Research Article

Determinant Factors of Overconfidence, Herding Behavior, and Investor Elements on Investment Decision Making in China

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Abstract: Purpose–The purpose of this study is to research the influence of herd behavior, investor sentiment, overconfidence, and risk tolerance on the investment decision making of Chinese individual investors. **Design/Methodology/Approach**–This study uses secondary data analysis, archival research, questionnaire survey and other methods to explore the factors that affect investors' investment decision making. This study uses three theoretical frameworks from previous studies to create a new conceptual framework. **Findings**–This study found that investor sentiment, overconfidence and risk tolerance have different degrees of impact on investment decisions. Herding also has something to do with investor sentiment. Finally, overconfidence also affects the risk tolerance of investors. **Research Limitations/Implications**–There are some limitations in the research of investment decision of individual investors in China. First of all, due to the epidemic, questionnaires can only be collected online. Secondly, the limited number of samples cannot represent the ideas of all investors. As a result, there may be more factors influencing investment decisions. **Originality/value**–this study is about the important influencing variables that affect investors' investment decision.

Keywords: Herding behavior; Investor sentiment; Overconfidence; Risk tolerance; Investment decision making

1. Introduction
1.1 *Background of the study*

With the development of China's capital market, the accumulated amount of people's personal wealth is increasing year by year, and people's concept of investment is improving. Faced with the impact of the COVID-19 in 2020 and the severe economic environment at domestic and abroad, China was the first major economy in the world to resume economic growth. On the basic premise of the continuous growth of the national economy, China's personal investment market also ushered in a steady development trend. By the end of 2021, the total investable assets of individuals in the Chinese market had reached 250 trillion yuan (about $37 trillion). In terms of the real estate sector, investment real estate compliance growth increased by 6 percentage points from 8% to 14% from 2018 to 2020. With the implementation of the national science and technology Innovation Board and other policies in 2019, the vitality of the stock market has been stimulated and a large amount of people's savings have been invested in the stock market. With the outbreak of COVID-19 and investors' increased risk awareness, the purchase of life insurance has increased to 16% compared with last year. However, the turmoil in global investment markets has caused many investors to worry about the return.

Investments are done to expand the available funds or assets. Over a long length of time, investments can be counted on to deliver returns that are higher than anticipated. However, how to make sound and effective investment decisions in the face of such a complicated market is an issue that is currently being explored. Traditional financial theory believes that investors are rational in the investment market; however, in actuality, changes in behavior and psychiatric influences hinder investors' investment decision making.

Financial behavior has emerged over time as a result of price fluctuations in securities and the impact of psychological and behavioral elements on investor decisions. The goal of the study of financial behavior is to comprehend how investor behavior affects the way that market participants make decisions. When trading equities on the capital markets, investors frequently act irrationally because their choices are unconsciously shaped by psychological factors. Overconfident investors are more susceptible to heavy losses because they trade aggressively without having sufficient financial understanding, which may often result in investors incurring significant financial loss. Investors may buy overvalued equities as a result of herding effects. One of the most important difficulties is often divergence from the proper and ideal investment selection on the stock exchange, which typically results in low returns for investors. Due to the limitations of fundamental and technical analysis for individual investors, recent research have demonstrated that emotional and psychological elements, including overconfidence, risk tolerance, and other characteristics, can play a significant impact in investing decisions. This output research in terms of examine how these factors (overconfidence, risk tolerance, herding behavior, and investor sentiment) impact individual investors' investment decision making in China market.

The first variable test is overconfidence. Biais et al. (2002) found that investors that exhibit overconfidence tend to buy stocks that do not yield returns. Investors who believe they can make investments and do well in the past will trade the financial markets more frequently (Glaser & Weber, 2007). However, overconfident investors frequently lower investment returns since they don't make the right choices while making investments.

The second important factor in financial planning is risk tolerance, which is the degree of investment return volatility that an investor is ready to endure. We always say high risk, high return. Since investors frequently adopt risk-taking habits, therefore, determine whether an investor is making the right investment decision, the investors' perception of risky behaviors must be weighed (Ishfaq et al., 2020). Furthermore, it's a known fact that risk-takers tend to be more financially smart people (Grable & Roszkowski, 2008).

Herding behavior is an additional factor. Herding behavior in the financial markets is the conduct of investors who follow other investors' lead when information is ambiguous, copy other investors' choices, or place an excessive amount of weight on the general public's view without taking private information into account. Numerous studies have discovered that the primary irrational investment behavior is herd behavior, which is influenced by financial market losses and returns (Nofsinger & Sias, 1999).

The sentiment of investors is the fourth factor. Investor sentiment is described by Baker and Wurgler (2006) as confidence in future cash flows or discount rates that is not backed by important fundamentals. The two most important factors in investing are profits and dangers. Maximum returns with little risk are what investors seek. The volatility of stock returns is a second aspect that is equally important. Depending on how challenging it is to evaluate a stock, investor sentiment with the inclination to speculate optimism or pessimism about a stock and future stock returns varies.

In recent year, COVID-19 has affected the work and income of many people, and they hope to maintain or even appreciate their assets. In China, many people have begun to learn knowledge about investment and finance, and it is particularly important to make rational and correct investment decisions after mastering correct investment knowledge. Therefore, this study aims to test overconfidence, risk tolerance, Herding behavior, and investor sentiment these investors' elements influencing on investment decisions.The first variable test is overconfidence. Biais et al. (2002) found that investors that exhibit overconfidence tend to buy stocks that do not yield returns. Investors who believe they can make investments and do well in the past will trade the financial markets more frequently (Glaser & Weber, 2007). However, overconfident investors frequently lower investment returns since they don't make the right choices while making investments.

1.2 *Research Objectives*

As mentioned earlier, several factors influence investment decision making. For independent variables,

overconfidence, and herding behavior can affect the dependent variables, risk tolerance, investor sentiment, and investment decision making. Finally, independent variables, risk tolerance and investor sentiment impact investment decision making (dependent variable). Consequently, this study aims to determine the relationships that impact the variables of investment decision making.

1. To research the effect of herding behavior and investor sentiment.
2. To reflect the effect of investor sentiment and investment decision making.
3. To identify the effect of overconfidence and risk tolerance.
4. To investigate the effect of overconfidence and investment decision making.
5. To find the effect of risk tolerance and investment decision making.

These objectives have aligned with research questions as detailed below

1. Does herding behavior have a significant effect on investor sentiment?
2. Does investor sentiment have a significant effect on investment decision making?
3. Does overconfidence have a significant effect on risk tolerance?
4. Does overconfidence have a significant effect on investment decision making?
5. Does risk tolerance have a significant effect on investment decision making?

This study investigates the variables that may affect investors' choice of investments. In order to analyze the influencing factors, the researchers studied from four aspects: work overconfidence, herding behavior, risk tolerance, and investor sentiment. Under the influence of the global epidemic, the economy is in turmoil and people's income is unstable. For the investment market, investors often make blind investment decisions. For example, a friend who tells you he has the latest news on which stock is going up urges you to buy it, or tells you where real estate is going up and urges you to invest. If you don't use financial intelligence rationally at the moment, your assets could lose a lot of money. First of all, studying the factors that influence investment decisions can help company decision makers. Investment decision making is affected by many uncertain factors, time is tight and information is not complete, so decision-makers cannot make decisions in a traditional rational way, but only make subjective judgments and choices based on experience. Therefore, in investment decision-making, theoretical guidance is needed to understand the problems arising from cognitive and behavioral biases. Second, this research can assist government agencies in creating rules and regulations that will properly direct the investment market and contribute to its stability by elucidating the investment preferences and decision-making practices of businesses and individual investors.

In addition, this study can help Chinese individual investors understand the investment market in China, how to make reasonable investment decisions, avoid many irrational investment behaviors, advice all investors to invest correctly and rationally, avoid behavior traps and avoid property losses. As a result, the study's findings will help investors better understand how their decisions about which investments to make in China's social, cultural, and economic environment are impacted by their overconfidence, risk tolerance, herding tendency, and investor sentiment. This study will also assist policymakers in developing effective strategies to prepare upcoming investors for the Chinese investment market.

