Universe
Scientific Publishing

The Impact of Investors' Psychological Sentiment and Behavioral Bias on Stock Returns

Songyuan Liu

Macau University of Science and Technology Business School, Macau 999078, China.

Abstract: With the continuous development of social economy, only relying on traditional finance can not well explain some financial anomalies in the market, especially the economic research related to human nature also needs the support of behavioral finance. Based on the existing domestic and foreign scholars' research on the influencing factors of investors' stock returns, this paper took investors' psychological emotions and behavioral deviations as an important research direction with the supplement of behavioral finance theory. By analyzing investors' common psychology of greed, fear, conformity and overconfidence, the author found that investors' emotions would have an impact on their stock returns. Through the analysis of loss aversion, overreaction and underreaction, and disposition effect, the author further studied the impact of investor behavior bias on stock returns. Finally, the author on investor psychology according to the aforementioned circumstance, the behavior deviation of exploration, for investor sentiment and behavior put forward the corresponding opinions and suggestions.

Keywords: Behavioral Finance; Psychological Emotion; Behavioral Bias

1. Introduction

The early traditional finance thought that investors were rational economic men. Under the efficient market theory, the information obtained by each investor should be symmetric, so that their actions do not affect asset pricing, and the stock price was completely determined by market factors. However, with the further development of the capital market, many scholars found that some financial anomalies in the stock market could not be explained satisfactorily by traditional finance, and even the situation that the financial theory was completely opposite to the reality occurs. Obviously, traditional finance ignored the role of human nature and its impact when studying economic problems. Later, with the revival of humanism, financial scientists paid more and more attention to the role of people and emphasized the influence of people's emotional and psychological factors on financial activities, thus evolving a new discipline-behavioral finance. The emergence of behavioral finance made the theory of finance more humanized and practical, and explored the complex phenomenon of the market from the perspective of investors' psychology and behavior.

The late start of China's stock market has led to a high degree of emotional and irrational trading among investors in the stock market. In order to study the impact of investors' psychological emotions and behavioral deviations on stock returns, this paper cannot do without the support of behavioral finance. Traditional finance holds that investor sentiment refers to mispricing in the stock market. Behavioral finance, on the other hand, emphasizes that investors are irrational. Based on investors' psychological emotions, behavioral finance further explained that individual investors are bounded rational and would have cognitive bias in the face of stock market volatility returns. The cyclical impact of listed companies' investors' psychological emotions and behavioral deviations on stock returns is studied, which can better help investors make more rational decisions and better balance gains and losses under the circumstances of external market failure and financial crisis. Based on this background, this paper studied the relationship and influencing mechanism among investors' psychological emotions, behavioral deviations and stock returns.

2. Theoretical Review and Prospect

At present, scholars at home and abroad have studied the influencing factors of investors' stock returns, but there is a certain gap in the level and depth of their research. Based on the existing conclusions, this paper further studied the impact of investors' psychological emotions and behavioral deviations on their stock returns.

2.1 Literature Research on Investor Sentiment

Scholar Tang Lisa (2016), after in-depth research on China's securities market, found that investors would be affected by various factors in the investment process, which would lead to many bad psychology. In order to further study the bad psychology of investors, Zhou (2018) found that most investors in the financial market were risk-averse, and had arbitrage behavior and following the trend psychology by constructing the BAPM model. The most intuitive embodiment of this phenomenon in the capital market is that investors chase up and kill down in the stock market. Seeing a stock rise or fall, investors may appear greedy, disgusted psychological emotions, blind to build or sell positions. The psychological state of investors can not only affect the yield and rate of return of their own stocks, futures and other financial products, but also have a certain impact on the securities market. From the perspective of investors itself, Zhang Haobin (2023) argued that the uncertainty of investor sentiment will influence to stock returns. By building the investor sentiment index, using the mediation effect inspection process to carry on the empirical analysis, it is concluded that investor sentiment will increase the expected returns of stock of the current period and the conclusion of a positive impact. In the futures market, Li Xin (2023) analyzed the impact of investor sentiment on rebar futures returns from the perspective of behavioral finance, and found that the negative impact of investor sentiment on rebar futures returns was greater than the positive impact. From the perspective of the securities market, Yao Fusheng (2022) analyzed the Shanghai Composite Index and investor sentiment from January 2017 to May 2021, and found that the higher the investor sentiment, the Shanghai Composite Index would rise accordingly, and the two showed a significant positive correlation.

