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**FINANCIAL BEHAVIOR OF INDIVIDUAL INVESTORS IN CHINESE STOCK
MARKETS**

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Abstract <p>As the market entity, the investment behavior of individual investors play a key role for the operation of securities market. The early research of investors' financial behavior mainly includes the classic theories such as Efficient Market Hypothesis (EMH) and Arbitrage Pricing Theory (APT). However, many anomalies cannot be well explained by traditional financial theory. In actual, there exists a large amount of irrational investors in the market. Combined with the practical situation of Chinese policy-oriented market and the characteristics of Chinese individual investors, the circumstance is more serious in Chinese market. Thus, applying financial behavior theory to investigate the investment decision of investors is necessary. This article adopts financial behavior theory and data analysis to examine the two main anomalies of Chinese individual investors, which are herding behavior and overconfidence phenomenon. Also, it proposes the corresponding policy suggestions for Chinese stock market.</p>			
Keywords Chinese individual investors, financial behavior, policy market, overconfidence, herd behavior			
Additional information			

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1 INTRODUCTION

1.1 Background and significance

There are two basic hypotheses in traditional finance: efficient market hypotheses (EMH) and hypothesis of rational man. EMH supposes that investors are completely rational. Their investment behavior urges the asset price consistence with its value. Thus, there has no excessive profit and arbitrage opportunity exist to beat the market. (Fama, 1970) At the same time, hypothesis of rational economic man assumes that agents can always have a clear preferences and make standard decision in accordance with Bayes' Rule. Nevertheless, investors can merely be limited rational in reality. There exists a large amount of noise traders in the market. The irrational investment behavior of them would lead a large scale deviation of asset price from the real value, in turn triggers a series of anomalies in stock market which cannot be explained by traditional financial theory.

As Baruch (1957) considered, what drives the stock prices fluctuate is not the objective financial strength or varying events but the human reactions about how these events would influence their future recognition. In other words, stock market is a human market. This point confirms the Chinese equity market structure well. According to the statics of China Securities Depository and Clearing Corporation Limited (CSDC, 2014), the Chinese individual accounts have been approximately 183.28 million until 2014, which occupies around 99.6% of total number of accounts in Chinese stock market. As the main body of security market, the investment behavior of Chinese individual investors play a key role. Furthermore, the unique culture and policy background results the particularity of Chinese individual investors. Compared with the stock market in developed countries, Chinese security market starts late. It has the characteristics such as speculative, high turnover rate and severe fluctuating. The market is still in the initial development stage and inefficiency. Meanwhile, the irrational feature of Chinese individual investors is obvious. They advocate short-term operation and casino-style

investment. (Ozorio and Fong, (2012)) Furthermore, Chinese stock market is a policy-dependent stock market. From government's perspective, it exists excessive administrative examination and weak constraint mechanism of honesty and credit for listed companies simultaneously; from the listed companies' perspective, there are leaks in their information disclosure. Both of these factors result in Chinese individual investors' decision over-reliance on policy release.

Under this background, behavioral finance is more suitable for Chinese stock market. Behavioral finance focuses on the research of investors themselves. It considers that human beings are not always rational and the information are not efficient at every second as well. Combining psychology and behavioral science to research individual investors' microscopic behavior and motivation, it gives a better explanation and prediction of the anomalies in stock market and supplies steady investment strategies for individual investors. Thus, financial behavioral has strong guiding effect for both Chinese securities market and investors. Although Western scholars have already made a lot of empirical research for analyzing the anomalies and investment strategy of stock market, the gap and difference between Chinese equity market and western mature market cause that the result cannot be directly used in researching Chinese individual investors. Thus, this article discusses the investment behavior of Chinese individual investors combined with their own and market's characteristics by using the newest Chinese stock market data.

1.2 Research methods and main results

From the establishment of Shanghai Stock Exchange in December 19th, 1990, Chinese securities has only developed for a short decades. The laws and regulations of the stock market is imperfect, as well as the investment behavior of investors. The structure of investors presents an abnormal state. Adaptable to the less developed situation of Chinese securities market and investors, to analyze the behavior and psychology of Chinese individual investors is very meaningful.

This article combines literature research and empirical study to research the relation between investors' overconfidence and trading volume and the herd behavior of investors as well. Compared with experimental study and questionnaire survey, empirical research is more suitable for Chinese investors due to their large base and diversity. We firstly point out the deficient of traditional financial theory based on EMH and Rational Economic Man Hypothesis. On account of financial behavior theory, we conduct theoretical analysis to overconfidence and herd behavior of Chinese individual investors. Then we choose historical data of China Securities market and use mathematical model to receive the conclusion that Chinese individual investors have overconfidence and herd behavior when they invest.

1.3 Innovations and deficiencies

The innovations of this article is to adopt the up-to-date data to test the irrational phenomena in Chinese stock market with the newest policy changes. We use the recent data to test the overconfidence and herd behavior among the Chinese individual investors and sum up their irrational characteristics.

The deficiencies of this article is that we only choose two typical anomalies in Chinese stock market to test, which cannot represents the overall perspective of Chinese market and investors. Meanwhile, we do not process the strategy analysis and selection.

1.4 Roadmap

The thesis contains four parts:

Chapter One explains the research background and significance of the topic. Meanwhile, it briefly describes the research methods and results. In addition, it points out the innovations and deficiencies of this article.

Chapter Two is the literature review part. It firstly states the problems of traditional financial theories and then elaborates the development and theoretical basis of financial behavior. Moreover, this chapter states the main anomalies in Chinese stock market and their relevant previous studies.

Chapter Three summarizes the characteristics of Chinese individual investors. At the same time, it introduces impact of the policy market and the newest policy like circuit breaks mechanism.

Chapter Four is the emphasis of this article. In this part, we use the data of Chinese securities market to conduct empirical analysis of Chinese individual investors' behavior. We focus on testing whether there exists overconfidence and herd behavior among Chinese individual investors.

In Chapter Five, we discuss the application of financial behavior theory in Chinese securities market and propose some suggestions for the policy.

2 LITERATUREVIEW

2.1 Challenge of Classical Financial Theory

Modern Finance is on the basis of on Rational Economic Man Hypothesis and Efficient Market Hypothesis (EMH). Rational Man Hypothesis is the precondition of EMH. It considers rational expectation, utility maximization and risk aversion as the foundation of human decision. Decision maker would utilize available information logically abide by Bayes Rule to realize utility maximization. However, a number of psychology studies show that the realistic investment decision of human beings is not always as expectation. In addition, the deviation of human decision is systematical and cannot be eliminated by statistics.

Based on Rational Man Hypothesis, EMH proposed by Fama (1970) has been the core proposition of classical financial system. It assumes that price reflects all the information of the market. Capital price would always be consistent with its value. Moreover, investors cannot win extra earnings by accessing to information. There are three assumptions in EMH. Firstly, it considers investors are entirely rational. Therefore, they can conduct the value evaluation of securities completely rational. The second hypothesis is even though a part of investors are not rational totally, there irrational would cancel out due to the randomness of their transactions. Hence, the price would not be influenced. Thirdly, even if the irrational behavior of investors are not randomly but relevant, the rational investor would eliminate this effect by arbitrage. In brief, both the rational behavior of investors and the strength of market would guarantee the effective of market.

According to Fama (1970), stock price would response to the stock price variation rapidly and accurately. After investors achieving all kinds of basic information in the market, they would react promptly to the information change. Meanwhile, Fama (1970) also indicated that non-aging information could not create profit. Through distinguishing non-aging information, there were three market types. The first type was weak

efficient market, which means security price contain all history information. Investors could not earn extra bonus by analyzing historical information. There have two main test methods of this market. The first one is serial correlation test, which is also called autocorrelation test. This method processes linear regression to i and j phase price series. If the correlation coefficient is within a certain interval, then the price change is considered uncorrelated. The other method is non-parametric approach. This method is used to estimate whether there will appear positive/negative return after the negative/positive return. (Sewell, (2012))

The second one was semi-strong efficient market. It considered market do not only contain historical information but also all include current public information. Investors could achieve no extraneous earnings by both analyzing the history and current information.