1.3 *Literature Review*
1.3.1 *Theories of Each Variable*

In previous studies, some authors have suggested that investors' decisions are influenced by personal information, historical corporate performance, past investment experience, and expectations. Therefore, individual investors tend to make trading errors in investment transactions (Tversky & Kahneman, 1974). Overconfidence bias occurs when individuals overestimate their own ability and knowledge, think they are superior, and confidently believe that their investment can get higher returns (Asad et al., 2018). When the stock market wind is favorable, investors react more positively to the positive stock price and profit news (Haritha & Rashmi, 2020). Baker et al. (2017) observed that herding occurs when a group of investors do not pay attention to privately collected information, but trade the same securities in the same market like other investors. Investor behavior deviation and herd behavior are interdependent. Hirshleifer (2001) believed that the reason for the emergence of herd behavior is that people are willing to follow others around to make decisions, because this will lead to a stronger sense of comfort.

Herding behavior

Herding is when an individual mimic and follows the behavior of another individual, rather than acting alone (Baddeley, 2010). Investors that intentionally mimic the actions of other investors are said to exhibit herding behavior. Investors constantly mimic the trading and investing styles of other investors. (Kamil & Abidin, 2017), which is easy to make irrational investment decisions. According to Luong and Ha (2011), the foundation of an investor's choice is individual herding, because the speculative bubble and the trading behavior of inefficient stock market are all dependent on individual herding. Baker et al. (2017) supports this theory by finding that such behavior can lead to stock market bubbles (when stock prices soar beyond their fair value) and market crashes. Compared with individual investors, the herd effect of institutional investors is dominant and will have a positive impact on individual decisions (Kengatharan & Kengatharan, 2014). Institutional investors are also impacted by herding behavior, which is not just a problem for ordinary investors. Hirshleifer (2001) attributed the herd effect to the herd bias, he believed that people choose to follow or imitate the people around them because they will feel more comfortable in this way. Therefore, whether individual investors or institutional investors, investment decisions will be influenced by the irrational behavior and emotion of the herd (Nofsinger, 2005).

Investor sentiment

Investors seek the highest return with the lowest risk. Brown and Cliff (2004) discovered a strong correlation between market volatility and sentiment levels. Stock reactions to news were found to trend in the direction of investor mood by Mian and Sankaraguruswamy (2012). During times of positive mood as opposed to times of negative sentiment, stock prices react more favorably to strong earnings news. The relationship between institutional investor mood and market returns in China was examined by (Kling & Gao, 2008). The findings demonstrate that investor mood in the short run follows a positive feedback pattern. Based on the the theory of noise trading Qiang and Shu-e (2009), who claimed that stock price discovery is systematically influenced by investor mood and that this has an impact on stock price. (De Long et al., 1990). Stock prices are constantly subject to swings in investor sentiment. When investors are extremely concerned about them, investor sentiment can be adapted to predict stock values by (Guo et al., 2017). As a result, fluctuations in investor mood are more sensitive to growth equities (Kumar & Lee, 2006).

Overconfidence

Overconfidence will result in an overestimation of a person's abilities or future possibilities. According to behavioral finance research, people often underrate their odds of failure while overestimating their chances of success (Hirshleifer et al., 2012). Kufepaksi (2007) shows that some investors are overconfident, and they tend to predict the stock market price inaccurately, thus leading to the deviation of the market price. Investors who are too confident usually experience low returns because they are unable to appropriately diversify their investment risks and make informed investment selections. In their multi-period market research model, Gervais and Odean (2001) demonstrated that traders frequently exaggerate their success in the early stages of the stock market. Similarly, Hilary and Menzly (2006) discovered that forecasters who were outstanding in predicting outcomes correctly exhibited an overconfidence in their abilities and underperformed in subsequent forecasts. Tekce et al. (2016) revealed strong evidence of investor overconfidence was found, with younger, man, investors in areas with low portfolio values, investors with less developed education and income, and investors exhibiting significant levels of overconfidence in trading behavior. Pikulina et al. (2017) argued in their latest research paper that investors' overconfidence in their investment knowledge leads to overinvestment, underinvestment results from lack of confidence, whereas appropriate investment results from reasonable confidence. Investors with a higher-than-average perception of their investment skills and past performance tended to make more investment trades. Overconfident investors, on the other hand, primarily rely on their knowledge and access to information when making investing decisions, which they blame to information asymmetry. Overconfidence behavior is when someone perceives themselves as eager participants who believe they can reap bigger rewards and overrates their skills, expertise, and abilities Asad et al. (2018).

Risk tolerance

Risk tolerance is an important factor affecting individual investment decision. Grable and Joo (2004) analyzed that risk tolerance refers to the maximum amount of uncertainty that is acceptable while making judgments about one's own money, or the readiness to take chances on chances to make more money. Generally, people with more financial knowledge have a higher tolerance for risk (Gibson et al., 2013). Moreover, Grable and Joo (1999) believe that, in comparison to other factors like demography and socioeconomic traits, financial education is the most crucial

element in determining risk tolerance. Risk tolerance is also not simply about money. Because everyone has a varied life experience, social background, and level of risk tolerance, this is true. Chaulk et al. (2003) found that risk tolerance increases with increasing wealth. Because investor risk tolerance refers to how investors can deal with stock price volatility and their capacity to tolerate the loss of their own property, it is frequently arbitrary rather than objective and very challenging to assess Pak and Mahmoed (2012). Due to their varied life experiences, people have varying levels of risk tolerance.

Investment decision making

Investment is the practice of acquiring assets from resources that are readily available in order to reap greater future rewards. Investment decisions are traditionally thought to be based on rational expectations of investors changing their opinions in light of new information and optimizing expected returns at a specific risk threshold. According to Shukla et al. (2020), knowledge, historical results, experiences, and expectations all have an impact on investors' judgments. Individual investors consequently make poor investing decisions. Recent research demonstrates that investors attempt to do rational decisions (Kubilay & Bayrakdaroglu, 2016) and employ a variety of models and conventional financial theories to calculate the risks and anticipated returns of their choices (Arora & Kumari, 2015). Long-term investments are preferred by some investors while short-term investments are preferred by others. Shares held by management for quick returns and intended to be sold during the current accounting period are considered short-term investments (Kenton, 2019). Non-current assets that are not used in revenue-generating activities are long-term investments. Assets that investors want to retain for more than a year are known as long-term investments (Twin, 2019). Every investor wants to choose the greatest investment and receive the most return on investment when making the aforementioned two types of investments. Advanced financial knowledge is necessary for making the best and most reasonable investment decisions, according to Merton (1987). The common financial presumption is that people always have access to all available information and are capable of making logical judgments.

1.3.2 *Related Literature Review*

Herding behavior and investor sentiment

The most frequent error investors do is to herd after the crowd when making financial decisions is herding behavior, and this wrong behavior will affect the changes of investor sentiment (Gozalie & Anastasia, 2015). Although there are few previous studies to explain the relationship between herding behavior and investor sentiment, (Haritha & Rashmi, 2020) still verified the impact of herding behavior on investor sentiment through experiments. Waweru et al. (2008) illustrated that herding behavior might influence how you decide to invest in stocks, and investors with herding behavior experience greater sentiment fluctuate. Nofsinger and Varma (2013); Qadri and Shabbir (2014) noted the influence of psychological factors (herding behavior) on investor emotions and stock market judgment.

Investor sentiment amd investment decision making

About how investor sentiment influence investment decision making, there are some conflicting conclusions. Investor decision-making was found to be unaffected by herding behavior Lim (2012). However, (Metawa, 2019; Kengatharan, 2014) found that making investing decisions is positively impacted by investor sentiment. How hopeful or pessimistic investors are regarding the health of the investing market is closely tied to this feeling.The degree of optimism or pessimism about specific equities and market conditions is closely tied to investor sentiment. This study demonstrates that changes in investor sentiment play a key role in portfolio management and investment decisions Nareswari et al. (2021). In addition, another study result indicated that investor sentiment is the variable that significantly affects investor's investment decision Metawa et al., (2019).

Overconfidence and risk tolerance

The level of uncertainty that will exist while making a financial investment is known as risk (Grable, 2008). According to Gustafsson and Omark's (2015) research, individuals with high risk tolerance tend to be overconfident. However, (Ahmad, 2020; Kasoga, 2021) indicated that overconfidence in investing decision-making can be mitigated to some extent by risk tolerance, these individual investors frequently disregard the most recent market information because they trust their prior experience. Additionally, Research shows that overconfidence has a greater impact on investing decision-making than risk tolerance. Gustafsson and Omark (2015) discovered that excessive confidence will increase the risk of investments.