2.2 Literature Research on Investors' Behavioral Deviation

When studying the influencing factors of stock returns, the behavioral deviation of investors is also an important direction. The behavioral biases of investors mainly include: disposition effect, underreaction, mental account, loss aversion, confirmation bias and so on. The theoretical origin and research of behavioral bias are mostly in the United States. For example, Kahneman and Tversky (1979) found loss aversion in investors' behaviors through research. Shefrin and Statman (1985) put forward the theory of disposal effect through the actual investigation and analysis of investors. Although Chinese scholars started to study the impact of investor behavior deviation on stock returns relatively late, they still made some achievements in the past decades. Lin (2017) studied the impact of investment behavior deviation on stock returns by building a structural equation model. In order to further study the relationship between investors' decision-making bias and their "stock selection strategy", Lin Weilin analyzed personalized factors such as investors' age and the duration of entering the market, and finally concluded that there was a significant causal relationship between the two. Various behavioral deviations of investors will have a direct or indirect impact on their stock investment decisions. Therefore, when studying complex financial markets, it is necessary to consider the characteristics of investors' own behavior. Gao (2015) studied the loss aversion in investors' behavioral deviations, and through the analysis of the Shanghai Composite Index and the construction of the GJR-GARCH-M model, finally concluded that investors' loss aversion can significantly affect investors' returns in the stock market. In addition to loss aversion, the disposition effect is also a model of investor behavioral bias. Gong Huiming (2022) used the tools of game theory to analyze the mechanism of investors' disposal effect from the perspective of evolution, deduced the expected returns of stocks in different environments, and further explained the abnormal investment behaviors of investors in the stock market. In general, whether it is loss aversion or disposition effect, it is an objective fact that Chinese shareholders generally have behavioral deviation.

2.3 Comprehensive Review

To sum up, based on the research of domestic and foreign scholars, it is not difficult to find that any investor will be affected by emotional psychology and behavioral deviation factors when making stock investment. Investors with good control of psychological emotions can make investment and financing decisions based on objective data and information, and carry out arbitrage exit in the appropriate position of the market; Investors with insufficient cognition of themselves may have behavioral deviations such as loss aversion and disposal effect, and the market information obtained will be more subjective and radical, and finally make decisions that deviate from expectations. There-

fore, studying investors' psychological emotions and behavioral deviations can not only strengthen investors' grasp of stock market profits and losses, but also help investors make more rational decisions.

3. The Impact of Investors' Psychological Sentiment and Behavioral Bias on Stock Returns

3.1 The influence of investors' psychological sentiment on stock returns.

First, greed and fear. Greed and fear is one of the common psychological emotions of investors when trading. Liu Yingjie (2019) believes that stock market investors are essentially greedy, and they expect to get more than expected returns. According to the Statistical Yearbook of China Securities Registration and Settlement Center in 2022, by the end of August 2022, the number of individual investors in China had exceeded 200 million, accounting for 99.49 percent, but individual investors often lack professional knowledge, it is difficult to accurately judge the market trend, and it is easy to make irrational investment behavior. When the Shanghai Composite Index of China's stock market continues to rise, individual investors continue to invest in stocks under the impetus of greed, and the volume of transactions rises rapidly. Once the market boom bubble burst and the stock market fell, these investors rushed to flee the stock market. Investors' greed and fear will eventually leave them with nothing.

Second, the herd mentality. Herd mentality, also known as herd effect, means that individual investors always imitate the behavior and decision-making of other investors. According to the Research on the Behavior of Chinese Securities Investors published by Shanghai Stock Exchange, a remarkable feature of Chinese securities traders is the herd mentality. In the securities market, all kinds of information are not only complex but also changeable. It takes a lot of time and energy for investors to collect information (Song Chengcheng, 2021). In addition, different investors have different abilities to identify, collect and analyze information, so it is difficult to achieve a state of information symmetry. In many cases, when investor A makes an investment choice, it is often disturbed by the decisions of investors B, C and D, thus imitating their investment methods. This mentality of investors is not conducive to the development of their personal interests, but also harmful to the stability of the stock market.

Third, overconfidence. The theory refers to the fact that investors believe that they have a higher degree of financial knowledge and accuracy than others. When people are dealing with and analysing problems, they often want to find some laws in the change of uncertainty and use the laws to make decisions (He Zixuan, 2022). According to the "2020 Survey Report on the Status of Investor Education in China", 74.07% of investors among those surveyed were overconfident in their own financial knowledge, 33.12% were overconfident in their basic financial knowledge, and 59.68% were overconfident in their professional financial knowledge. If the majority of investors hold overconfidence in the stocks on their account, this tends to lead to a systematic bias in the market, and this systematic bias in the market further affects investors. On the one hand, this influence will make investors strengthen their self-confidence and make frequent trades based on their own judgement, ignoring the gains brought by good news and thus letting themselves go short; on the other hand, this influence will also make investors reduce their sensitivity to bad news and underestimate the negative impacts it will have, which will eventually cause stock losses to them.

