# Research on Psychological Deviation of Young Investors Based on Questionnaire

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**Abstract.** With the continuous development of China's securities market, many market effects have been widespread for a long time. However, the rapid development of behaviour finance precisely integrates people's psychological factors and behaviour science into finance and conducts in-depth research on the behavioural and psychological deviation affecting economic decisions. Due to the late start of the research on the securities market in China, the relevant theoretical basis is not perfect. If investors lack an empirical basis, they will often be affected by various cognitive and psychological biases, leading to investment decision-making mistakes. Given this, this paper focuses on young investors in China and uses a questionnaire to test this group for cognitive, psychological, and behavioural biases. Based on the results of the test, this paper proposes coping strategies how to avoid or reduce bias and thus improve the accuracy of investment decisions.

**Keywords:** Behaviour Finance; Behaviour bias; Investment strategy.

## 1. Overview of behavioural finance

### 1.1 Behavioural finance theory

Behavioural finance theory is a combination of some core elements of psychology and economics, mixed with a comprehensive analysis of decision-making. What we should pay attention to is that it can carry out effective treatment of investment structure through the rational use of experimental methods. In the actual investment process, investors can neither present risk preference type nor risk aversion type and must reasonably integrate the objects of concern.

### 1.2 Core elements of behavioural finance

#### 1.2.1 Expectation theory

The expression of this theory is: People's reaction to the same situation depends on whether they are in a profit state or a loss state. Generally speaking, when the amount of profit equals the amount of loss, people will become more depressed in the state of loss, but not so happy in the state of profit. When an individual sees the same amount of loss, the degree of frustration is much stronger than the degree of happiness under the same amount of profit[1].

#### 1.2.2 Regret theory

Investors often feel regret. In the background of a bull market, people will regret not getting involved in the stocks they are optimistic about in time, as well as selling the profitable stocks too early; In the background of a bear market, if you fail to stop the loss in time, you will regret. If you fail to realize a small profit, you will regret if you are trapped again; In a balanced market, if the stocks held by yourself do not rise or fall, and the stocks recommended by others rise, you will regret that you did not follow the advice of others and change stocks in time; When you make up your mind to sell the stocks that don't rise and buy the stocks recommended by the experts, you find that the stocks you originally held are rising, and the stocks recommended by the experts are falling instead of rising, you will feel more regret.

# 2. Testing for investment biases in young Chinese investors

## 2.1 Design of the questionnaire

### 2.1.1 Design principle of the questionnaire

(1) Standardization principle of problem design

Due to limited experience, the questions in this questionnaire are not completely original. If all the questions are reset, it is difficult to guarantee the scientific rigour of the questions. If there is no in-depth research, it is impossible to guarantee whether the newly set questions can achieve the purpose of testing the psychological and behavioural deviation of investors. Therefore, the questionnaire design refers to the questions in the research on the behaviour of Chinese securities investors by Professor Li Xindan (2004), and the questions can achieve the purpose of testing. At the same time, according to the characteristics of China's stock market in 2022, this paper also sets questions that are more in line with the actual situation of China's stock market. In conclusion, the questions in this questionnaire follow the principle of standardization and can achieve the purpose of testing the psychological and behavioural deviation of college students.

(2) General principles of questionnaire design

The questions are in normative language and strive to be concise without abbreviations. The questionnaire avoids using multiple meanings or implied assumptions to avoid misunderstandings.

(3) Incentive principle for respondents

In order to promote the enthusiasm of the respondents, this study publishes the questionnaire used. The investors who answered the questionnaire through WeChat, Weibo and other network channels can receive a random amount of red envelope reward (1-10 yuan) after completing the questionnaire. In this way, investors can answer the questions seriously, which is more in line with the actual situation: when making investment decisions, investors will think carefully.

### 2.1.2 Special issues considered in questionnaire design

(1) Content arrangement of the questionnaire

In the questionnaire, some questions are to test the psychological bias of investors, which will indirectly affect the investment behaviour of investors. Such questions are more inclined to psychological experiments to test the psychological and cognitive bias of college students; Some questions are scenario simulation, which is closely related to the actual investment decisions of investors. Such questions are set to test the behaviour deviation of College Students' investors when investing.