Overconfidence and investment decision making

Lim (2012), Bakar and Yi (2016), and Metawa et al. (2019), who discovered that having too much confidence has a big favorable effect on making investing decisions. This indicates that because they have confidence in themselves, investors who believe they are competent trade equities on the capital markets more frequently. They believe they are competent investors and that they can generate greater returns. Unconscious decision-makers who exhibit overconfidence have a propensity to give their expertise and information too much weight. Qureshi et al. (2012) and Bashir et al. (2013) added that overconfidence has a favorable, considerable influence on the choices made by investors. Atif (2014) and Kengatharan (2014) hold different views, they found overconfidence to have negative impact on decision making.

Risk tolerance and investment decision making

According the study by Waweru et al. (2008), investors make investment decisions next time based on their prior experiences in the market. Samsuri et al. (2019) demonstrated that the tolerance of risk has positive influence on investors' decision. Grable (2016) illustrated that risk-averse people seldom invest in stocks. Investors with higher risk level of tolerance will invest in stocks with higher risk to obtain higher returns. Consequently, those willing to accept significant risks are prepared to invest in equities (Zheng, 2013). The secret to being a successful investor is being able to adjust to risk and retain a certain degree of risk even when faced with catastrophic losses. Roszkowski and Davey (2010) found that risk acceptance can lessen investor annoyance and boost the investor's confidence in their ability to make wiser financial decisions. In a similarly, investors will assess investment risks and expected returns in accordance with their personal preferences. However, Corter and Chen (2006) stated that the concept of risk associated with investment decisions is still based on previous financial investment experience, these experiences can lead to losses.

1.4 *Conceptual framework*

In this study, there are three theoretical frameworks applied in this conceptual framework. The first theoretical framework is from Kasoga (2021), who studied that "Heuristic biases and investment decisions: multiple mediation mechanisms of risk tolerance and financial literacy—a survey at the Tanzania stock market". The study's findings demonstrated a positive moderating relationship between risk tolerance and overconfidence, availability, anchoring, and representativeness in investment decisions. This literature offers information about overconfidence, risk tolerance and investment decision. The second theoretical framework studied about "The Impact of Behavioral Aspects on Investment Decision Making" by Nareswari (2021). The result implied that herding behavior, overconfidence, salience, emotional investors, and overreaction all have a favorable impact on investment decisions. This article gives information about overconfidence and investment decision making. The last theoretical framework is from Haritha and Uchil (2020) researched about "Influence of investor sentiment and its antecedent on investment decision-making using partial least square technique". According to this study, investor sentiment is significantly influenced favorably by the herding effect, media factors, advocacy and recommendation, and social contact. Among these, investor sentiment has a favorable impact on the choice of an investment. The article can give relationship information among herding behavior, investor sentiment and investment decision making. Based on previous literature, the researchers construct the conceptual framework. This study shows the herding behavior as an independent variable has an impact on investor sentiment (dependent variable). As an independent variable, investor sentiment has an impact on dependent variable investment decision making. Overconfidence as an independent variable has an impact on dependent variables risk tolerance and investment decision making. Last, risk tolerance as an independent variable has an impact on dependent variable investment decision making. The conceptual framework as shown in Figure 1.
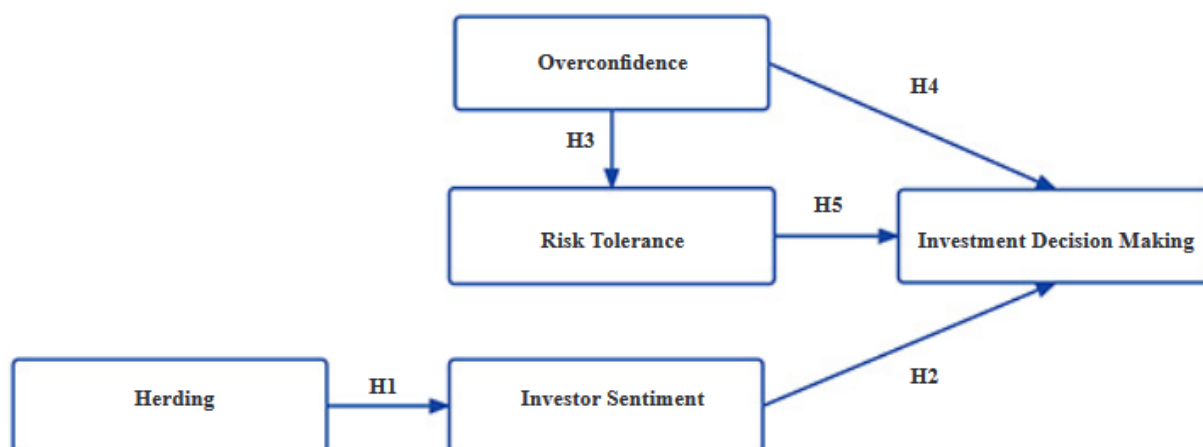
Figure 1. The conceptual framework

Based on the proposed conceptual framework, the researchers' composted five hypotheses to investigate which factors can influence investment decisions, such as overconfidence, risk tolerance, herding behavior and investor sentiment. The hypotheses are as follows:

Hypotheses 1 (H1): Herding behavior has a positive effect on investor sentiment.

Hypotheses 2 (H2): Investor sentiment has a positive effect on investment decision making.

Hypotheses 3 (H3): Overconfidence has a positive effect on risk tolerance.

Hypotheses 4 (H4): Overconfidence has a positive effect on investment decision making.

Hypotheses 5 (H5): Risk tolerance has a positive effect on investment decision making.

2. Methodology

The goal of this study is to identify the variables influencing investors' investment decision-making in China's stock market, including herding behavior, investor emotion, overconfidence, and risk tolerance. Additionally, this study quantifies the degree to which each aspect that influences investment decision-making has an effect. As a result of the study's quantitative nature, various forms of analysis were used, including Descriptive Data Research, Multiple Linear Regression, Simple Linear Regression, and Cronbach's Alpha.

First, the questionnaire consists of three parts, a total of 28 items that relate to five variables of the research model, 3 items related to screening questions, 19 items are related to measuring variables, and 6 items are related to demographic information. Researcher use the Item Objective Congruence (IOC) Index for screening the item quality of each question in the questionnaire. Researcher asked the opinion of three experts to determine the content validity score. For IOC result, researchers keep the significant questions and delete unsuitable questions. The reliability of the questionnaire and any ambiguity or confusion regarding the measurement items in the surveys were tested using Cronbach's Alpha. A pilot test with 70 samples was carried out to ascertain the validity of the questionnaire and determine whether there was any ambiguity regarding the measurement items. Interval Scale Likert (1-5) is used by the researchers in this study to assess respondents' attitudes and levels of agreement with regard to each variable. One signifies "Strongly Disagree" and five represents "Strongly Agree" on the statistical scale. In this study, due to the impact of COVID-19 pandemic, questionnaires were distributed online. A part of the questionnaire is distributed to respondents through China's questionnaire star website, and respondents can fill in the questionnaire online by computer, mobile phone and other means. Part of the questionnaire was distributed to the circle of friends through the link of wechat mini program for respondents to answer. Some of the questionnaires were collected by the researchers via online voice and video.

Secondly, researcher used two multiple linear regression (MLR) to analyze the factors that affect investment decision making which are overconfidence, risk tolerance, and investor sentiment. Researcher also use the simple regression (SLR) to analyze whether the herding behavior influence investor sentiment. The influence of overconfidence had an effect on risk tolerance.

Thirdly, the target respondents in China who are over 18 years old, and has investment behavior. According to the Worldometer (the latest United Nations data), the population of China is 1,450,110,500 (as of Tuesday, June 7, 2022). However, the researcher cannot be sure exactly which people in China are over 18 and have the investment habit. So, the research will use the target population as unknown. In this study, the researchers used Cochran (1977) formula to calculate the sample size of respondents, since the formula is used to calculate sample sizes that do not know the total number. Using a 95 percent confidence level, a 50 percent standard deviation, and a 5 percent margin of error, calculate the required survey sample size for an unknown population.