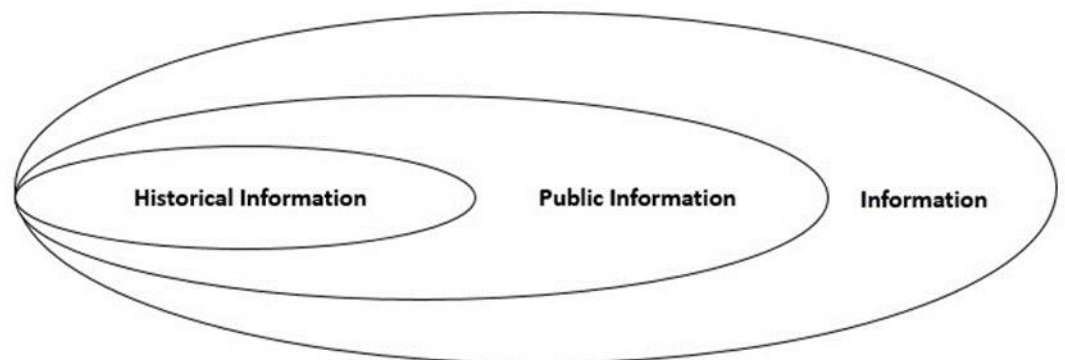


Figure 2.1.1: Relationship between three kinds of information

Fama (1965) discovered that stock price abide the random walk rule in general. He pointed out there have no systematic arguments to support the technical operation such as purchasing stock at the start of price rising and sell it when entering into downturn can gain extra profit, which supported the weak efficient market. Another method is the event study methodology proposed by Fisher, etc(1969). This method observes the difference of accumulated abnormal return before and after one special

event, such as the publication of annual report or stock split. The method is used to check the effectiveness of semi-strong efficient market. The first step of this method is to select a group of stocks and using CAPM single factor model to calculate their rate of return. After finishing this step, the time interval should be set. Then calculating the abnormal return of each stock and average abnormal return within this interval. The last step is to calculate the CAAR before and after the time t respectively and analyze the difference of CAAR before and after the event. There are some situations will happen. Firstly, if there is an unexpected favorable news published, CAAR will fluctuate around horizon line before the good news publishing. Then at the publication day, CAAR goes up with the surge of stock price. After that, CAAR will fluctuate again around a new level. This circumstance is on behalf of the existence of semi-strong efficient market. The second situation happens when the good news is foreseeing. The stock price and CAAR will rise continuously before the news publishing. Until the publication day, market has already digested this news. CAAR will fluctuate again around a new level after the day. Under this circumstance, the assumption is tenable too. Otherwise, if public does not predict the good news, but the stock price and CAAR keep rising from the publication date, this situation indicates the market does not digest the news timely. The semi-strong efficient market hypothesis is invalid.

Table 2.1.1. Representative Empirical Researches of Semi-strong Efficient Market (Levy and Post, 2005)

Researcher	Year	Research Object	Existence of Semi-strong Efficiency	Conclusion
Scholes	1972	US Stock Market	Yes	In general, stock price will fall down after insider releasing stocks.
Jaffe	1974	US Stock Market	No	Insiders can earn profit from insider trading.
Ball	1978	US Stock Market	No	Investors have response lag to the announcement of surplus news.
Dodd	1981	US Stock Market	Yes	There is no excess return after the announcement of merger news.
Roll	1984	Orange Juice Futures	Yes/No	If the transaction is restricted, market is inefficient. Otherwise, it is efficient.
Seyhun	1986	US Stock Market	Yes	Insiders cannot earn profit from insider trading.

The last market was strong efficient market. It showed security price reflect historical information, current public information and insider information. Even though investors owned insider information, they still could not win extra earnings. The typical test of strong efficient market include: Lorie, Niederhoffer (1968) and Finnerty (1976) found company insiders can sustainable earn higher rate of return than market, which betrayed to the assumption of strong efficient market. A number of scholars also did research to test whether securities analyst can earn excess profit. For instance, Black (1973) investigated the shares rating by Value Line from 1965 to 1970 and verified that the average return of the highest rated shares is almost 20% higher than the lowest rated shares. Stickel (1985) discovered the stock rating changed would significance influence the stock price, especially when the rating was improved from Rank 2 to Rank 1. Hulbert's (1990) study indicated that the ranking of Value Line had no advantage after 1983, which supports the strong efficient market hypothesis.

However, these assumptions are in conflict with the real behavior of investors in the market. The three assumptions of EMH are all be challenged in theory. The first hypothesis supposes that investors are reasonable person. They adopt passive investment strategy in usual due to lack of information. Nevertheless, investors are always over-active in reality. They often make investment decision rely on some irrelevant information. Black (1986) found investors buy stock in terms of noise to a large extent. Individual investors' decision would be affected by analyst. Sometimes they conduct frequent operations overconfident. Kahneman and Tverskey (1979) illustrated that for profits, investors' utility function is concave, while for loss, it is convex. In the processing of investment, investors' psychological factors would lead actual decision bias. About the second assumption of EMH, it considers the randomness of investment behavior would eliminate the irrational of investors. Thus, there would have no impact on stock price. However, the research of Kahneman and Tverskey (1979) denied this viewpoint. They identified common investors

would not operate in strict accordance with their investment concept. Their investment decisions were frequently interact and relevant. Influenced by rumors, investors often choose same investment style and make quite similar investment decision. Thus, the randomness was not exist as the sociality of individual investors. Moreover, the third hypothesis of EMH assumes that even a part of investors' irrational behavior is non-random and relevant, rational investors would still eliminate this negative impact through arbitrage. Nevertheless, the limit to arbitrage theory of Shleifer and Vishny (1997) showed the actual operation of arbitrage was with high risk and small effect. To make the arbitrage effective, investors must find substitute securities with similar price to conduct reverse operation. However, it was quite difficult to find a suitable substitute stock. Therefore, if there appeared pricing deviation, arbitrage was very difficult to hedge risk. Even though investors could discover totally same substitute, there were more risk exist. For example, if the pricing biases were not be corrected for a long time, many investors could not get over the loss period, which would result in the failure of arbitrage. Thus, arbitrage was risky and hard to realize the expectation of EMH.

At the same time, the three types of market also suffer empirical challenges. About the weak efficient market, De Bondt and Thaler (1985) denied the opinion that investors could not win extra bonus by analyzing past information. In their study, they combined the stocks have highest three-year cumulate return as "winners" while some stocks have lowest return as "losers". According to statistical analysis, the "losers" had higher investment return than "winners" within the five years in future from the period 1933 to 1985. This was because investors frequently overacted to the history information of securities. On one hand, Bad news of mismanagement companies emerged constantly, which lead investors underestimated the value of these companies and avoided to buy their stocks. On the other hand, the stock price of well-manage companies were often overrated due to the continuous good news. The relevant research of Chopra, Lakonishok

and Ritter (1992) also indicated that the performance of “winners” and “losers” stocks would have price reversal. This result showed that investors could predict return on investment and construct portfolio had better performance than market return based on the past performance of stocks. Thus, securities market was not efficient. Then coming to the semi-strong efficient market, it considered the fundamental analysis of stocks were useless. However, Banz (1981) discovered the size effect of stocks. The yield from investing in small-cap stocks was higher than investing in the largest scale stock portfolio. Moreover, Keim (1983) and Blume & Stambagh (1983) found January effect in their further study, which indicated that small cap had better performance in the first two weeks of January. All of these researches demonstrated that public information was useful for investors to judge the performance of stocks, which was contradictory with semi-strong efficient market. Lastly, about strong efficient market hypothesis, it has very strict restrictions for stock market. Even in the developed market has complete law, such as American securities market, it still belongs to weak or semi-efficient market. Strong efficient market is only a theoretical assumption but not exist in reality.

2.2.1 Herding Behavior

Herding behavior refers to investors tend to ignore their valuable personal information but choose to follow the most common decision mode. In stock market, it manifests as a mass of investors adopt same investment strategy or have same preference for specific assets. (Bikhchandani and Sharma, (2000)) Herding behavior is a complicated phenomenon, psychologists explain the causes from many aspects, such as unconscious impulses. (Prechter,(2011)) From the perspective of economics, the most direct factor is to earn payoff or reputation. Moreover, the uncertainty of information also results in herding behavior. Because there has continuous information flows into wide-open financial market, the speed of change is very fast. Meanwhile, many Chinese individual investors are lack of systematic studying and understanding of stock knowledge. Also, Chinese market is a policy-dependent stock market. Investors would be affected by all kinds of public and governmental information. Under this situation, individual investors are inclined to follow the policy and crowd. Furthermore, high cost of information also leads to herding behavior. In ideal market, information has no cost and people can obtain every information they want. However, information has high cost in real market. Sometimes the cost is too high in order that investors have to follow others blindly or get information through others' transaction behavior.

Through a great deal of study and research, scholars proposed five kinds of herding behavior, which included reputational herding, investigative herding, information herding, characteristic herding and compensation-based herding. Reputational herding behavior was presented by Scharfstein and Stein (1990). This basic thought was when investors were not sure about their investment decision, to reduce the influence to their reputation, they were inclined to keep pace with investment professional. While when other investment experts generated same ideas, herding behavior emerged. After the

putting forward of reputational herding behavior, some researchers amended this theory successively. Zwieble (1991) considered financial market has a reasonable measure system to general investment strategy. Therefore, investment agent was willing to follow other investment agents to adopt the more commonplace investment strategies. Based on these, Banerjee (1992) proposed that although there has no reputation inspiration as the affect factor, it still possible to appear herding behavior in the market. Berger and Humphrey (1997) further discussed that herding behavior will become more and more rare with the richer investment experience of investors.

Investigative herding was firstly proposed by Froot, Scharitein and Stein (1992). This theory believed the short-sighted investors in financial market would also adopt same investment tactics on same information. Prerequisite for the establishment of above opinion was that all the investors of this financial market achieved information at same moment. Hirshleifer, Fsubrahmanyam and Titman (1994) considered Fund Company existed delay phenomenon when obtained common information. They deemed Fund Company tried to acquire the investment strategy information of other investors, which was a kind of investigative behavior.