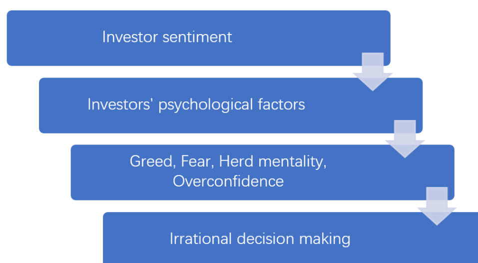


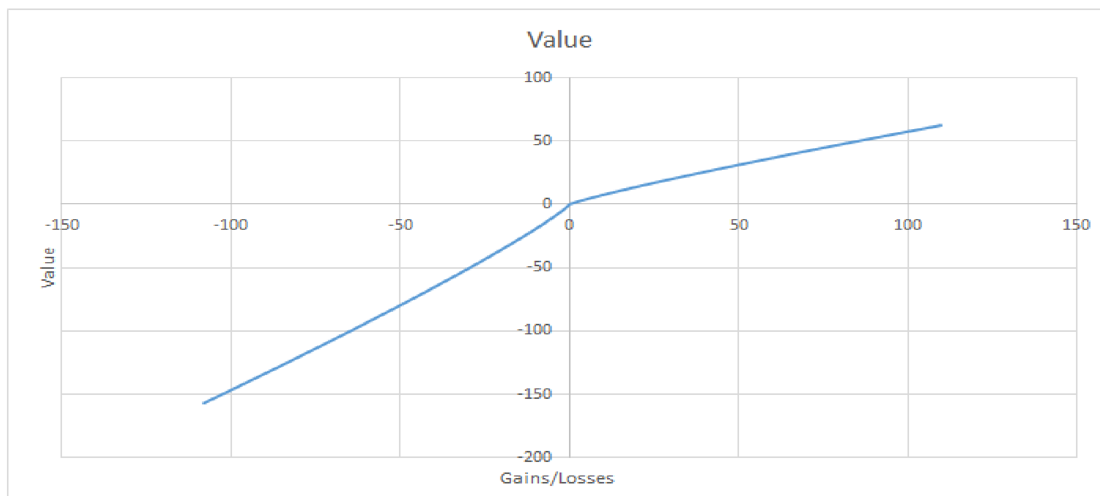
Figure 1 Formation process of investors' irrational decision-making

3.2 The effect of investors' behavioral biases on stock returns

First, loss aversion. In his book The Theory of Moral Sentiments, Adam Smith described a real-life phenomenon: people feel more

pain when a situation goes from good to bad than they feel joy when it goes from bad to good. This is the earliest source of loss aversion. Loss aversion, as the core concept of Prospect Theory, was proposed by Kahneman and Tversky, which means that when people face the same degree of loss and gain, the impact of loss on investors will be more profound. According to this theory, the proposed utility function is expressed as：

Where X represents gains and loss， This function quantifies the effect of losses and gains on investors in trading (Figure 2). When ,it means that the investor is in a profitable state; when , it means that the investor is in a loss state.



Source: Made from Mathematica

Figure 2 Utility function

Loss aversion is a common psychology of investors in the stock market. When the stock market is relatively low, because of the existence of loss aversion, the decline of the price has brought greater negative utility to investors, investors are eager to avoid risks and frequent trading, resulting in further decline in the stock price; when the stock market is good, the expected utility of investors increases, and they will further invest in investment. At the same time, investors will change their attitude towards risk, hoping to have enough returns to compensate for the risks they take (He Zixuan, 2022).

Second, overreaction and underreaction. Early foreign scholars introduced the same investor sentiment into the asset pricing model for analysing the phenomenon of investor overreaction and underreaction in the securities market. According to the assumptions of the model, investors will have two manifestations when making investments: one is selectivity bias and the other is conservatism bias (Xinyue, 2023). Both of these biases can lead to overreaction and underreaction of investors. Overreaction usually manifests itself in the form of an investor's bias in understanding a large amount of information when dealing with information related to the stock market, resulting in a large reaction to the information. And underreaction is manifested in the fact that investors are unable to analyse the information objectively and deeply when acquiring it, which leads to their mistakes when investing. Moreover, the price of stocks in the stock market is in constant change, and the personal experience and character of the investor will also affect his ability to receive and process information (Wen Yilin, 2020). The situation of the investor's reaction to the information will largely become the investor's experience in dealing with things in the future, and the good news that occurs in this situation will deepen his or her obsession, while the bad news will be discarded. heighten one's preoccupation, while negative ones will be neglected.