Lastly, this study adopts non-probabilistic sampling method and non-random selection method based on convenience and convenience of data collection. In this study, the researcher chose a convenient sampling method to collect information. In order to screen out suitable interviewees, the researchers set up screening questions. Due to sample size, geographical location, pandemic situation and other reasons, only online questionnaire survey was carried out among respondents, so researchers decided to adopt non-probability sampling method. So, researchers can collect data more easily and efficiently.

As shown in Table 1, the researchers used Cronbach's Alpha test reliability scale and SPSS software to measure the close relationship between groups of items as a group. The results show that the total variables affecting the investment decisions of investors consist of 5 items (α = .911). The results show that: 4 items of herding behavior are .931, 4 items of investor sentiment value is .877, 4 overconfidence is .885, 3 items of risk tolerance is .869, the four items of investment decision making is .883. All factors that influence investors' investment decision making are above 0.6, meaning they are reliable.

Table 1. Result from Pilot Test- Cronbach's Alpha

Variables	Cronbach's Alpha	Number of Items	Strength of Association
Herding Behavior	.931	4	Excellent
Investor Sentiment	.877	4	Good
Overconfidence	.885	4	Good
Risk Tolerance	.869	3	Good
Investment Decision Making	.883	4	Good

3. Results

The researchers continued to conduct validity tests on the questionnaire results of 424 respondents in order to find inconsistent or incorrect variables. The reliability of the questionnaire was evaluated and analyzed by Cronbach's Alpha test. As Table 2 shown, the researchers used Cronbach's Alpha test reliability scale and SPSS software to measure the validity of items as a group. The results show that the total variables affecting the investment decisions of investors consist of 5 items (α = .915). The results show that: 4 items of herding behavior are .924, 4 items of investor sentiment value are .891, 4 overconfidence is .888, 3 items of risk tolerance is .877, the four items of investment decision making is .890. All factors that influence investors' investment decision making are above 0.6, meaning they are reliable.

Table 2. Cronbach's Alpha (n=424

Variables	Cronbach's Alpha	Number of Items	Strength of Association
Herding Behavior	.924	4	Reliable

Investor Sentiment	.891	4	Reliable
Overconfidence	.888	4	Reliable
Risk Tolerance	.877	3	Reliable
Investment Decision Making	.890	4	Reliable

3.1 *Descriptive Analysis of Demographic Data*

Researcher using descriptive analysis in SPSS to test the respondents' information. The researcher analyzed the characteristics of the respondents participating in the questionnaire survey from six aspects including gender, age, marital status, education level, occupation and monthly income. The Table 3 shows the frequency distribution and percentage in 424 respondents are as follows. Gender: All 424 respondents, their distribution showed 229 respondents were male, accounting for 54% of the total sample, and 195 were female, and the percentage is 46. Age: Among 424 respondents, there are no respondents over 55 years old in this study, and 174 respondents between 36 and 45 years old, accounting for 41%. Followed by 168 respondents aged 26-35, accounting for 39.6%. Then there are 73 respondents aged 46-55, accounting for 17.2%. There are 9 respondents aged 19-25, accounting for 2.1%. Marital status: From 424 respondents, 149 respondents are single with 35.1% and 275 respondents who were get married has 64.9%. Education level: For all 424 respondents, 287 respondents with 67.7% have bachelor degree, following by 94 respondents with master degree (22.2%). 39 respondents have doctoral degree with the percentage of 9.2. The respondents who are high school education has 3 with the percentage of 0.7. The last 1 respondent has lower than high school level with the percentage of 0.2. Occupation: Among the 424 respondents, 338 were employees of the company, accounting for 79.7% of the total. Then there are 44 government employees, accounting for 10.4 percent. There are 16 teachers, or 3.8 percent. There were nine doctors, or 2.1 percent. Financial institutions and other workers accounted for 1.7 percent, with seven each. Only one of the respondents, or 0.2%, was a student. Monthly income: For the respondents to the questionnaire, 205 (48.3%) have a monthly income of 5,001-7,000 RMB. Followed by 147 respondents with monthly income between 7,001 and 10,000, accounting for 34.7%. There are 44 respondents whose monthly income exceeds 10,000, accounting for 10.4% of the total number of respondents. There are 27 interviewees with monthly income between 3001-5000, accounting for 6.4%. At the end of the survey, only one person, or 0.2%, earns less than 3,000 yuan a month.

Table 3. The analysis of demographic information using the frequency distribution and percentage (*n=424*)

Demographic Factors	Frequency	Percent
Gender		
Male	229	54.0
Female	195	46.0
Total	**424**	**100**
Age		
19-25 years old	9	2.1
26-35 years old	168	39.6
36-45 years old	174	41.0
46-55 years old	73	17.2
Total	**424**	**100**
Marital Status		
Single	149	35.1
Married	275	64.9
Total	**424**	**100**

Education Level			
	Lower than high school	1	.2
	High school	3	.7
	Bachelor degree	287	67.7
	Master degree	94	22.2
	Doctoral degree	39	9.2
	Total	**424**	**100**
Occupation			
	Student	1	.2
	Teacher	16	3.8
	Lawyer	2	.5
	Doctor	9	2.1
	Government staff	44	10.4
	Company staff	338	79.7
	Financial institution staff	7	1.7
	Others	7	1.7
	Total	**424**	**100**
Monthly income			
	Less than 3,000 CNY	1	.2
	3,001-5,000 CNY	27	6.4
	5,001-7,000 CNY	205	48.3
	7,001-10,000 CNY	147	34.7
	Over 10,001 CNY	44	10.4
	Total	**424**	**100.0**

3.2 *Descriptive Analysis with Mean and Standard Deviation*

Researcher summary of Mean and Standard Deviation of each variable, consisting of herding behavior, investor sentiment, overconfidence, risk tolerance, and investment decision making will be analyzed as follows:

Table 4 demonstrates the greatest mean is "HB2: I make my investment decision mainly based on the commercial movements." which number is 4.52. By comparison, the lowest mean is "HB3: I confidently take an investment decision different from many investors in the market." which number is 3.15. The highest standard deviation is "HB3: I confidently take an investment decision different from many investors in the market." which gave a result of .796. However, the lowest standard deviation is "HB2: I make my investment decision mainly based on the commercial movements." resulting in .724.

Table 4 demonstrates the greatest mean is "IS2: My current mood affect making my investment decision." which is 4.58. By comparison, the lowest mean is "IS3: Feeling optimistic affect making my investment decision." which is 3.15. The highest standard deviation is "IS3: Feeling optimistic affect making my investment decision." which result is .745. However, the lowest standard deviation is "IS2: My current mood affect making my investment decision." resulting in .633.

Table 4 demonstrates the greatest mean is "OC2: I do invest by myself." which is 4.57. By comparison, the lowest mean is "OC4: I am aware of everything in the invest market." which is 3.96. The highest standard deviation is "OC4: I am aware of everything in the invest market." which result is .787. However, the lowest standard deviation is "OC3: I trust my data sources." resulting in .600.

Table 4 demonstrates the greatest mean is "RT1: After a prior gain, I take more risk-seeking than usual." which is 4.50. However, the lowest mean is "RT3: I can accept a loss of more than 50% on my investment." which is 4.35.

The highest standard deviation is "RT3: I can accept a loss of more than 50% on my investment." which result is .692. However, the lowest standard deviation is "RT1: After a prior gain, I take more risk-seeking than usual." resulting in .615.

Table 4 demonstrates the greatest mean is "IDM4: I use internet as a main source of data when I making investment decision." which is 4.54. However, the lowest mean is "IDM3: I depend on industrial/ economic/ financial data (GDP, exchange rate, cash flow statement) when I making investment decision." which is 4.23. The highest standard deviation is "IDM1: I consider brokers opinion when I making investment decision." which result is .631. However, the lowest standard deviation is "IDM3: I depend on industrial/ economic/ financial data (GDP, exchange rate, cash flow statement) when I making investment decision." resulting in .554.