Banejee (1992), Bikhchandni, Hishleifer and Welch (1992) all referred to information herding behavior in their studies. This study considered price was totally open and transparent. Every investor faced same price. Then a part of investors would follow the forerunners' investment decision to complete their own investment. Consequently, there formed decision information flow. In financial market, although every investor faced similar investment decision, investors themselves owned different private information. Private information contained investors' research and judgement to investment products and their different understanding to public information. Investors could observe others' investment decision. However, they could not observe other's private information or receipt signal. Only through investment

decision, they could infer other investors' private information. BHW's model was improved by Lee (1993). Lee redefined information in series. He regarded decision sequence were endogenous. Decision space was continuous but not discrete. Also, he softened the precondition of BHW model, which made the model close to reality. Characteristic herding behavior was first presented by Falkenstein (1996). He thought fund investors had preference in selecting portfolio. For example, they were inclined to purchase income stock and averse to illiquid and poorly performing stocks. Gompers and Metrick (2001) also discussed the preference of fund investors to stocks with different characteristics and the implications of this tendency. The result showed that fund investors can predict the earnings of individual stock in accordance with the requirements change of investors caused by the liquidity, historical return and volatility of stock.

Based on above theories, Maug and Naik (1996) proposed compensation-based herding behavior. They supposed investment manager decide their compensation level by comparing other managers' performance. Compared with using absolute rate of return on investment to measure income, this kind of compensation system was more destructive to investment manager's inspiration mechanism. . To measure investment agents' investment return, it was not only need to consider the absolute earnings but more important to take into account the relative gain. Hence, to keep the stable of compensation, investment agents would bring into correspondence with other managers' investment strategy. Consequently, there emerged herding behavior. Admati and Pfleiderer (1997) found that when the earnings relevant compensation cannot effectively spread risk, investment agents would still adopt same investment strategy as other agents to keep their compensation stable.

The studies of herding behavior in China start relatively late. Wu and Song (2001) chose Chinese fund as research object from October 1998

to September 2000. They found Chinese fund have herding effect, especially in high growth industry stocks, low price stock and small company stock. They conducted further study in 2001 and discovered that the herding effect in Chinese stock market is higher than American market. Shi (2001) operated grouping study of Chinese stocks from the first season of 1999 to the third season of 2000. His research showed that Chinese stock market existed apparent herding effect, especially in the hot industry like electronic communication, biomedical industry and construction. The outstanding herding effect leded investors hold similar investment concept and aggravated the fluctuation of stock price. Jiang, Chen and Wu (2003) utilizes cross-section absolute deviation to test the herding effect in Shanghai and Shenzhen stock market, which the results also demonstrate that Chinese stock market exist herding effect. Although the research of herding effect in Chinese market has just started and most of the researches are not focus on individual investors' behavior, it can still see that Chinese stock market has distinct herding effect. Through analyzing the research results, it can be found that Chinese stock price often goes up and down in same direction. Also, investors' investment behavior have distinct consistency. Even there has no inside information, institutional investors will also try to create false prosperity through broadcasting all kinds of news to cause herding effect.

2.2.2 Overconfidence

Herding behavior is a complicated phenomenon, psychologists explain the causes from Overconfidence indicates people prefer to over trust their own judgement but undervalue the possible deviation of this judgement. Security market is a typical site where people are easily to perform overconfidence. In investment activities, people always over estimate their chance of success and attribute the success to their ability but ignore the factors such as opportunity and fortune. (Bénabou and Tirole, (2004)) The consequence of over-confident may lead to an over-reaction of information which is beneficial for investors themselves but an under-reaction of unfavorable information. In turn, there will arouse the behavior biases of investors such as short-sighted, under risk aversion and frequent trading, and then reduce the return of investors.

From 2005, Chinese stock market ushered in bull market. Till 2007, the market reached a peak. Shanghai Composite Index rose up from 1000 points to 6000 points. In April 2007, the trading volume of Shanghai Stock Exchange attained 2393.01 billion shares and the amount was 30194.11 billion yuan, which was 170 times the number of the bottom in September 2005. (CSMAR, 2016) At that time, Chinese investors were full of confidence and investment enthusiasm, some of them believed the money input into stock market must get return. Odean (1999) found the trading volume of financial products seem relative high in global financial market. The amount seemed surpass the explanation scope of rational expectation market model. Meanwhile, he also discovered that the investor trade the largest amount was also the one with biggest loss. Barber and Odean (2000, 2001) considered the rise of trading volume would lead the earnings and expected utility of investors decrease. However, in China, especially when facing bull market, some individual investors ignore

risk and transaction cost to conduct frequent transactions. Among their investment behavioral bias, overconfidence is an important type. Alpert and Raiffa (1982) found the persistent overconfidence would lead investors to actively take more risk and deviate from rational way. The result of this deviation was investors choose to ignore the truth that stock price was random walk but insist to believe it was regular. Also, they thought they grasp the rule better than others. Odean (1998), Gervais and Odean (2001) and Barber and Odean (2001) all believed the increase of transaction amount was the most direct and obvious result of overconfidence. Psychologists proved that people were overconfident to their capacity in general. (Frank, 1935). Thus, scholars add this behavioral bias into rational model and financial hypothesis. The hypothesis of overconfidence usually include: Investors are overconfident to the accuracy of their private information; the degree of overconfidence lead by self-attribution bias will change with the change of realized market return. Based on these assumptions, researchers received some models and conclusions which were different from classic models. For example, Daniel, Hirshleifer and Subrahmanyam (1998) and Odean (1998) analysed the influence of investors' over-estimation to their accuracy of private information to stock price and market equilibrium. Karpoff (1987) considered the research of relationship between transaction volume and return would be helpful to observe the structure of financial market. Both he and Stoll, Whaley (1987) had investigated trading volume and return of current period. Statman, Thorley and Vorkink (2006) researched lag relationship between market turnover by using time series to test the market and individual turnover data of NYSE/AMEX. Based on these studies, this article conducted similar empirical research of Chinese investors' investment behavior.

Recent years, Chinese scholars also conduct many researches of overconfidence combined with the characteristics of Chinese individual investors. Hu and Cai (2003) explained the frequent fluctuations and stock-market bubble of Chinese stock market by discussing the

overconfidence of investors. Chen (2006) described the psychological cycle of investors in stock market, which included seven phases—“Contempt, Caution, Confidence, Conviction, Complacency, Concern and Capitulation”. Overconfidence would reach the highest point at the top of bull market whereas to the lowest point at the bottom of bear market.

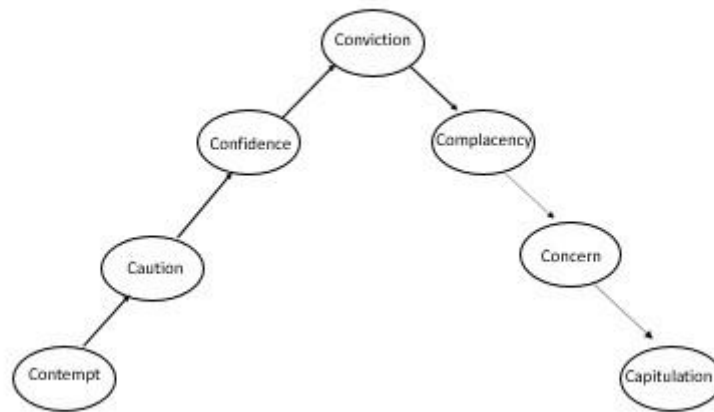


Figure 2.3.1: Psychological cycle of stock market

3 THE CHARACTERISTICS OF CHINESE INDIVIDUAL INVESTORS AND POLICY-DEPENDENT STOCK MARKET

3.1 Age Composition

According to the Second Investigation Analysis Report of Individual Investors in Chinese Stock Market (2008), young and middle aged investors are the main force. Among them, the 25 to 34 years old investors are the most, which occupy 36.23%. The investors over 45 years old are over 20%. It should be noticed, investors start to show a trend of getting younger from 2007. Before 2000, the investors under 34 years old who entered the market only took up 7.7 percent. Then this proportion raised up to 23, 3 percent in 2007. The age composition of Chinese investors is also much younger than the investors in United States.