(2) Sequence setting of questions

In order to test a certain psychological or behavioural deviation of investors, sometimes two questions need to be set. This questionnaire places such questions together; To prevent the respondents from seeing the purpose of the experiment from the questions, and then may cover up their real thoughts or practices, this questionnaire sets such questions separately to improve the credibility of the questionnaire.

### 2.1.3 Distribution and recovery of questionnaires

All the questionnaires in this article are answered online. Investors can answer the questions through WeChat, Weibo or other network links. The basic information is as follows:

(1) Respondents: the relevant young investors in our city, who come from various universities in the country and have certain investment experience or financial knowledge, cover the vast majority of provinces in the country; My classmates in Graduate School mainly majored in finance; College student investors who answered other online questionnaires[2].

(2) Investigation time: August 1, 2022 - August 16, 2022

A total of 695 people participated in the survey, including 63 invalid questionnaires and 632 valid questionnaires. The effective recovery was 90.94%.

## 2.2 Statistical analysis of the questionnaire

### 2.2.1 Test of college student investors' cognitive bias

The test on the cognitive process bias of young investors does not allow investors to answer questions about actual investment but instead asks them psychological questions in the form of questionnaires, which can be classified as psychological experiments. The test results of the cognitive process bias of young investors are shown in the following table:

Table 1. test of the cognitive bias of College Students' investors

| cognitive process Deviation classification | Subject | Select item | proportion | Inspection results |
|---|---|---|---|---|
| Representative heuristic bias | A female, 30 years old, single. Honest, smart, major Philosophy, very concerned about discrimination and society in the student days I also participated in anti-nuclear demonstrations. please | A.Bank teller | 13.17% | Significant representative heuristic bias |
| | | B.Bank tellers and feminists | 86.83% | |
| | Which identity is more likely to be asked? Someone was randomly selected from 100 people, 70 of whom were engineers and 30 were lawyers. | A. Lawyer | 47.80% | |
| | This person has the following characteristics: 30 years old, married, no children, high ability and passion, is expected to be very successful in his field and is liked by colleagues. Please judge his identity. | B. Engineer | 52.20% | |
| Anchoring and adjustment Heuristic bias | Formula:eight × seven × six × five × four × three × two × 1 | average value: 2250 | | Obvious anchoring Adjustment deviation |
| | Formula: 1 × two × three × four × five × six × seven × 8 | average value: 512 | | |
| Affective heuristic bias | When you conduct securities trading, will your judgment and decision-making be affected by your own or other people's emotions? | A. Easily affected by emotions | 26.83% | Obvious emotional heuristic deviation |
| | | B. Sometimes affected by emotions | 50.24% | |
| | | C. Less or no emotional impact | 22.93% | |

Table 1. test of cognitive bias of College Students' investors (Continued)

| cognitive process Deviation classification | Subject | Select item | proportion | Inspection results |
|---|---|---|---|---|
| Framing dependency deviation | If you lead 600 soldiers to retreat and take the first route, 200 soldiers will be saved; If you take the second route, there is a 1 / 3 chance that none of them will be killed and 2 / 3 of them will be killed. Which one would you choose? | A. Article 1 | 55.19% | There is a framed dependency bias |
| | | B. Article 2 | 44.81% | |
| | If you lead 600 soldiers to retreat and take the first route, | A. Article 1 | 43.17% | |

| | | | |
|---|---|---|---|
| | 400 soldiers will be killed; If you take the second route, there is a 1 / 3 chance that none of them will be killed and 2 / 3 of them will be killed. Which one would you choose? | B. Article 2 | 56.83% |

### 2.2.2 Test of psychological deviation and preference of college student investors

The test of college student investors' psychological bias and preference is mainly conducted by asking investors to answer questions in the actual investment environment. The research results show that college student investors do not have the tendency of overconfidence, but show a certain degree of excessive inferiority. They also have obvious psychological accounts, hindsight, confirmation bias and loss aversion, and only have weak familiarity preference. The test results are shown in table 3-3:

Table 2. A test of the psychological bias and preference of College Students' investors

| Psychological deviation and preference | Subject | Select item | proportion | Inspection results |
|---|---|---|---|---|
| Affective heuristic bias | When you conduct securities trading, will your judgment and decision-making be affected by your own or other people's emotions? | A. Higher than the general level | 16% | Not obvious |
| | | B. Lower than the general level | 47.80% | |
| | | C. Similar to the general level | 36.10% | |

Table 2. A test of the psychological bias and preference of College Students' investors (Continued)

| Psychological deviation and preference | Subject | Select item | proportion | Inspection results |
|---|---|---|---|---|
| Psychological account | If you buy a dress for 200 yuan, the salesman tells you that the product is 195 yuan in another branch, but it takes 20 minutes to walk. Will you go to another store? | A. Meeting | 39.51% | Obviously have psychological accounts |
| | | B. No | 60.49% | |
| | If you buy a calculator for 15 yuan, the salesman tells you that the product is 10 yuan in another branch, but it takes 20 minutes to walk. Will you go to another branch? | A. Meeting | 57.07% | |
| | | B:.No | 42.93% | |

Table 2. A test of the psychological bias and preference of College Students' investors (Continued)

| Psychological deviation and preference | Subject | Select item | proportion | Inspection results |
|---|---|---|---|---|
| Hindsight | Think back to the scene of "1000 shares falling limit", did you know that the state would introduce a series of policies to rescue the market? Please select | A: the government will definitely intervene | 29.27% | It is obvious that there is hindsight |
| | | B: the government is more likely to intervene | 50.73% | |

| | | |
|---|---|---|
| the possibility that you think the government will intervene in the stock market before the rescue measures are introduced. | C) the possibility of government intervention is relatively small | 9.27% |
| | D) the government will not intervene | 4.88% |
| | E: I don't know what kind of attitude the government will take | 5.85% |
| China's stock market officially introduced the circuit breaker mechanism, and the stock market triggered the circuit breaker twice. Did you expect this to happen when the circuit breaker mechanism was implemented in China? | A.Yes | 8.29% |
| | B.No | 34.63% |
| | C.Uncertain | 37.07% |

Table 2. A test of the psychological bias and preference of College Students' investors(Continued)

| cognitive process Deviation classification | Subject | Select item | proportion | Inspection results |
|---|---|---|---|---|
| Verify deviation | When the stock price trend is consistent with your previous judgment, what do you think? | A can prove his judgment ability | 39.51% | Weak confirmation bias |
| | | B random coincidence | 27.80% | |
| | | C.can't explain anything | 32.68% | |
| Loss aversion | Which one would you choose? | A.You will definitely get 900 yuan | 65.85% | Apparent loss aversion |
| | | B.90% probability: 1000 yuan | 34.15% | |
| | Which one would you choose | A. it will definitely lose 900 yuan | 14.15% | |
| | | B.90% possibility: loss of 1000 yuan | 85.85% | |
| Familiar preferences | Do you prefer to invest in the stocks of Companies in your city? | A Yes 37.56% | | Weak familiarity preference |
| | | B: No | 26.83% | |
| | | C was not obvious | 35.61% | |

### 2.2.3 Test of College Students' investor behaviour deviation

The test results of the behaviour deviation of College Students' investors show that there is an obvious disposition effect of investors, which mainly affects their investment decisions by holding loss stocks for a long time and selling profit stocks too early; The herding behaviour of college student investors is not obvious by asking them to answer whether they will follow the public to buy recognized good stocks. The test results of the behaviour deviation of College Students' investors are shown in the following table:

Table 3. test on behaviour deviation of College Students' investors

| Classification of behavioral deviation | Subject | Select item | proportion | Inspection results |
|---|---|---|---|---|
| Disposal effect | Imagine a situation: a week ago, you bought two different stocks at the same price of 20 yuan / share. Now their prices are 18 yuan and 22 yuan respectively, that is, one loses 2 yuan and the other gains 2 yuan. Now you want to recover part of the capital, which stock will you choose to sell? | A.of the current 18 yuan stock | 38.54% | Obvious disposal effect |
| | | B.the 22 yuan stock now | 61.46% | |
| Herding behaviour | When many investors buy the same recognized good stock, you will choose | A.Follow everyone to buy | 18.05% | not obvious |
| | | B. Wait and see | 66.83% | |
| | | C. Indifferent | 15.12% | |
| Reference effect | Which of the following makes you feel worse? | A. Lost 10 yuan | 67.32% | Obvious reference effect |
| | | B. After winning 50 yuan, he lost 10 yuan | 18.54% | |