Third, the disposal effect. The disposition effect occurs mainly due to the fact that investors face the same losses and gains with different psychological states, which in essence is the behavioural bias of investors. When an investor gains in the stock market, he or she will show risk aversion; when the market environment becomes worse, the investor will show risk appetite and increase the acceptance of risk in the expectation that the loss can be reversed (Lulu He, 2020). According to the "2020 Survey Report on the Status of Investor Education in China", the proportion of investors with disposal effect among investors with investment years of less than 3 years, 3-5 years and more than 5 years are 38.27%, 36.29% and 34.25% respectively. Therefore, the proportion of investors with disposal effect decreases as the investor's

experience increases. In the stock market, investors with fewer years of investment experience may sell stocks that are making profits in advance to reduce future losses due to declines, and choose to continue to hold stocks that are declining in the face of illusions; whereas investors with longer years of investment experience can better grasp the risks, and make reasonable stop-gain or stop-loss decisions.

3.3 The mechanism of investors' sentiment, investors' behavioral biases and stock returns

First, it should be noted that investor sentiment reflects investor psychology, which is demonstrated by investors' attitudes and emotions towards the stock market. It has been found through research that investors' emotions can impact their investment decisions, which in turn can affect the return and volatility of the stock market (Li Yu, 2023). For instance, when investors experience negative sentiment, they may feel fearful and sell off their stocks, which in turn puts more pressure on the market. Conversely, when investors are feeling confident, they may become overzealous, causing them to trade frequently and contributing to the emergence of market bubbles. Consequently, shifts in investor sentiment can impact the profitability of their stocks. Secondly, the impact of investors' behavioural biases on stock returns should also be considered (Shen Yue, 2023). These biases are often reflected in irrational trading decisions, such as the loss aversion and disposition effects. They cause investors to follow market trends without rationalizing, leading to the loss of their stocks. Finally, there is a connection between the psychological emotions and behavioral biases of investors. Investors' greed, fear and overconfidence may cause them to overreact to market information, which can intensify market volatility and, in turn, impact investors' stock returns.

4. Conclusions and Countermeasures

4.1 Conclusion

This paper mainly analyzed the impact of investors' psychological emotions and behavioral deviations on their stock returns. The results showed that greed, fear, conformity, and overconfidence are common emotions in the stock market of Chinese investors, and a series of behavioral biases such as loss aversion, disposition effect, underreaction and overreaction would further affect the stock returns of investors. According to the national conditions of our country and the actual situation of the stock market, combined with relevant literature and data, the author summarized the following conclusions:

First, investor sentiment can affect their returns in the stock market. When investors make investment decisions, the characteristics of irrationality are particularly significant. When the market sentiment is high, it will intensify the greed of investors, while when the market sentiment is low, fear will make investors sell their stocks faster. Under the influence of bad emotions, investors will lose rational judgment, easily produce herd mentality, and follow other investors to make decisions. Based on the study of asset pricing model, investors will have the emotion of overreaction and underreaction when facing market information, which will lead to the loss of stocks.

Second, the behavioral biases of investors can affect their stock returns. One of the most common behavioral biases is loss aversion. Investors would rather reduce the profit level of stocks and minimize the possibility of losses. Based on the study of overconfidence and disposition effect, many investors are too optimistic about themselves and the stock market and blindly believe in their own judgment. They usually change their risk control at will and eventually suffer losses.

Thirdly, the study of investor sentiment and behavior can not be separated from the support of behavioral finance. Traditional finance has been unable to explain some financial phenomena with the development of society because it follows the classical theoretical paradigm of economics. Nowadays, when we study financial problems, especially when it comes to subjective factors such as human psychology and emotions, we need more help from behavioral finance theory.

4.2 Countermeasures and suggestions

First, investors should enhance their knowledge and enhance their control over psychological and emotional aspects. By actively receiving professional education and upgrading their own level of economic knowledge, investors can effectively mitigate the negative impacts of stock market cyclical fluctuations and financial risks on investors. Strengthening the control of emotions and strengthening the ability to think independently can further help investors manage market risks.