3.2 Investment Style

Over 70 percent of Chinese individual investors rely on their own analysis and judgement to invest in stocks. Among them, 45 percent investors incline to choose the relevant undervalued stock, while 30 percent investors prefer to select high growth stock. This kind of fundamental analysis reflects the value idea has been deeply recognized by the Chinese individual investors. However, most of the investors choose to conduct frequent trading in actual operation. The high turnover rate reflects obvious psychology of speculation. To be specific, approximately 65 percent investors' stock holding period is within 3 months. Meanwhile, almost 39 percent investor just hold the securities less than 1 month. However, high turnover rate does not indicate high return. According to the investigation, the formation mode of investment decision has certain effects on earning position. (China Securities Investor Protection Funds, (2008))

The investment decision which forms through recommending of stock exchange has the highest profitability ratio. Then it is by the self-analysis of investors themselves, while the decision comes through reading stock

comment has the worst performance. However, a majority of Chinese investors' investment knowledge is come from informal education. Around 70.4 percent of the investors' security knowledge is from the introduction of relatives and friends and stock analyst, newspapers and magazines. When they make detailed investment decision, it is on the basis of friends' recommendation, stock comments and grapevine. This proportion reaches up to 51.5 percent. In investment methods, over 20 percent individual investors almost invest without any analysis but just based on their feeling to conduct haphazard investment. To comment their investment blunders, most of the investors attribute the mistakes to external factors, such as the policy change and manipulation of banker. Only 28.7 percent of investors consider the failure is caused by the lack of investment knowledge and experience of themselves. (Gong, (2010))

3.3 Policy- Dependent Stock Market

The Chinese stock market has long been known as the policy-dependent market. Government and its policy has a profound effect on both the stock price and investors' behavior. The original intention of Chinese government to build up the stock market is to attract the idle funds of public to solve the problem of the high liabilities of state-owned enterprise and high doubtful loans of nationalized bank. Government is the founder and propellant of the stock market. (Chen, (2009)) It plays the role as the superintendent of stock market, the biggest shareholder representative in market and the guardian of individual investors. When the stock market slumps in a long-term, the government will publish a series of good policy to stimulate the stock warming, whereas the stock market is soaring, to avoid the over speculation and bubble phenomena, government will also adopt many measures to restrain marketing hype. Thus, throughout the development of Chinese stock market, every price surge has close relation with the government regulation.

For example, the government introduced the reform of the shareholder structure with doubts in April 29th 2005. The main target of this reform was to eliminate the non-tradable shares (NTS), which was a unique feature of the ownership structure of Chinese listed companies. The non-tradable shareholders were forced to pay consideration to the public shareholder. Except for 45 listed corporates, 1,361 Chinese listed companies had finished the reform as required within one and a half year. The expectation of the authorities was to realize the interest integration of shareholders and re-valuation of capital market. The reform really played an active role at the start. Shanghai securities composite index had raised up from 1100 points to 6124 points from May 2005 to October 2007. However, the bull market did not last for a long time. Only 11 months later, it went back to under 2000 points again. (Beltratti and Bortolotti, (2010)) It was a pity that this reform did not play a role to revise the inherent system deficiency. More than that, with the listing of large state-owned enterprises and the rise of state-owned holding financial organizations, there had caused pressure of rapid stock market expansion. The insider trading started to be more prevalent and the difficulties of supervision had increased. All in all, the market had become more policy-dependent. To some extent, this was a process of non-public denationalization.

Another big issue which can reflect the policy-dependent nature of Chinese stock market was the implementation of circuit breaker mechanism. Circuit breaker mechanism points that when the volatility of stock price has reached a defined level, the dealing will stop for a while. The main purpose of this mechanism is to give a cooling off period to the market and investors to let them digest the market information completely, and to prevent the drastic fluctuation, especially the sharply decrease of the market. In December 4th 2015, the Shanghai and Shenzhen stock exchanges and the China Financial Futures Exchange published the relevant provisions of Circuit breaker mechanism. This mechanism was put into implementation in January 1st 2016. In January 7th, A share had fused for twice within half an hour of opening quotation. The turnover

time was only 14 minutes and almost 1,700 stocks reached the decline limit, which had created the fastest record of closing quotation in history. This abnormal situation had led the panic spread to all over the world. Until 10 am of 7th, the Hang Seng Index had slumped 2.8 percent. All three major U.S. stock indexes, the Euro Stoxx 50 and Nikkei 225 Index dropped sharply as well. (Creditbank, (2016))

The reason that circuit breaker mechanism had become a farce was the Chinese government just followed the example of the U.S. without considering the practical situation of Chinese market and investors. After the U.S stock market crash in 1987, a commission led by former U. S. Treasury Secretary Nicholas Brady proposed the suggestion to carry out circuit breaker mechanism. The Commodity Futures Trading Commission (CFTC) and Securities and Exchange Commission (SEC) approved the circuit breaker mechanism of New York Stock Exchange (NYSE) and Chicago Mercantile Exchange (CME). Hereafter, Japan, Singapore and Korea introduced in the mechanism in succession. Circuit breaker mechanism had really played a role in stabilizing the market and control market risk in these countries. For example, it helped the U.S. to get rid of the stock plunge triggered by the 1997 Asian financial crisis. Also, it assisted Japan to come through the shock of Fukushima nuclear power plant to security market. (Faux, (2016))

However, there exist big difference between the U.S and Chinese market. First of all, the participants of the market are different. In the U.S, the ratio of institutional investor is up to 70 percent with the mature of market. (Sassen, (2013)) While as mentioned before, more than 90 percent investors are private investors in China. Relatively, institutional investors are more mature, rational and have more methods to hedge risk. Compared with them, individual investors' performance is more impulse and irrational. The market leads by institutional investors seldom appears the phenomenon of rise and drop suddenly and sharply. Thus, the circuit breaker mechanism is more suitable for the U.S market as a risk prevention and control mechanism.

The second difference is about the trading mechanism. In the U.S, there exists no price limits mechanism. However, Chinese government has set the 10 percent price limits system intrinsically. The 7 percent fusing threshold value was too close to the price limits, which equaled to give short-seller an obvious targets. Thus, both the trading psychology and the transaction system lead the confusion of Chinese stock market.

4 HYPOTHESES AND METHODS

This part detailed describes the empirical research of Chinese individual investors' behavior. Firstly, I will briefly introduce the basic information and behavior characteristic of Chinese individual investors in accordance of the data and investigation of Research Institute of Shenzhen Stock Exchange. For example, it analyses age distribution, educational level, and investment method and investment philosophy. In summary, the behavioral features of Chinese individual investors are frequent short-term operation, obvious conformity behavior and weak capability to resist risk. These characteristics reflect that Chinese individual investors have much cognitive bias on their investment behavior, such as herd behavior, over-confident, policy dependence, psychology of sudden wealth and gambling. Then I use the newest data and financial model to analyses the cognitive bias in specify.

4.1 Herding Behavior

This article mainly uses dispersion to test whether Chinese investors exhibit herd behavior. The common methods to test dispersion degree of rate of return are the cross-sectional standard deviation of returns (CSSD) and cross-sectional absolute deviation of returns (CSAD), which were proposed by Christie and Hang (1995) and Cheng (2000), respectively. They believed that investors would exhibit herd behavior in the high volatility market. When herd behavior emerged, the return of a single stock would approach market return. Therefore, we can use the deviation between the yield of individual share and the yield of the whole market to check the herd behavior.

Christie and Huang (1995)'s expression of disperse degree of rate of return is as below. It assumes that there are n stocks in asset S . R_i is the rate of return of stock I . R is the average rate of return of n stocks. The diversifying degree of S is defined as:

$$\text{CSSD} = \sqrt{\frac{\sum_{i=1}^n (R_i - R)^2}{n-1}} \quad (4.1.1)$$

By using this formula, the approaching degree of the average yield of an individual stock and portfolio can be quantified. When the market is controlled by herd behavior, the price of individual stock and the asset will move together. Then the standard deviation CSSD is equal to zero. The smaller the value of CSSD, the stronger the herd behavior.

However, due to the conservatism of CSSD, there exists the possibility to underestimate herd behavior. Thus, this article employs the CCK model put forward by Cheng, et. al. (2000) to test the herd behavior in Chinese market. CCK model used the Cross-Sectional Absolute Deviation (CSAD) index to measure the dispersion degree between the yield of individual stock and the average return of the market.

$$\text{CSAD} = \frac{1}{N} \sum_{i=1}^N |R_{i,t} - R_{m,t}| \quad (4.1.2)$$

CCK model considers if the market is normal and the investment decision of investor is fully rational, then CSAD and $R_{m,t}$ will present a positive linear relation. In contrary, if the market exists herding behavior, then CSAD_t will have nonlinear relation with $|R_{m,t}|$. The model to test herding behavior is as below:

$$\text{CSAD}_t = \alpha + \gamma_1 |R_{m,t}| + \gamma_2 R_{m,t}^2 + \epsilon_t \quad (4.1.3)$$

In this formula, if the quadratic coefficient is significant, then herding behavior exists. Among them, when the quadratic coefficient is negative, the herding behavior is serious, or there only have slight herding effect.

Using CSAD as the measure of herding behavior, the hypotheses are:

H0: if $r_1 > 0$ and $r_2 = 0$, there has no herd behavior;

H1: if $r_1 < 0$ and $r_2 = 0$ or $r_2 < 0$, there exists herd behavior.

In the data section, we used the daily closing price of Shanghai Stock Exchange 180 index as the representative of individual stocks. The Shanghai Stock Exchange 180 index includes 180 of the most representative sample stocks. Their market value occupies a major part of the total market value. Also, it can be used to estimate the operating performance of Shanghai Market A shares. The sample period is from October 10th, 2013 to October 28th, 2015. The total 502 data was picked from Netease Finance (2016). In addition, the daily return is calculated as $R_t = \ln P_t$, where P_t is the closing price at time t .