Table 4. The result of Mean and Standard Deviation of Scale items for each variable

	N	Minimum		Mean	Std. Deviation
Herding Behavior (HB)					
HB1: I make my investment decision based on the majority of other decisions.	424	1	5	4.52	.737
HB2: I make my investment decision mainly based on the commercial movements.	424	1	5	4.57	.724
HB3: I confidently take an investment decision different from many investors in the market.	424	1	5	3.15	.796
HB4: Quick movements in the investment market does not affect my decision.	424	1	5	4.44	.725
Investor Sentiment (IS)					
IS1: I avoid investing that are not familiar to me.	424	1	5	4.41	.703
IS2: My current mood affect making my investment decision.	424	1	5	4.58	.633
IS3: Feeling optimistic affect making my investment decision.	424	1	5	3.91	.745
IS4: Feeling pessimistic affect making my investment decision.	424	1	5	4.39	.716
Overconfidence (OC)					
OC1: I have the needed expertise and skills to invest.	424	1	5	4.50	.677
OC2: I do invest by myself.	424	1	5	4.57	.630
OC3: I trust my data sources.	424	1	5	4.36	.600
OC4: I am aware of everything in the invest market.	424	1	5	3.96	.787
Risk Tolerance (RT)					
RT1: After a prior gain, I take more risk-seeking than usual.	424	1	5	4.50	.615
RT2: After a prior loss, I prefer more risk averse.	424	1	5	4.40	.648
RT3: I can accept a loss of more than 50% on my investment.	424	1	5	4.35	.692
Investment Decision Making (IDM)					
IDM1: I consider brokers opinion when I making investment decision.	424	1	5	4.44	.631
IDM2: Trading return affect my investment decision.	424	1	5	4.45	.613
IDM3: I depend on industrial/ economic/ financial data (GDP, exchange rate, cash flow statement) when I making investment decision.	424	1	5	4.23	.554
IDM4: I use internet as a main source of data when I making investment decision.	424	1	5	4.54	.614

3.3 *Hypotheses Testing Results*

3.3.1 *Summary of Multiple Linear Regression for H2, H4, and H5*

In this part, the researcher used the method of multiple linear regression to conduct statistical analysis on 424

questionnaires, and determined the level of several factors affecting investors' investment decision making. For multiple linear regression, multicollinearity is calculated, as it can help to suggest eliminating unnecessary variables. In addition, Akinwande et al. (2015) also believed that if the variance inflation factor (VIF) was less than or equal to 5, it was better to propose the overlapping variable. Alternatively, variables can be explained by values of R^2, which represent the ratio of the dependent variable's fluctuation to the independent variable.

Table 5 shows a multiple linear regression was carried out to determine if investor sentiment, overconfidence, and risk tolerance have significantly predicted investment decision making. The result from hypotheses 2, 4, and 5 showed that all independent variables used to determine affects to investment decision making are not overlapping and it had no problem of multicollinearity due to the VIF being less than 5. The result of the VIF value of investor sentiment is 2.829, overconfidence is 3.008, and risk tolerance is 3.765. Moreover, R2 is 0.749 at 95% of confidence level. It means that the independent variables (investor sentiment, overconfidence, and risk tolerance) can justify dependent variables (investment decision making) by approximately 74.9%. Results show that 74.9% of the variance in investment decision making can be calculated by three predictors, collectively $F(3,420) = 417.402$, $p < 0.05$. By looking at the contributions of each predictor, the result shows that investor sentiment ($\beta = -0.111$, $p<0.05$), overconfidence ($\beta = 0.183$, $p< 0.05$), and risk tolerance ($\beta = 0.798$, $p< 0.05$) have positively significant impact on investment decision making.

Statistical Hypotheses

H2o: Investor sentiment has no significant effect on investment decision making.

H2a: Investor sentiment has a significant effect on investment decision making.

The null hypothesis was rejected since Table 5 significance level is less than 0.05 and is thus less than 0.007. We can draw the conclusion that investor sentiment has an impact on investing decisions. Additionally, the standardized coefficient for investor sentiment is -0.111. This implies that if investor sentiment rises by 1%, investment decisions may be reduced by 11.1%.

H4o: Overconfidence has no significant effect on investment decision making.

H4a: Overconfidence has a significant effect on investment decision making.

The null hypothesis was rejected since Table 5 reveals the significance level of 0.000, which is less than 0.05. It follows that overconfidence has a negative impact on investment decision-making. The standardized coefficient for overconfidence is 0.183. This indicates that if overconfidence rises by 1%, investment decision-making can rise by 18.3%.

H5o: Risk tolerance has no significant effect on investment decision making.

H5a: Risk tolerance has a significant effect on investment decision making.

The null hypothesis was rejected since Table 5 significance level is 0.000, which is less than 0.05. This leads to the conclusion that risk tolerance has an impact on investment decision-making. Furthermore, the standardized coefficient for risk tolerance is 0.798. The increase in investment decision-making may be raised by 79.8 percent if risk tolerance rises by 1%, according to this calculation.

Table 5. The analysis of demographic information using the frequency distribution and percentage (*n=424*)

Variables	B	SE B	β	t	Sig.	VIF
(Constant)	1.387	.092		15.115	.000	
Investor Sentiment	-.087	.032	-.111	-2.697	.007*	2.829
Overconfidence	.144	.033	.183	4.315	.000*	3.008
Risk Tolerance	.630	.037	.798	16.828	.000*	3.765

Note. R2= 0.749, Adjusted R2= 0.747, *p< 0.05. Dependent Variable =Investment Decision Making

3.3.2 Summary of Simple Linear Regression for H1

The researcher used simple linear regression to predict if the level of herding behavior can significantly predict

investor sentiment. Table 6 shows a simple linear regression was carried out to determine if herding behavior significant predicted investor sentiment. The result from hypothesis 1 shows that the null hypothesis is rejected. Regression analysis revealed that the model explained 39% of the variation and that it is significant, $F(1, 422) = 269.507$, $p < 0.05$, with $R^2 = 0.390$ at 95% pf confidence level. The significant value shows that herding behavior ($\beta = 0.624$, $p < 0.05$), has positively significant to investor sentiment.

Statistical Hypothesis

H1o: Herding behavior has no significant effect on investor sentiment.

H1a: Herding behavior has a significant effect on investor sentiment.

The null hypothesis was rejected since Table 6 significance level is 0.000, which is less than 0.05. Thus, it may be said that herding behavior has had an impact on investor mood. Additionally, the standardized coefficient for herding behavior is 0.624. This implies that investor sentiment can rise by 62.4 percent if herding behavior rises by 1%.

Table 6. Summary of Simple Linear Regression Analysis for Hypothesis 1

Variables	B	SE B	β	t	Sig.	VIF
(Constant)	.830	.214		3.883	.000	
Herding Behavior	.837	.051	.624	16.417	.000*	1.000

Note. R2= 0.390, Adjusted R2= 0.388, *P< 0.05. Dependent Variable= Investor Sentiment

3.3.3 *Summary of Simple Linear Regression for H3*

The researcher used simple linear regression to predict if the level of overconfidence can significantly predict risk tolerance. Table 7 shows a simple linear regression was carried out to determine if overconfidence can significant predicted risk tolerance. The result from hypothesis 3 shows that the null hypothesis is rejected. Regression analysis revealed that the model explained 64.5% of the variance, demonstrating that the model is significant, $F(1, 422) = 766.039$, $p < 0.05$, with $R^2 = 0.645$ at 95% pf confidence level. The significant value shows that overconfidence ($\beta = 0.803$, $p < 0.05$), has positively significant to risk tolerance.

Statistical Hypothesis

H3o: Overconfidence has no significant effect on risk tolerance.

H3a: Overconfidence has a significant effect on risk tolerance.

The null hypothesis was rejected since Table 6 significance level is 0.000, which is less than 0.05. Thus, it may be said that herding behavior has had an impact on investor mood. Additionally, the standardized coefficient for herding behavior is 0.624. This implies that investor sentiment can rise by 62.4 percent if herding behavior rises by 1%.