Second, investors should be deeply aware of their behavioral biases in financial activities. Only when investors realize when they are in loss aversion and when they are in disposal effect in the stock market, can they better adjust their state and investment decisions. This not only enables investors to trade in a rational state, but also enables them to analyze the complex information in the market more objectively, thus avoiding underreaction or overreaction.

Thirdly, when analyzing and studying investors ‘psychological emotions and behaviors, scholars must combine behavioral finance and other subjects. Because of the differences of social system and market structure, many theories about investor psychology and behavior in modern times originated from western countries. Therefore, when analyzing investor sentiment and behavior, Chinese scholars should actively combine with the research results of domestic and foreign scholars, so as to analyze the real situation of investors in the stock market more objectively.

References

[1] Stein CJ. Rational Capital Budgeting In An Irrational World[J]. The Journal of Business,1996,69(4).

[2] Tang L. Analysis of Investors' Psychological Behaviour in China's Securities Market[J]. Co-operative Economy and Technology, 2016(18):46-47.

[3] Li X. Empirical study on the relationship between investor sentiment and rebar futures returns[D]. Hebei institute of finance,2023.

[4] Miao YL. An empirical study of stock price volatility in different industries based on the perspective of investor sentiment[J]. Investment and Co-operation, 2023(06): 41-43.

[5] Zhang HB. Research on the impact of economic policy uncertainty and investor sentiment on stock returns[D]. Northwest University for Nationalities,2023.

[6] Lan ZJ, Mai QS. A study on the impact of investor sentiment on the return of GEM market under the perspective of new crown epidemic[J]. North Economy and Trade, 2023(05): 94-101.

[7] Yao FS. Stock market, exchange rate market and investor sentiment[J]. Journal of Economic Research,2022(23):92-94.

[8] Yang KQ. Research on the impact of investor sentiment on the discount of A-share listed companies' directional issue[D]. Xi'an University of Technology,2022.

[9] He ZX. Research on the impact of investor sentiment on stock market returns in China[D]. Yunnan University of Finance and Economics, 2022.

[10] Chen CM. Research on the psychology of securities investors based on the perspective of behavioural finance[J]. China Market,2020(16):25+27.

[11] Zhan XY. Empirical analysis of the impact of investor attention and investor sentiment on the value of GEM enterprises[D]. Shanghai University of Finance and Economics,2021.

[12] Gu HY. Analysis of the impact of individual investors' investment psychological factors on investment behaviour[J]. Commercial Exhibition Economy, 2020(11): 62-64.

[13] Li Y. Research on the impact of investor sentiment on the return and volatility of China's stock market[D]. Yunnan University of Finance and Economics,2023.

[14] Xin Y. Analysis of the impact of investor sentiment on stock returns[D]. Hebei University of Finance and Economics, 2023.

[15] Yang R. Empirical analysis of the impact of investor sentiment on stock returns[D]. Zhongnan University of Economics and Law,2022.

[16] Song CC. The impact of investor sentiment on stock market returns[D]. Capital University of Economics and Business, 2021.

[17] Wen YL. Cash dividend stability and investor response bias[D]. Southwest University of Finance and Economics, 2020.

[18] He LL. Causes of Disposition Effect in Behavioural Finance and Its Theoretical Study[J]. Modern Marketing(Business Edition),2020(04):205-206.

[19] Li YF. Research on the interrelationship between investor sentiment and stock returns[D]. Xiamen University,2020.

[20] Han YQ. Economic policy uncertainty, investor sentiment and stock returns[D]. Hebei University of Finance,2023.

[21] Zhou J, Jin J, Xiang JJ. The impact of investor psychology and behaviour on the securities market[J]. China Hi-Tech Zone,2018(11):264.

[22] Tversky A, Kahneman D. Advances in prospect theory: Cumulative representation of uncertainty[J]. Journal of Risk and uncertainty, 1992, 5: 297-323.

[23] Gao A, Tanya T, Wu S. Satellite. Return volatility and investors' loss aversion in Chinese stock market-an empirical study based on SSE Composite Index[J]. Southern Finance,2015(01):62-73.

[24] Shefrin H, Statman M. The disposition to sell winners too early and ride losers too long: theory and evidence[J]. The Journal of finance, 1985, 40(3): 777-790.

About the author:

Liu Songyuan (2004-), male, Han nationality, Zhengzhou, Henan Province, School of Business, Macao University of Science and Technology, Research Interests: Listed Companies, Marketing, Finance.