According to the formulas above, we can calculate the CSAD and market return. Figure 4.11 represents the relationship between CSAD and R_m . It is observed no matter the market rise or fall, CSAD and R_m have no obvious linear relation, which indicates there existed the possibility of herd behavior to some extent.

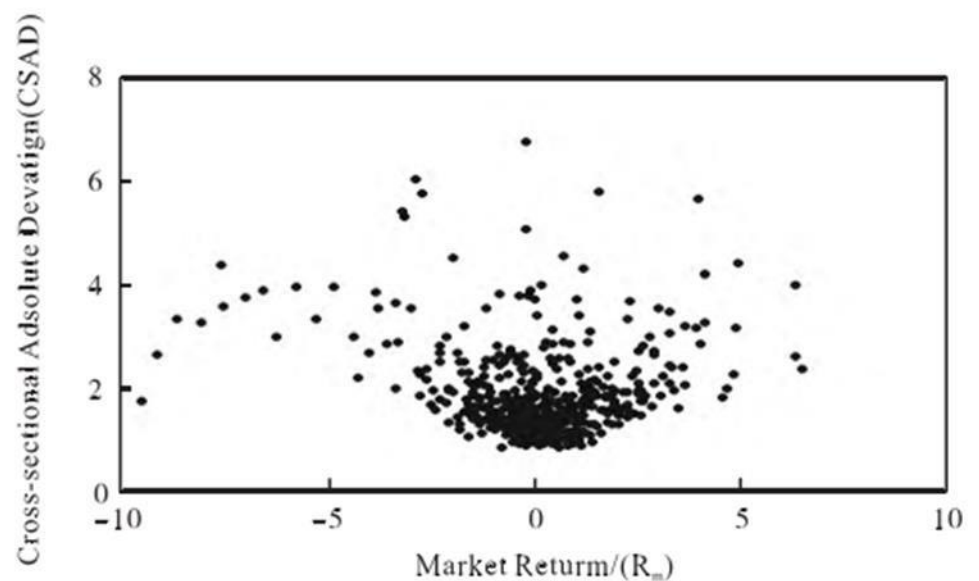


Figure 4.1.1: The relationship between CSAD and R_m

Through the statistical analysis of the data, we received the results of table 4.1.1. The average yield of Shanghai Stock Exchange 180 index is 0.074%, and the volatility reaches 15.984%. This indicates the market risk is relatively high while the stability degree is adverse. The average value of CSAD is around 1.821%, and its fluctuating margin is between 0.753% and 6.717%.

Table 4.1.1. : Statistical Results of Shanghai Stock Exchange 180 index

Variable	Mean	Std	Minimum Value	Maximum Value
Rm	0.074	1.941	-9.459	6.523
CSAD	1.821	0.889	0.753	6.717

Before processing the OLS regression, we conduct the ADF test of sample first. The unit root test result is as below:

Table 4.1.2. ADF Test Result

Variable	Lagged number	t statistics	1% critical value	5% critical value	10% critical value
Rm,t	1	-12.856	-3.444	-2.867	-2.570
CSAD	3	-4.586	-3.444	-2.867	-2.570

From the unit root test result of variables, we know that the two variables series do not have unit root under the 5% significance level, which indicates the original series is stable and we can further proceed the OLS regression analysis.

Using regression analysis and formula 4.1.3 we obtain the results in table 4.1.3. It shows that the regression coefficient r_1 is significantly positive under the 1% confidence interval, which means the degree of dispersion of individual stock's yield is high. Moreover, it is contrary to the assumption that the coefficient should be significantly negative when there exists herding behavior. Meanwhile, although the negative r_2 represents that herding behavior exist, the result is not significant at the 10% confidence interval. Thus, we cannot confirm Chinese individual investors have herd behavior.

Table 4.1.3. Regression Results of CSAD

α	Γ_1	Γ_2
1.353	0.431	-0.023
(3.801***)	(4.578***)	(-0.0568)

*, **, *** represents data is significant at 10%, 5%, 1% confidence level respectively

The methodology apply in this study is based on Hjalmarsson (2010), predicting the conclusion is reverse to many of the previous literature that Chinese investors exist serious herding behavior. This reflects the market efficiency in China has improved. In recent years, Chinese government starts to transfer the instructional management to service-oriented management. The new market order that the market entity make decision and undertake the economic consequences independently has gradually formed, which urges the stable of stock market. Moreover, the supervision mechanism has constantly improved. China Securities Regulatory Commission has published Administrative Measures for the Disclosure of Information of Listed Companies in 2007 and the Supervision of Listed Companies from 2012 to 2014. These measures all regulate the information disclosure system of Chinese Stock market and change the situation of information asymmetry between individual investors and organizational investors.

Although we do not find herding behavior in Chinese stock market through the test, it should be noticed that both the Shanghai and Shenzhen Stock Exchange Stock adopts the 10% daily price limits. When circuit breaks mechanism is applied, this number even drops to 7%. Hence, the significance of herding behavior is restricted by the daily price limits.

Therefore, we still cannot confirm that herding behavior is non-existent, due to it may be shielded by the 10% price limits of Chinese policy.

Based on the empirical analysis result, the appearance of herding behavior will greatly weakened the risk diversification effect of portfolio. It is against for both the risk management of investors and the decision of government. Thus, investors should fully aware of the securities before investing to keep the investment independent. Meanwhile, the supervision organization should reduce excessive intervention and standardize the information disclosure system to increase the transparency of the market and cut down the information acquisition cost for investors.

4.2 Overconfidence

The primary aim of this thesis is to examine whether past stock returns have a major Kahneman, etc. (1974) considered overconfidence was derived from investors' misestimate of probability event. People overestimated the possibility of occurrence of high-probability event (80%), while they believed that low-probability event (20%) would not happen. Overconfidence has significant influence on investors' transaction behavior, especially on their trading frequency. Both the DSH model and many psychological articles consider overconfidence will vastly improve the trading volume. Based on these theories, Odean (1998) proposed current trading volume may have highly positive correlation with past return in stock market. When the return improved, investors would attribute the results to their knowledge and capability, thereby the overconfidence urged them to proceed the trading activities more frequently. He built up a model to conduct an empirical research for 78,000 accounts' trading record to verify the over confident effect. Statman, etc (2006) further tested Odean's assumption. They found in the US stock market, the income of previous week improved 1 percent, the trading volume of this week would increase 1.2 percent. This indicated there existed overconfidence behaviour of the US investors.

Also, the relation between rate of return and transaction volume could be regarded as the indicator of whether there had overconfidence phenomenon of investors.

This article intends to use Statman, etc (2006)'s VAR model as a reference to test whether Chinese individual investors are overconfident. In traditional structure model, the endogenous variable can appear both sides of the equation, which makes the estimation and inference become more complicated. The VAR model solves this problem by regarding every endogenous variable in the system as the function of all the endogenous variables' lagged value.

H0: If there is no relation between trading volume and lagged market returns, then Chinese individual investors are not overconfident when conduct stock investment

H1: Trading volume is positively related to lag market returns, then Chinese individual investors are overconfident when conduct stock investment.

In this article, we will firstly research the relation between market return (mret) and market turnover (mturn). The formulation is as below:

$$\begin{bmatrix} mturn_t \\ mret_t \end{bmatrix} = \begin{bmatrix} \alpha mturn \\ \alpha mturn \end{bmatrix} + \sum_{k=1}^K A_k \begin{bmatrix} mturn_{t-k} \\ mret_{t-k} \end{bmatrix} + \begin{bmatrix} \varepsilon_{mturn,t} \\ \varepsilon_{mret,t} \end{bmatrix} \quad [4.2].$$

In the model, α is constant and K indicates the lagged order.

All the data is from CSMAR, the comprehensive monthly index of Shanghai Stock Exchange A share (SHA) and Shenzhen Stock Exchange A share (SZA) with sampling period from 01, 2011 to 11, 2015 are be chosen. In addition, the data is RMB-denominated. The market data of

the comprehensive monthly data includes the total transaction numbers, total transaction amount, market return in consideration of cash re-investment and circulation market value. The thesis plans to use SPSS to test the relevance between monthly yield and turnover to judge whether there exists overconfidence phenomenon among Chinese individual investors. In addition, we firstly deal with the data to calculate the market turnover rate by dividing total transaction amount by circulation market value.

Before testing the VAR model, we firstly use EViews to conduct the Augmented Dickey-Fuller unit root test to check whether the turnover rate has a unit root. If there exists a unit root, it means the time series is a nonstationary time series, which the numerical characteristics will change with the time flow. Due to the stochastic law at each time point is different, it is difficult to grasp the randomness of the time series by the known information. Thus, we cannot directly build up a model for a nonstationary time series.

H0: The turnover rate of two markets has a unit root.

H1: The turnover rate of two markets does not have a unit root.

The ADF test results are as below. It can be seen that the p value is significant and we can reject the null hypothesis that the turnover rate has a unit root. This indicates the turnover rate is stationary at least in our research interval. We can build up a model and regard market turnover rate as the overconfidence index.