Table 7. Summary of Simple Linear Regression Analysis for Hypothesis 3

Variables	B	SE B	β	t	Sig.	VIF
(Constant)	.830	.214		3.883	.000	
Herding Behavior	.837	.051	.624	16.417	.000*	1.000

Note. R2= .645, Adjusted R2= .644, *P< 0.05. Dependent Variable= Risk Tolerance
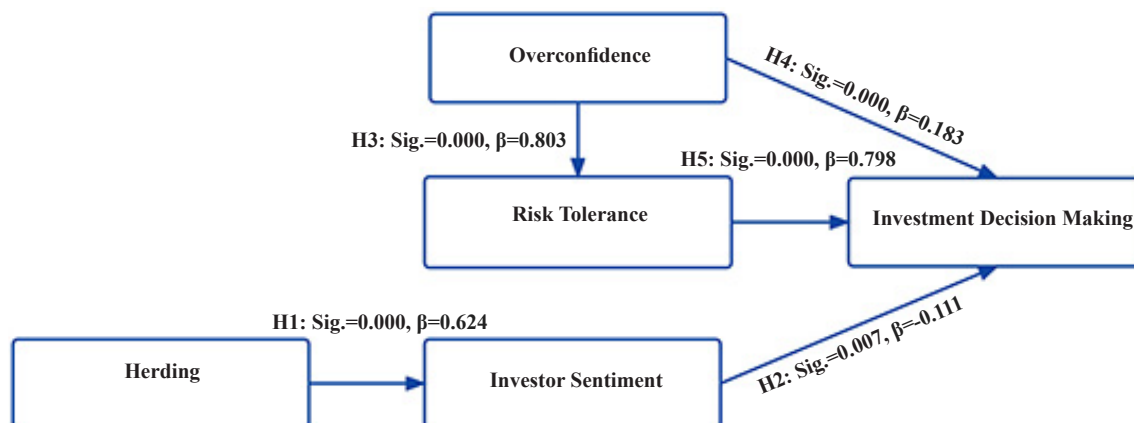
Figure 2. The result of structural model

4. Conclusion

Based on the research purpose, this study accurately examines the correlation between herding effect, investor sentiment, overconfidence and risk tolerance, and how they affect investors' investment decisions. There are five questions in this study. 1. Does the herding behavior have a significant effect on investor sentiment? 2. Does the investor sentiment have a significant effect on investment decision making? 3. Does the overconfidence have a significant effect on risk tolerance? 4. Does the overconfidence have a significant effect on investment decision making? 5. Does the risk tolerance have a significant effect on investment decision making? In addition, descriptive research method was used in this study. The subjects of this study are adult, employed and investing Chinese individual investors. Cochran's (1997) formula was adopted in this study to calculate the number of samples. An online questionnaire survey was conducted among 424 respondents by means of convenience sampling and snowball sampling.

For the purpose to keep the consistency and reliability, researcher used close-end questions in the structured questionnaire. The analysis was then performed using the social science statistical software package (SPSS) and presented in graphs. Descriptive statistics of frequency, mean and standard deviation were used to analyze the data. In the study of variable test, the author also uses correlation reasoning analysis and regression analysis. The hypothesis was tested using both multiple linear regression and basic linear regression. The degree of the herd effect on investor sentiment and the degree of overconfidence on risk tolerance are assessed using a straightforward linear regression method. Multiple linear regression was used to determine the impact of overconfidence, risk tolerance and investor sentiment on investors' investment decision making. Hypothesis testing results show that all five Null hypotheses are rejected, and the results have significant statistical values. The hypothesis test results are Table 8 shown below.

Table 8. Summary result from the hypothesis testing

Hypothesis	Significant Value	Standardized Coefficient	Result
H1o: Herding behavior has no significant effect on investor sentiment.	0.000*	0.624	Rejected
H2o: Investor sentiment has no significant effect on investment decision making.	0.007*	-0.111	Rejected
H3o: Overconfidence has no significant effect on risk tolerance.	0.000*	0.803	Rejected

H4o: Overconfidence has no significant effect on investment decision making.	0.000*	0.183	Rejected
H5o: Risk tolerance has no significant effect on investment decision making.	0.000*	0.798	Rejected

Note. P-value < 0.05

The hypothesis test results of multiple linear regression and simple linear regression show that the three factors have their own advantages. The results show that risk tolerance is the most important factor affecting investment decision making. The sorting results of hypothesis testing are summarized in the following table. Table 9 shows the rank from high to low of the influence degree of the respective variables affecting investment decisions. Beta measures the relationship between independent and dependent variables. The results show that the variable with the strongest relationship with investment decision is risk tolerance, with a number of 0.798, followed by overconfidence, with a number of 0.183, and finally investor sentiment, with a number of -0.111.

Table 9. Strengths of factor influence of variable to investment decision making

Rank	Independent Variable	β
1st	Risk Tolerance	0.798
2st	Overconfidence	0.183
3st	Investor Sentiment	-0.111

5. Discussion

Hypothesis testing shows that investor sentiment, overconfidence and risk tolerance have significant influence on investment decision making. Herding behavior has a significant impact on investor sentiment, and overconfidence also has a significant impact on risk tolerance.

Investor Sentiment and Investment Decision Making

The results show that there is a significant relationship between investor sentiment and investment decision making, and the significant value is 0.007. This result has been confirmed in previous literature by Metawa, (2019) and Kengatharan (2014) that investor sentiment has a positive impact on investment decisions. This sentiment is related to how optimistic or pessimistic investors are about the state of the investment market. The descriptive analysis of investor sentiment found that the average value was 4.32, but the question with the lowest average mean is "Feeling optimistic affect making my investment decision." and the number was 3.91. However, this question has the highest standard deviation, which value is 0.745. As the results of standard deviation show that the respondents score is spread out. Investors should pay more attention to optimism to improve their investment decisions then keep the consistency of the score.

Overconfidence and Investment Decision Making

The results show that there is a significant relationship between overconfidence and investment decision making, and the significant value is 0.000. This finding is consistent with Bakar and Yi (2016), they found that overconfidence has a significant positive impact on investment decisions. This means that investors who think they are competent are more active in investing in trades.

The descriptive analysis of overconfidence found that the average value was 4.35, but the question with the lowest average mean is "I am aware of everything in the invest market." and the number was 3.96. However, this question has the highest standard deviation, which value is 0.787. As the results of standard deviation show that the respondents score is spread out. Investors should pay more attention to aware the change of invest market and then can keep the consistency of the score.

Risk Tolerance and Investment Decision Making

The results show that there is a significant relationship between risk tolerance and investment decision making, and the significant value is 0.000. The research of Grable (2016) also obtained the same result, which showed that risk-averse investors rarely invested in stocks, while investors with strong risk tolerance invested in riskier markets to obtain higher investment returns. The descriptive analysis of risk tolerance found that the average value was 4.42, but the question with the lowest average mean is "I can accept a loss of more than 50% on my investment." and the number was 4.35. However, this question has the highest standard deviation, which value is 0.692. As the results of standard deviation show that the respondents score is spread out. Investors should pay more attention to increase the tolerance of risk in invest market and then can keep the consistency of the score.

Herding Behavior and Investor Sentiment

The results show that there is a significant relationship between herding behavior and investor sentiment, and the significant value is 0.000. This corresponds to the findings of Waweru et al. (2008), who found that investors with herd behavior in the investment market were accompanied by greater emotional fluctuations. The descriptive analysis of herding behavior found that the average value was 4.17, but the question with the lowest average mean is "I confidently take an investment decision different from many investors in the market." and the number was 3.15. However, this question has the highest standard deviation, which value is 0.796. As the results of standard deviation show that the respondents score is spread out. Investors should pay more attention to whether they made the right investment decisions, whether they were overconfident in invest market and then can keep the consistency of the score.

Overconfidence and Risk Tolerance

The results show that there is a significant relationship between overconfidence and risk tolerance, and the significant value is 0.000. The research of Gustafsson and Omark (2015) is also consistent with this result, and they found that people with high risk tolerance would behave with overconfidence. These people tend to make investment decisions based on past investment experience and ignore the latest market information. The descriptive analysis of overconfidence found that the average value was 4.35, but the question with the lowest average mean is "I am aware of everything in the invest market." and the number was 3.96. However, this question has the highest standard deviation, which value is 0.787. As the results of standard deviation show that the respondents score is spread out. Investors should pay more attention to aware the change of invest market and then can keep the consistency of the score.

6. Recommendation

According to the results of this study, among the factors that ultimately affect individual investment decisions in China's investment market, risk tolerance has the most significant impact on investment decisions, followed by overconfidence, and finally investor sentiment. However, there is also a strong correlation between overconfidence and risk tolerance. Herd effect also has a significant impact on investor sentiment.