### 2.3 Summary of this chapter

Through the test of this paper, we can find that although the knowledge level of Chinese college student investors is high. It is difficult for investors to be completely rational. They also have general cognitive process bias, especially obvious emotional heuristic bias. Many investors are affected by their own or others' emotions when making decisions. Secondly, college student investors also have psychological biases and preferences, but different from the general public, they do not show a tendency of overconfidence. On the contrary, they feel a certain degree of self-confidence or even inferiority towards their own investment level; Moreover, investors show strong loss aversion and have strong risk aversion motivation in the face of income; They also showed obvious afterwards wise bias and loss aversion, only slight familiarity preference, and also a tendency to confirmation bias. Moreover, college student investors also have behavioural biases, and there are obvious disposal effects when selling stocks. However, the herding behaviour of college student investors is not obvious, which will help them reduce their irrational behaviour when investing.

## 3. Investment Strategy Based on Behavioural Finance

Through the statistical analysis of the questionnaire, it can be tested that there are also various psychological and behavioural biases among college students in China. Some psychological biases are stronger than ordinary investors, such as hindsight and loss aversion; Some deviations are weaker than ordinary investors, such as herd Behaviour and familiarity preference. Therefore, to avoid mistakes in actual investment decisions, it is necessary to study how college students as investors avoid these psychological and behavioural biases and propose investment strategies based on behavioural finance.

### 3.1 Reverse investment strategy

Because of the winner-loser effect (In financial practice, momentum effect and reversal effect.)in the securities market, investors can buy stocks with poor performance and sell the stocks with better performance. The successful application of reverse investment requires people to be calm, prevent impulsivity, and not blindly follow the advice of experts. However, in the actual securities market, people have shown an extreme reaction: investors have sought after the concept stocks affected by the policy, and excessively depreciated the unpopular stocks. Research shows that people often overestimate the return of the best investment and underestimate the return of the worst investment. The use of reverse investment strategies is to take advantage of this deviation of investors and choose the stocks with poor performance for investment. When the deviation is corrected and the stock price returns to its intrinsic value, it will be sold for profit. Investors can use certain methods to select stocks, such as selecting stocks with low P / E, low P / CF, low P / B and low P / d[3].

### 3.2 Inertia investment strategy

An inertia investment strategy is the opposite to reverse investment strategy, also known as momentum trading strategy. It uses the momentum effect of the securities market to carry out arbitrage. When some stocks start to rise, due to the stickiness of the price and people's insufficient response to the information, it is expected that the stock price will continue to rise for a short period. At this time, you can buy the stock and wait for the market to digest the new information, When the stock price reaches the level required to respond to the new information, it can be sold for profit. On the contrary, when the stock starts to fall, it is predicted that the stock price will continue to fall for a certain period for the same reason, and then the stock can be sold. Adopting this investment strategy is to grasp the trading opportunity because it takes advantage of the insufficient response of the market. When the market fully digests the new information and reacts normally, it should withdraw.

### 3.3 Centralized investment strategy

The centralized investment strategy is to select the stocks with investment value that are undervalued but have long-term development prospects and then invest a large proportion of funds in these stocks. No matter whether they rise or fall in the future, they will continue to hold stocks. When the real value of these stocks is discovered by the market, the stock price can rise, and investors can make profits. There are two reasons why the centralized investment strategy can obtain high returns. It can help investors reduce cognitive bias. Through the analysis of the real value of enterprises, investors can conduct detailed research on these companies to avoid paying too much attention. The smaller the probability of cognitive deviation, the lower the probability of encountering risks. At the same time, avoid changing stocks frequently, the investor's mentality will be more stable, and the less affected by market fluctuations, the occurrence of irrational behaviours can be reduced, and the corresponding return on investment can be improved. Use the value investment concept to obtain high returns. This strategy evaluates the difference between the intrinsic value of the company and the current stock price and buys when its value is undervalued, regardless of the downturn of the market. When the stock price rises, it sells for profit.