Table 4.2.1. ADF test results of SHTURNOVER AND SZTURNOVER

Variable	Lagged number	t statistics	1% critical value	5% critical value	10% critical value
SHTURNOVER	14	-6.143	-3.489	-2.887	-2.581
SZTURNOVR	14	-3.596	-3.489	-2.887	-2.580

Then about the selection of K, Statman, Thorley and Vorkink (2006) chooses K=10 to show the 10 lagged results in accordance with the Akaike Information Criterion (AIC). AIC is the maximum likelihood function when the parameters of the model increase, it will give punishment. It is effective to the selection of large sample model (Lutkepoh, (1991)). We also adopt the AIC to judge the best K we should choose. We take logs of the turnover rate and use EViews to determine the lag number. From the test we know that the best lagged number for both the Shanghai and Shenzhen A share markets are 6.

Next, we use SPSS to run the VAR model, the regression results are shown below. The table shows the VAR results between the monthly market turnover and monthly market return of the two main markets for individual investors of China. The first column are the dependent variables while the crosswise variable with lagged coefficient is explanatory variable. The table reports coefficient, standard error (in ()), and the result of two-sided hypothesis t-test (in []). It assumes that the two-sided t-test is approximate normal distribution. Under 90% confidence interval, the t-value equals 1.645; under 95% confidence level, the t-value is 1.960, while under 99% confidence interval, the t-value equals 2.575.

According to the results, the market turnover of Shenzhen A share market has autocorrelation to some extent. The coefficient of lagged 1 is highly significant with t- value 4.163 and standard error 0.046 under 1% degree of confidence. Meanwhile, the coefficient of lagged 4 is 0.336 with the standard error 0.054. The t-value is 2.084, which bigger than 1.960. Thus, lagged 4 is also significant under 5% confidence level. In addition, it can be discovered that the coefficient of lagged one time period is positive. In other words, the early trading has positive influence to the later transaction.

Market turnover rate is also a dependent variable and is regressed using lagged market return. The coefficient of lagged 1 share is 0.592 with t-value 5.967 and it is higher than 2.58 under 1% confidence coefficient. This indicates the results are highly significant. Another relative significant coefficient is in lagged 4, the coefficient is 0.243 with standard error 0.116 and the t-value equals 2.084, which is significant under 95% confidence interval. For Shenzhen Market A share, the relevance also exists. The coefficient of lagged 1 turnover is -1.187, which the influence is higher than the turnover rate to itself (with coefficient 0.556 as mentioned above). This coefficient is significance at 10% confidence level with standard error 1.040 and t-value -1.834. The outcome is consistent with the result of Statman, Thorley, and Vorkink (2006). They

used the monthly data of the NYSE/AMEX common share to prove there existed positive correlation between turnover rate and market return. This article verifies this phenomenon also exist in Chinese market. Due to the influence of earnings, Chinese individual investors produce over confidence emotion, in turn, leads to the increase of trading.

Meanwhile, the market return of Shanghai Stock Market A share is self-correlation as well. The coefficient of lagged 1 is -0.527 and the absolute value of t is 2.966 bigger than 2.58. Thus, lagged 1 is significance under 99% confidence interval. This phenomenon appears in A-share index of Shenzhen Stock Market relevant late. In lagged 4 and lagged 6, the coefficients are 0.234 and -0.193 respectively (with t-value 2.323 and -1.894).

The table below, illustrates that market return also relies on lagged market turnover rate. The lagged 4 and lagged 6's coefficients of A-share of Shanghai Exchange Market are significant. The coefficients are 0.347 and -0.229 with standard errors of 0.098 and 0.101, respectively. The corresponding t-values are 3.491 and -2.250. Therefore, they are significant under 1% and 5% confidence level separately. In Shenzhen market, the result is only significant in lagged 1 with t-value -2.775.

Then we use the results of VAR to process impulse-response function test. Figure 4.2.1 includes four impulse-response results of Shanghai Exchange Market A Share, while Figure 4.2.2 contains the impulse-response results of Shenzhen Exchange Market A Share. The horizontal axis shows the time behavior after being impulse within 36 months. The vertical axis measures the growth percentage of market return and turnover rate range from the level before the impulse. For example, the first plot of 4.2.1 displays the change of Shanghai Market Exchange A Share market return caused by one standard impulse of the market return. This affection lasts approximate 12 months and then gradually approach to zero. The third chart of both Figure 4.2.1 and Figure 4.2.2 reveals the most important conclusion of this article: Chinese individual investors

emerges overconfidence emotion on account of stock return, in turn, leads to the increase of transaction. It can be seen that, the reaction of turnover rate to the impulse of market return is durable and drastic. We can understand as the impulse of market return leads to the overconfidence and then increase the trading volume. (Statman, Thorley and Vorkink, (2006)). In the third plot of Shanghai Stock Exchange, we can see that the impulse of one standard deviation result in the turnover rate of next month increase 0.14. In coming months, there have both positive and negative influence, and this influence lasts more than 24 months. In the third plot of Shenzhen Stock Market, the impulse of one standard deviation lasts for 28 months. Although the influence decreases with the time flow, the impact is positive all the time. Within the 28 months, the range is accumulated to 0.5, which almost four times standard deviation of lagged one. Refer to the fourth picture of Figure 4.2.1 and Figure 4.2.2, we know the effect of turnover rate to market return. The impulse-response of Shanghai Market is always positive. In addition, the extent of the influence is greater than the effect of lagged market return to turnover rate. The impulse of one standard deviation leads to the next month's turnover rate gains 0,23. This impact reaches to 0.75 to month eight and the strength is obviously bigger than the third plot. We can discover the similar phenomenon in Shenzhen market in the fourth picture, the influence attains to 0.69 in the continuously positive 12 months.

Table 4.2.2 The VAR Results of Market

	SHMTURNO VER(-1)	SHMTURNO VER(-2)	SHMTURNO VER(-3)	SHMTURNO VER(-4)	SHMTURNO VER(-5)	SHMTURNO VER(-6)	SHMTURNO VER(-7)	SHMTURNO VER(-8)	SHMTURNO VER(-9)	SHMTURNO VER(-10)
SHMRET URN	0.033 (0.101) [0.332]	0.173 (0.099) [1.738]	0.126 (0.097) [1.279]	0.347 (0.098) [3.491]	0.054 (0.103) [0.528]	-0.229 (0.101) [-2.25]	0.012 (0.098) [0.122]	-0.02 (0.098) [-0.202]	-0.095 (0.095) [-0.977]	0.013 (0.095) [0.132]
SHMTUR NOVER	-0.136 (3.665) [-1.245]	-0.163 (3.599) [-1.505]	-0.126 (3.517) [-1.172]	-0.082 (3.556) [-0.757]	0.066 (3.746) [0.592]	0.07 (3.654) [0.629]	-0.02 (3.567) [-0.185]	-0.035 (3.565) [-0.325]	-0.002 (3.442) [-0.02]	-0.016 (3.435) [-0.154]
	SHMRETUR N(-1)	SHMRETUR N(-2)	SHMRETUR N(-3)	SHMRETUR N(-4)	SHMRETUR N(-5)	SHMRETUR N(-6)	SHMRETUR N(-7)	SHMRETUR N(-8)	SHMRETUR N(-9)	SHMRETUR N(-10)
SHMRET URN	-0.527 (0.005) [-2.966]	0.204 (0.006) [0.987]	-0.111 (0.006) [-0.533]	0.127 (0.006) [0.609]	-0.214 (0.006) [-1.007]	0.05 (0.006) [0.232]	0.046 (0.006) [0.221]	-0.001 (0.006) [-0.007]	0.104 (0.006) [0.504]	-0.001 (0.005) [-0.004]
SHMTUR NOVER	0.592 (0.099) [5.967]	0.027 (0.115) [0.236]	0.138 (0.116) [1.19]	0.243 (0.116) [2.084]	-0.14 (0.119) [-1.176]	-0.006 (0.119) [-0.047]	0.037 (0.116) [0.321]	-0.004 (0.116) [-0.034]	0.074 (0.115) [0.637]	-0.039 (0.099) [-3.393]
	SZMTURNO VER(-1)	SZMTURNO VER(-2)	SZMTURNO VER(-3)	SZMTURNO VER(-4)	SZMTURNO VER(-5)	SZMTURNO VER(-6)	SZMTURNO VER(-7)	SZMTURNO VER(-8)	SZMTURNO VER(-9)	SZMTURNO VER(-10)
SZMRETU RN	-0.497 (0.006) [-2.775]	0.134 (0.007) [0.643]	-0.094 (0.007) [-0.448]	0.077 (0.007) [0.367]	-0.138 (0.007) [-0.642]	0.254 (0.007) [1.181]	-0.096 (0.007) [-0.455]	0.094 (0.007) [0.451]	-0.044 (0.007) [-0.212]	0.004 (0.006) [0.022]
SZMTUR NOVER	0.556 (0.046) [4.163]	-0.006 (0.053) [-0.038]	0.078 (0.053) [0.499]	0.336 (0.054) [2.138]	-0.205 (0.055) [-1.277]	0.006 (0.055) [0.036]	0.084 (0.054) [0.535]	-0.069 (0.053) [-0.442]	0.104 (0.053) [0.666]	-0.15 (0.046) [-1.212]
	SZMRETUR N(-1)	SZMRETUR N(-2)	SZMRETUR N(-3)	SZMRETUR N(-4)	SZMRETUR N(-5)	SZMRETUR N(-6)	SZMRETUR N(-7)	SZMRETUR N(-8)	SZMRETUR N(-9)	SZMRETUR N(-10)
SZMRETU RN	0.126 (0.101) [1.247]	0.151 (0.100) [1.474]	-0.03 (0.101) [-0.291]	0.234 (0.096) [2.323]	-0.051 (0.098) [-0.497]	-0.193 (0.097) [-1.894]	0.16 (0.097) [1.554]	0.046 (0.097) [0.442]	-0.1 (0.094) [-0.983]	0.039 (0.092) [0.392]
SZMTUR NOVER	-1.187 (1.040) [-1.834]	-1.151 (1.036) [-1.460]	-0.096 (1.037) [-0.922]	-0.111 (0.986) [-1.088]	0.119 (1.011) [1.162]	-0.036 (0.997) [-0.356]	-0.094 (1.003) [-0.899]	-0.033 (1.002) [-0.316]	0.077 (0.969) [0.749]	-0.004 (0.953) [-0.039]