For Chinese individual investors affected by the epidemic, how to ensure reasonable and rational investment behavior is crucial. Due to the impact of the epidemic, national economic income has also been affected, many people may face unemployment, company bankruptcy, and a series of problems. At this time, for individual investors, putting money in the bank can no longer get their expected returns, and many people will invest their money in the stock market and funds in order to earn high dividends. When is often attracted by high returns, resulting in irrational investment decisions, resulting in the loss of money. Therefore, for investors, it is not only necessary to perfect the investment knowledge reserve, but also more important to know what factors will affect investors' investment decisions when making investment decisions.

First of all, in terms of herd effect, there is an old saying in China called "conformity", which means that people are easy to listen to the words of those close to them. In the investment market this situation is no exception, often your good friend tells you, he received news, a certain stock to rise in price, persuade you to buy, you may not have time to think, afraid of missing a good opportunity to make money, and then for you at the moment is to click the mouse, operation can buy the stock. As for investor sentiment, investors often make irrational investment decisions because of their personal and surrounding factors that affect their emotions.

Secondly, the overconfidence factor, which is based on the fact that you have made money from your investment decision before, you will not doubt whether your decision is correct or not, and will not listen to friends' advice and

As central banks around the world have followed the Fed's lead in sharply raising interest rates, the Fed has raised rates by 300 basis points this year, the most aggressive move since 1990, following another 75 basis points increase on September 21. As the Federal Reserve and the European Central Bank, the two major international currencies, raised interest rates aggressively simultaneously, which made the impact of the global monetary tide greater. Therefore, we saw the turbulence of the world's major asset pools, including the exchange rate, bonds, stocks and commodities, etc., which all showed drastic fluctuations. Among them, the fluctuation of the exchange rate market is more violent. The aggressive interest rate hike of the Federal Reserve has driven the currency tide in the world, which makes the international exchange rate market shaky and leads to the rise of the limit of the dollar index. In the face of such a severe economic environment, people have less and less money for investment and financial management, and most of them have a conservative attitude toward investment. In addition to understanding investment knowledge, all investors can only use financial behavior knowledge to understand the impact of biased behavior in investment and work out acceptable investment strategies. For example: which stocks to choose for your portfolio and the conditions under which you decide to buy or sell stocks. In addition, the portfolio should be adjusted according to the investment objectives of investors and excessive trading should be stopped. Finally, investors can diversify their portfolio and reduce their investment risks. Therefore, considering the current economic factors, the results of this study become more important for investors' investment decisions.

7. Further Study

Due to the impact of the COVID-19 pandemic and the limited time, this study only studied the influence relationship among five variables, namely, the influence of herd effect, investor sentiment, overconfidence and risk tolerance on investors' investment decisions.In order to further research, it is essential to conduct supplementary research on other factors that affect investment perception, so as to obtain more comprehensive influencing factors. In

addition, more sample sizes need to be studied to increase the general applicability and credibility of the study. Due to the limitations of this study, the results of this study cannot represent the characteristics of all Chinese individual investors. The results of this study might be confirmed in various situations by future research, which could also take into account other aspects like conservatism, the gambler's fallacy, and other characteristics that may have a substantial impact on investing decisions in financial markets.

Conflict of interest

There is no conflict of interest for this study.

References

Ahmad, M. (2020). Does underconfidence matter in short-term and long-term investment decisions? Evidence from an emerging market. Management Decision, 59(3), 692-709. https://doi.org/10.1108/MD-07-2019-0972

Akinwande, M. O., Dikko, H. G., & Samson, A. (2015). Variance inflation factor: As a condition for the inclusion of suppressor variable(s) in regression analysis. Open Journal of Statistics, 5(7), 754-767. https://doi.org/10.4236/ojs.2015.57075

Arora, M., & Kumari, S. (2015). Risk taking in financial decisions as a function of age, gender: mediating role of loss aversion and regret. International Journal of Applied Psychology, 5(4), 83-89. https://doi.org/10.5923/j.ijap.20150504.01

Asad, H., Khan, A. A. T. I. Q. A., & Faiz, R. A. F. I. A. (2018). Behavioral biases across the stock market investors. Pakistan Economic and Social Review, 56(1), 185-209. http://pu.edu.pk/images/journal/pesr/PDF-FILES/8-v56_1_18.pdf

Atif, K., (2014). Interrelationship of biases: Effect investment decisions ultimately. Theoretical and Applied Economics, 6(595), 85-110. http://store.ectap.ro/articole/995.pdf

Baddeley, M. (2010). Herding, social influence and economic decision-making: socio-psychological and neuroscientific analyses. Philosophical Transactions of the Royal Society B: Biological Sciences, 365(1538), 281-290. https://doi.org/10.1098/rstb.2009.0169

Bakar, S., & Yi, A. N. C. (2016). The impact of psychological factors on investors' decision making in Malaysian stock market: A case of Klang valley and Pahang. Procedia Economics and Finance, 35, 319-328. https://doi.org/10.1016/S2212-5671(16)00040-X

Baker, H. K., Filbeck, G., & Ricciardi, V. (2017). How behavioural biases affect finance professionals. The European Financial Review, 25-29. https://ssrn.com/abstract=2899214

Baker, M., & Wurgler, J. (2006). Investor sentiment and the cross-section of stock returns. The Journal of Finance, 61(4), 1645-1680. https://doi.org/10.1111/j.1540-6261.2006.00885.x

Bashir, T., Azam, N., Butt, A. A., Javed, A., & Tanvir, A. (2013). Are behavioral biases influenced by demographic characteristics & personality traits? Evidence from Pakistan. European Scientific Journal, 9(29), 277-293. https://doi.org/10.19044/esj.2013.v9n29p%25p

Biais, B., Hilton, D., Mazurier, K., & Pouget, S. (2002). Psychological traits and trading strategies (Paper No.39). CESF. http://www.csef.it/WP/wp39.pdf

Brown, G. W., & Cliff, M. T. (2004). Investor sentiment and the near-term stock market. Journal of Empirical Finance, 11(1), 1-27. https://doi.org/10.1016/j.jempfin.2002.12.001

Chaulk, B., Johnson, P. J., & Bulcroft, R. (2003). Effects of marriage and children on financial risk tolerance: A synthesis of family development and prospect theory. Journal of Family and Economic Issues, 24(3), 257-279. https://doi.org/10.1023/A:1025495221519

Cochran, W.G. (1977). Sampling techniques (3rd ed.). John Wiley & Sons, pp. 89-96.

Corter, J. E., & Chen, Y. J. (2006). Do investment risk tolerance attitudes predict portfolio risk? Journal of Business and Psychology, 20(3), 369-381. https://doi.org/10.1007/S10869-005-9010-5

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16(3), 297-334. https://doi.org/10.1007/BF02310555

Cuandra, F., & Helen T. (2021). Analysis of factors that are considered by investors in stocks investment decision

making in Batam city. Journal of Global Business and Management Review, 8(1), 13-20.https://doi.org/10.35794/jmbi.v8i1.33266

Gervais, S., & Odean, T. (2001). Learning to be overconfident. The Review of Financial Studies, 14(1), 1-27. https://doi.org/10.1093/rfs/14.1.1

Gibson, R. J., Michayluk, D., & Van de Venter, G. (2013). Financial risk tolerance: An analysis of unexplored factors. Financial Services Review, 22(1), 23-50. http://hdl.handle.net/10453/23532

Glaser, M., & Weber, M. (2007). Overconfidence and trading volume. The Geneva Risk and Insurance Review, 32(1), 1-36. https://doi.org/10.1007/s10713-007-0003-3

Gozalie, S., & Anastasia, N. (2015). Pengaruh perilaku heuristics dan herding terhadap pengambilan keputusan investasi properti hunian. Finesta, 3(2), 28-32. https://www.academia.edu/31753430/Pengaruh_Perilaku_Heuristics_dan_Herding_Terhadap_Pengambilan_Keputusan_Investasi_Properti_Hunian

Grable, J. E., & Joo, S. H. (2006). Environmental and biopsychosocial factors associated with financial risk tolerance. Journal of Financial Counseling and Planning, 15(1), 73-82. https://ssrn.com/abstract=2260471

Grable, J., & Lytton, R. H. (1999). Financial risk tolerance revisited: the development of a risk assessment instrument. Financial services review, 8(3), 163-181. https://doi.org/10.1016/S1057-0810(99)00041-4