### 3.4 Cost Averaging Strategy and time dispersion strategy

When investors buy stocks, if they buy them at one time, the total cost for investors will be too high when the stock price decreases in the future. This loss is abhorrent to investors; If you buy at different prices each time, you can share the cost equally. This investment strategy is the cost averaging strategy. The most common investment method is the fixed investment of the fund. The investor invests a fixed amount of money to purchase the fund every month. Since the price of the fund varies from high to low, the cost can be averaged over a long period.

The time dispersion strategy refers to that due to the regret and aversion of investors and the gradual decrease of people's risk tolerance for investing in stocks as they grow older, investors can invest more in stocks when their tolerance is greater and more in bonds when their tolerance is lower.

### 3.5 Deviation management during the stock selection

In the face of complicated information, due to the limited attention or lazy thinking of investors, they often follow the investment of others to save the cost of information search and processing, thus showing herding behaviour. To avoid this herd behaviour, investors should fully mine information into personal information when selecting stocks, and make independent judgments. If many investors can be independent of each other, the errors in the market can offset each other, the phenomenon of sharp rise and fall will be reduced, and the income of investors can be more guaranteed. To avoid familiarity preference, investors should make diversified choices and avoid only choosing the stocks of their cities or companies. Diversified allocation can reduce the correlation between investments and effectively reduce risks. To avoid the bias of framing dependence, investors should conduct an in-depth investigation of the selected stocks, see the essence through the appearance, and not be deceived by speculators' whitewashing. This requires sufficient professional knowledge and investment of time and energy.

### 3.6 Deviation management of holding and selling process

The deviation that may occur when investors hold stocks is the anchoring effect, which is similar to the support line and pressure line in the technical graph. The high price in the previous period has become the target price in the minds of investors. When the stock price fluctuates, investors expect the stock price to rise to the previous highest price, so they always hold the stock. The previous lowest price of the stock is also the target price for investors to buy the stock. Investors hope that the price can be lowered to the lowest price before buying, so they may have a wait-and-see attitude. To avoid this anchoring deviation, investors should comprehensively analyse the overall level of the current market and evaluate whether the current stock price is reasonable, not only limited to the previous highest or lowest price. College student investors show an obvious disposal effect when selling stocks. In-depth research and investigation of relevant stocks and companies can effectively avoid this deviation. Investors should analyse the company's sustainable profitability, the development trend of the industry in which the company is located, the position of the stock price and the overall market valuation level, and decide to sell or continue to hold on this basis[4].

## 4. Summary

This paper combs the relevant theories on behavioural finance. It takes young investors in China as the research object, tests their psychological and behavioural biases using questionnaires, and analyses the impact of various biases on their investment decisions. Finally, this paper puts forward corresponding investment strategies for market anomalies and investors' deviations. For this study, 632 valid questionnaires were collected and the following conclusions were drawn through statistical analysis:

Young investors represented by college students have general cognitive process bias, especially obvious emotional heuristic bias. They feel a certain degree of self-confidence or even inferiority towards their own investment level, have obvious afterwards wise bias and loss aversion, only slight familiarity preference, and also a tendency to confirmation bias. In addition, college investors also have an obvious disposal effect when selling stocks. However, the herding behaviour of college investors is not obvious.

Under unusual circumstances in the market, we can use reverse investment strategy, momentum investment strategy, focus investment strategy, small-cap investment strategy, cost average strategy and time dispersion strategy to achieve a certain degree of return maximization and risk minimization.

## References

[1] Xing Jiahui. Securities investment analysis based on behaviour finance [J]. Cooperative economy and technology, 2021 (10): P.66-67.

[2] Long Jing, Zeng Yadong. Analysis of the investment behaviour of individual investors in China's stock market based on behavior finance [J]. Times finance, 2018 (06): P.149 + 152.

[3] Chen Mingxiu. Analysis of household investment and financial management behavior in Fuzhou, Fujian Province -- Based on the perspective of behavior finance [J]. Modern economic information, 2017 (21): P.246.

[4] Hao Ziqi. Analysis of individual investment psychology and behavior based on behavioural finance [J]. Modern business, 2017 (26): P.91-92.