Figure 4.2.1: Effect between SHMATURE and SHAMRET

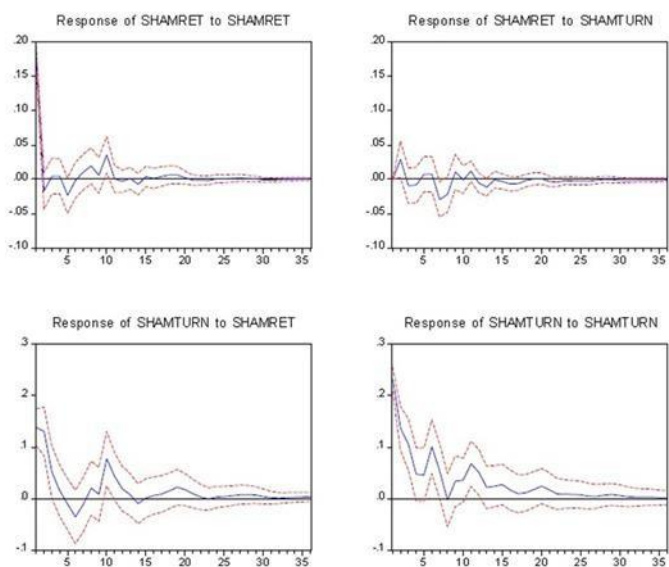
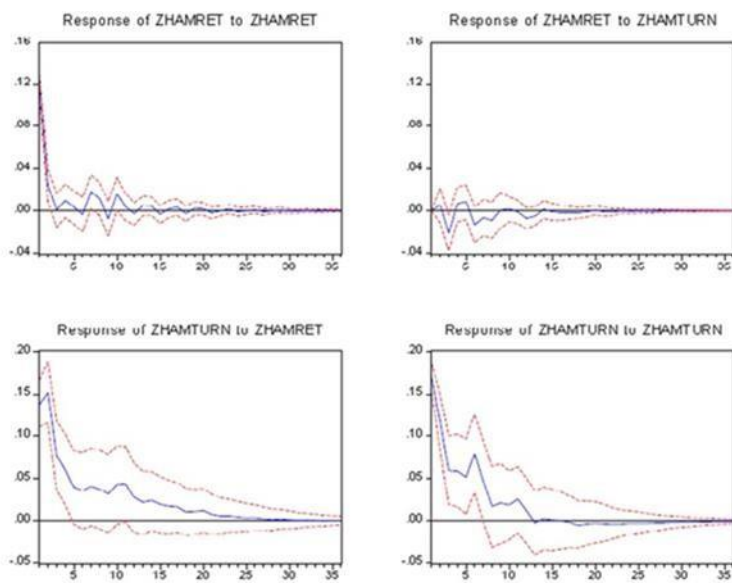


Figure 4.2.2: Effect between ZHAMTURN and ZHAMRET



From the foregoing, we used the monthly data of Shanghai and Shenzhen Stock Market in accordance the method of Statman, Thorley and Vorkink (2006) to receive the conclusion:

Firstly, the market turnover rate exists autocorrelation, which means the historical market transactions information has influence to the latter market dealing.

Secondly, both the Shanghai and Shenzhen market has the clear trend that market turnover rate will increase with the prophase increase of market return. This pheromone proves that the overconfidence tendency of Chinese individual investors is influenced by the market yield. However, the effect of market return to market turnover rate is no bigger than the turnover rate itself.

In addition, although we explain the relation between market yield and market turnover rate by overconfidence, it should be known that this relation will also be affected by the factors such as tax and liquidity requirement.

5 APPLICATION OF BEHAVIORAL FINANCE THEORY AND POLICY SUGGESTION

5.1 Overconfidence

With the development of behavioral finance, there has gradually derived a series behavioral financial investment strategies aim at the anomalies in security market. For example, there has the behavior control strategy, which directs at the human weakness like greedy and fear. Through using compelling force and rules to constrain such weakness and conduct the investment. There are some strategies suitable for Chinese individual investors:

Dollar-cost Averaging Strategy

This strategy assumes that investors' fortune has only one form such as cash, and they want to transfer their assets to another format such as stock. According to the dollar-cost averaging strategy, investors will divide their assets into several parts in advance and invest in same amount every time in accordance with the predetermined scheme. This strategy is suitable for Chinese individual investors due to the most of them are unprofessional and risk aversion. Dollar-cost averaging strategy avoids the risk bring by one-time investment. By adopting this strategy, investors buy less shares when the price is high while they hold more shares when the price goes down, which helps them cut down the cost of investment. Dollar-cost averaging strategy is a suboptimal investment strategy due to the purpose of this strategy is not to realize profit maximization but to achieve cost minimization and reduce the degree of regret. Warther (1994) reveals a strong link between cash flows into and out of mutual funds and the returns to stocks held by the funds. Investors who practice dollar-cost averaging are more likely than other investors to continue to buy stocks after a period of declines in stock prices and less likely to accelerate buying after a period of increases in stock prices. An increase in dollar-cost averaging leads to a decrease in volatility.

Time-diversification Strategy

Similar as dollar-cost averaging strategy, time-diversification strategy also belongs to behavior control strategy and fits for Chinese individual investors. There are two main aspects of this strategy. Firstly, it considers the risk of stock market will reduce with the increase of investment horizon. Secondly, it suggests investors to put most of their assets into stock market when they are young, while they would better to reduce the amount of securities with age. (Ibbotson and Chen, (2003)) found the impact of time-diversification through researching the yield of stock from the time range 1 year to 20 years. They discovered that hold the assets for a long period can reduce the risk effectively. Moreover, if the investors can hold the stock for more than 15 years, they can basically achieve nonnegative return.

Constrain Investment Strategy

As mentioned above, Chinese individual investors often judge the stock performance by themselves or rely on the media. They overly concerned with the recent performance of listed companies and hereby make an anticipation for the future performance of the stock. Therefore, they are easily to overreact to income stock while drastically underestimate the underperformance stock. Aiming at the situation that investors continuously overreact to the recent performance of corporate, constrain investment strategy grasps the arbitrage opportunity. Constrain investment strategy is contrary to the traditional investment method. It suggests to buy in stock with bad past performance and sell the stock with good past performance. This strategy was firstly proposed by DeBondt and Thaler (1985). They found in the US stock market that to hold the portfolio which have worse performance than the market benchmark for 3 to 5 years would have more return than hold the portfolio with better performance.

