctuation of stock price is a normal state, recognizing the real value of the company and investing, and calmly dealing with it is the steady mentality of investment. If you understand that your strength is insufficient, you can choose to invest in some robust assets, but also choose to invest in some reputation funds and so on, which are all ways of robust investment. On the other hand, retail investors also need to understand their cognitive biases and avoid mistakes in decision-making. Cognitive bias, such as disposal effect and overconfidence, will have a deeper understanding of their own cognitive bias after a systematic understanding of these theories, and will effectively avoid the loss of unnecessary investment when investing in stocks.

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