5.2 Suggestions

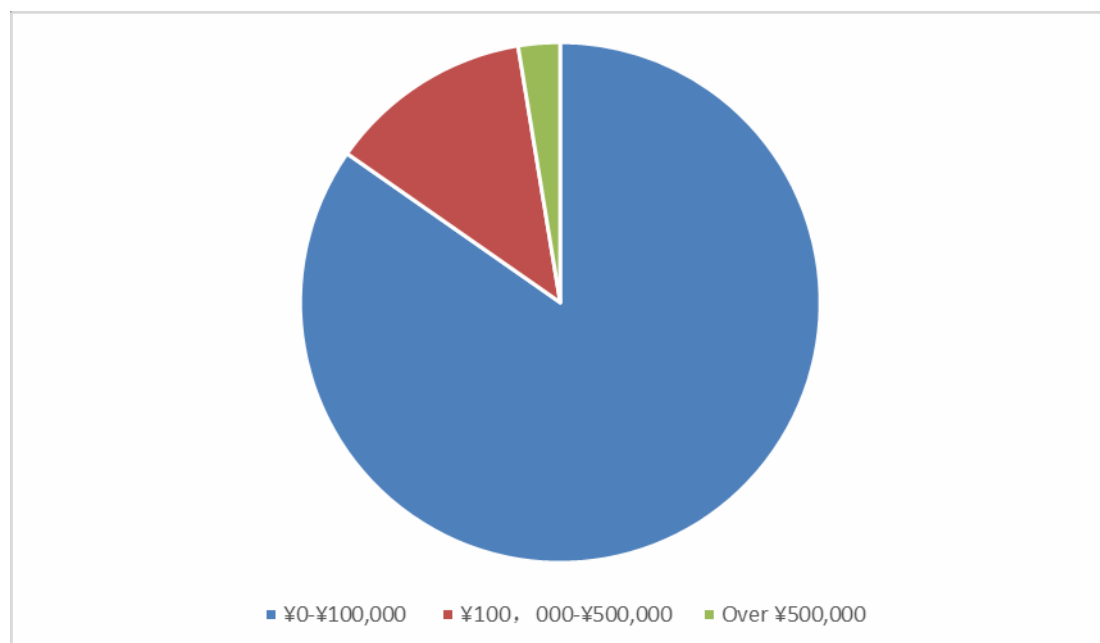
Individual investors are the disadvantaged groups in security market, their investment behavior dose not only constrain by personal cognitive bias but also be influenced by external environment. More than that, some intermediaries, listed companies and bankers despitefully utilize the psychology weakness of Chinese individual investors to conduct insider trading and manipulate stock price. The rights and interests of investors are hurt again and again, so does the investment confidence. To protect the financial order and security market, individual investors are the key. It also needs the cooperation of government, intermediaries and investors themselves. Here are some suggestions for them.

Herding Behavior

Fundamentally, Chinese individual investors should change their investment philosophy. Chinese investors are accustomed to conduct frequent short-term operations in accordance to market information or other investors' behavior. However, this kind of speculation is not value investment. According to statistics, Buffett hold shares over eight years in average. To hold the handpicked securities in a long term is the key point of Buffet's success in investment. As he said "If you are not willing to own a stock for ten years, do not even think about owning it for ten minutes." (Charles, (2011)) Investors should not just follow others to make investment decision they are unsure about. For them, especially the medium and small investors, they should constantly studying investment knowledge and cultivate the value investing idea to avoid the herding behavior caused by impulse speculation. In stocks selection, they should choose the corporates with good development prospect they really know about. Meanwhile, keep checking the annual financial report and historical record to make sure that buying in on a relevant lower price.

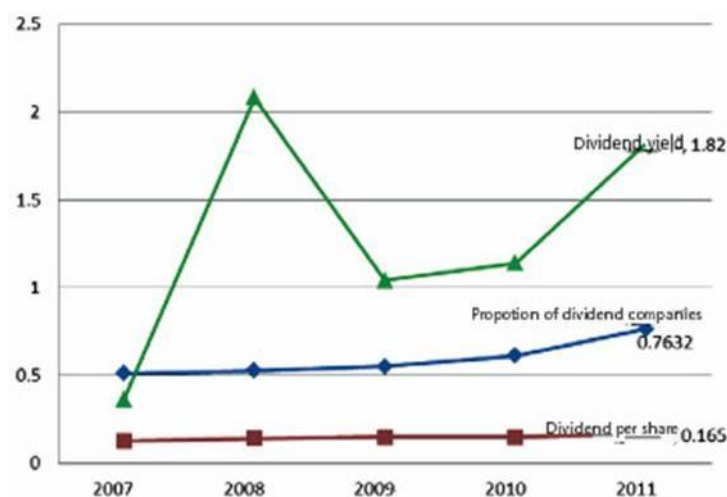
At present, the herding effect in Chinese stock market is mainly the irrational herding effect, which will easily aggravate the fluctuation of market and increase the investment risk. Thus, to protect the investment enthusiasm and weaken the negative herding effect, both the market and supervision departments should make efforts together. Due to there exist a large amount of immature retail investors, the Chinese market need to devote major efforts to cultivating institutional investors. From Figure 5.2.1 we can see that, the account that market value over half a million yuan only occupies 2.60%, while the private investors which have market value under ten thousand yuan is up to 84.70% in A-share. (Feng, (2015)) Aiming at the current situation, Chinese market should introduce more patterns of investment such as pensions, insurance and mutual fund to reduce the fluctuation of stocks. These kind of investments have longer investment cycle as well as they are more objective and transparent. Not only this, Chinese government should also broaden the limitations for foreign investment organizations to urge the benign competition of securities market.

Figure 5.2.1 Ratio Analysis of Different Market Value Account



Secondly, China ought to perfect capital market and dividend sharing plan of listed company gradually. Effective dividend sharing is useful to facilitate long-term investment of investors. By analyzing the rate of return on investment of developed European countries and United States from 1900 to 2005, a half of it was from price spread, the remaining half was from bonus and stock acquisition. Among this period, the average dividend yields was 9.6% while the capital gains accounted for 4.7%. In United States, the annual return reached 9.8% while the capital gains occupied 5.1%. (Zhang, (2012)) The serious problem in Chinese securities market is that the bonus of listed company is few. Investors can only achieve return from bid-ask spread, which leads a heavy speculative atmosphere. Figure 5.2.2 shows that although the total dividends increase from 2007 to 2011, the percentage of dividends in net profit almost presents invariant trend. (Ann, (2012)) This indicates there has no progress in the dividend level of listed companies.

Figure 5.2.2 Changes of Chinese Listed Companies' Dividends from 2007 to 2011



Finally, Chinese government ought to cut down the direct intervention to securities market. Meanwhile, it should strengthen the information disclosure system to boycott insider trading. After 2011, Chinese security market has a rising number of scandals been exposed. For instance, the manipulation of stock price by Yian Technology Co.,Ltd and the

counterfeit of performance report of Yinguangxia Company. (Yang, (2005)) Such adverse events lead investors lose confidence and consider stock market is unfair. At current stage, Chinese government has to face the situation that individual investors have occupied higher proportion. Additionally, with the high development speed of Chinese stock market, most of the individual investors have not formed a good concept of investment. Therefore, Chinese securities regulatory institution should fully consider the interests of private investors and prevent large organizations to achieve illegal incomes by taking their own advantages. In 2015, China Securities Law Research Association has published China Securities Market Information Disclosure Case Study and Evaluation Report. This report has an all-round analysis and propose a number of solutions.(Legal daily, (2015)) This action demonstrates the progress of Chinese market in information disclosure section.

Overconfidence

Our empirical research validates the fact that overconfidence of investors is the important factor to lead the high turnover rate of Chinese stock market indirectly. Thus, to improve the overconfident phenomenon is the efficient path to remit high turnover rate and market fluctuation.

First of all, the overconfident investors are easily to overreact as well. To prevent the excessive trading, investors should often remind themselves that they are possibly have the inclination of overconfidence. From beginning to end, investors should realize that long-term investment and value investing are the right investment choice.

In the regulation aspect, government and supervision departments should prevent in advance and control timely the prevalent overconfident effect. In the three phases of stock market supervision, relevant departments ought to shift weight forward to prevent and control but not rely on the

management and treat afterwards. Striving to effectively intervene and actively control the securities market before the sharp fluctuation caused by the overconfidence of investors.

Moreover, in the intervention process, government should duly introduce public opinion and keep the information transparency. Only when investors grasp adequate information, they will not conduct blind and overconfident investment. This measure is in favor of eliminating panic market and reduce the cost of ballot.

Last but not the least, strengthen the education for investors is no time to delay. As mentioned before, the average education level of Chinese investors is relevant low. Despite self-study, government, listed companies and Security Company should all help investors to popularize investment knowledge, especially the risk prevention and control consciousness. Government and Security Company ought to focus on the changing of investors' psychological factors. Once their mental factors like overconfidence has huge effect to market price, Security Company should issue appropriate warnings to remind investors.

In summary, overconfidence is widespread in stock market. It is not available to remove this phenomena at all. However, constructing an effective interventional mechanism combined with the psychological characteristic of Chinese investors and increase their risk awareness can furthest eliminate the negative influence to market stability.

6 Conclusion

Based on the previous researches of behavioral finance, this article focuses on the two financial behaviors: herding behavior and overconfidence of Chinese individual investors combined with both the characteristics of investors and the Chinese market. About the herding behavior, this thesis adopted dispersion degree of the rate of return as the measure to test whether there exist herding behavior. Although there does not show obvious herding behavior from the empirical results. It cannot exclude this is caused by the market policy of Chinese stock market. Then concerns to the overconfidence of Chinese individual investors, this article used Statman, Thorley and Vorkind (2006)'s method as reference. By using Eviews, we adopted VAR model and impulse response function to conduct multivariate time series analysis. We received the conclusion that both the market and individual turnover rate all have serious autocorrelation. In other words, the historical data of market transactions have influence to the later market dealing. Also, we found the market turnover rate has positive correlation with the lagged market return, which indicated the overconfident tendency of Chinese individual investors are influenced by market return.

The existence of behavioral anomalies of Chinese individual investors is not only caused by the investors themselves. The policy market of China is also an important factor. The anomalies cannot be eliminated but it can be improved by the efforts of both investors, listed company and the market. To choose the policies suitable for national conditions and investment strategy fit for individual situation is the key to keep the market healthy and orderly.

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