Grable, J. E. (2008). Risk tolerance. In J. J. Xiao (Ed.), Handbook of consumer finance research, pp. 3-19. Springer Science, Business Media. https://doi.org/10.1007/978-0-387-75734-6_1

Grable, J. E. (2016). Financial risk tolerance. In J. J. Xiao (Ed.), Handbook of consumer finance research, pp. 19-31. Springer, Cham. https://doi.org/10.1007/978-3-319-28887-1_2

Guo, K., Sun, Y., & Qian, X. (2017). Can investor sentiment be used to predict the stock price? Dynamic analysis based on China stock market. Physica A: Statistical Mechanics and its Applications, 469, 390-396. https://doi.org/10.1016/j.physa.2016.11.114

Gustafsson, C., & Omark, L. (2015). Financial literacy's effect on financial risk tolerance: A quantitative study on whether financial literacy has an increasing or decreasing impact on financial risk tolerance [Thesis, Umeå University]. https://www.diva-portal.org/smash/get/diva2:826787/FULLTEXT01.pdf

Haritha, P. H., & Uchil, R. (2020). Influence of investor sentiment and its antecedent on investment decision-making using partial least square technique. Management Research Review, 43(11), 1441-1459. https://doi.org/10.1108/mrr-06-2019-0254

Hilary, G., & Menzly, L. (2006). Does past success lead analysts to become overconfident? Management Science, 52(4), 489-500. https://doi.org/10.1287/mnsc.1050.0485

Hirshleifer, D. (2001). Investor psychology and asset pricing. The Journal of Finance, 56(4), 1533-1597. https://doi.org/10.1111/0022-1082.00379

Hirshleifer, D., Low, A., & Teoh, S. H. (2012). Are overconfident CEOs better innovators? The Journal of Finance, 67 (4), 1457-1498. https://doi.org/10.1111/j.1540-6261.2012.01753.x

Hu, C., & Wang, Y. (2012). Investor sentiment and assets valuation. Systems Engineering Procedia, 3, 166-171. https://doi.org/10.1016/j.sepro.2011.11.023

Ishfaq, M., Nazir, M. S., Qamar, M. A. J., & Usman, M. (2020). Cognitive bias and the Extraversion personality shaping the behavior of investors. Frontiers in Psychology, 11, 1-11. https://doi.org/10.3389/fpsyg.2020.556506

Kamil, K. H., & Abidin, S. N. Z. (2017). Does herd behavior exist among investors of Shariah-compliant equities in Malaysia? Advanced Science Letters, 23(5), 4968-4972. https://doi.org/10.1166/asl.2017.8978

Kasoga, P. S. (2021). Heuristic biases and investment decisions: multiple mediation mechanisms of risk tolerance and financial literacy—A survey at the Tanzania stock market. Journal of Money and Business, 1(2), 102-116. https://doi.org/10.1108/jmb-10-2021-0037

Kengatharan, L., & Kengatharan, N. (2014). The influence of behavioral factors in making investment decisions and performance: Study on investors of Colombo Stock Exchange, Sri Lanka. Asian Journal of Finance & Accounting, 6(1), 1-23. https://doi.org/10.5296/ajfa.v6i1.4893

Kenton, W. (2019). What are short-term investments? https://www.investopedia.com/terms/s/shorterminvestments.asp. (access on 13 June 2022⬜

Kling, G., & Gao, L. (2008). Chinese institutional investors' sentiment. Journal of International Financial Markets, Institutions and Money, 18(4), 374-387. https://doi.org/10.1016/j.intfin.2007.04.002

Kubilay, B., & Bayrakdaroglu, A. (2016). An empirical research on investor biases in financial decision-making, financial risk tolerance and financial personality. International Journal of Financial Research, 7(2), 171-182. https://doi.org/10.5430/ijfr.v7n2p171

Kufepaksi, M. (2007). The Effect of overconfident behavior on the process of forming and correcting [Dissertation].

Kumar, A., & Lee, C. M. (2006). Retail investor sentiment and return comovements. The Journal of Finance, 61(5), 2451-2486. https://doi.org/10.1111/j.1540-6261.2006.01063.x

Luong, L.P., & Ha, D. T. H. (2011). Behavioral factors influencing individual investors decision making and performance: A survey at the Ho chi Minh stock exchange [Master thesis, Umeå University].

Lim, L. C. (2012, October 15-16). The relationship between psychological biases and the decision making of investor in Malaysian share market [Paper presentation]. International Conference on Management, Economics & Finance (ICMEF 2012) Proceeding, Kuching, Sarawak, Malaysia. http://umu.diva-portal.org/smash/get/diva2:423263/FULLTEXT02.pdf

Merton, R. C. (1987). A simple model of capital market equilibrium with incomplete information. The Journal of Finance, 42(3), 483-510. https://doi.org/10.1111/j.1540-6261.1987.tb04565.x

Metawa, N., Hassan, M. K., Metawa, S., & Safa, M. F. (2019). Impact of behavioral factors on investors' financial decisions: Case of the Egyptian stock market. International Journal of Ismlamic and Middle Eastern Finance and Management, 12(1), 30-55. https://doi.org/10.1108/IMEFM-12-2017-0333

Mian, G. M., & Sankaraguruswamy, S. (2012). Investor sentiment and stock market response to earnings news. The Accounting Review, 87(4), 1357-1384. https://doi.org/10.2308/accr-50158

Nareswari, N., Balqista, A. S., & Negoro, N. P. (2021). The Impact of Behavioral Aspects on Investment Decision Making. Jurnal Manajemen dan Keuangan, 10(1), 15-27. https://doi.org/10.33059/jmk.v10i1.3125

Nofsinger, J. R. (2005). Social mood and financial economics. The Journal of Behavioral Finance, 6(3), 144-160. https://doi.org/10.1207/s15427579jpfm0603_4

Nofsinger, J. R., & Sias, R. W. (1999). Herding and feedback trading by institutional and individual investors. The Journal of Finance, 54(6), 2263-2295. https://doi.org/10.1111/0022-1082.00188

Nofsinger, J. R., & Varma, A. (2013). Availability, recency, and sophistication in the repurchasing behavior of retail investors. Journal of Banking & Finance, 37(7), 2572-2585. https://doi.org/10.1016/j.jbankfin.2013.02.023

Pak, O., & Mahmood, M. (2015). Impact of personality on risk tolerance and investment decisions: A study onpotential investors of Kazakhstan. International Journal of Commerce and Management, 25(4), 370-384. https://doi.org/10.1108/ijcoma-01-2013-0002

Peter, J. P. (1979). Reliability: A review of psychometric basics and recent marketing practices. Journal of marketing research, 16(1), 6-17. https://doi.org/10.1177/002224377901600102

Pikulina, E., Renneboog, L., & Tobler, P. N. (2017). Overconfidence and investment: An experimental approach. Journal of Corporate Finance, 43, 175-192. https://doi.org/10.1016/j.jcorpfin.2017.01.002

Qadri, S. U., & Shabbir, M. (2014). An empirical study of overconfidence and illusion of control biases, Impact on investor's decision making: An evidence from ISE. European Journal of Business and Management, 6(14), 38-44. https://www.iiste.org/Journals/index.php/EJBM/article/view/13302/13193

Qiang, Z., & Shu-e, Y. (2009). Noise trading, investor sentiment volatility, and stock returns. Systems Engineering-Theory & Practice, 29(3), 40-47. https://doi.org/10.1016/s1874-8651(10)60010-5

Hunjra, A. I., Rehman, K. U., & Ali Qureshi, S. (2012). Factors affecting investment decision making of equity fund managers. Wulfenia Journal, 19(10), 280-291. https://ssrn.com/abstract=3229650

Samsuri, A., Ismiyanti, F., & Narsa, I. M. (2019). The effects of risk tolerance and financial literacy to investment intentions. International Journal of Innovation, Creativity and Change, 10(9), 40-54. https://www.ijicc.net/images/vol10iss9/10904_Samsuri_2019_E_R.pdf

Pokharel, P. R. (2020). Behavioral factors and investment decision: A case of Nepal. JEL Classification, 11(25), 1-14. https://doi.org/10.2139/ssrn.3687104

Shukla, A., Rushdi, D., Jamal, N., Katiyar, D., & Chandra, R. (2020). Impact of behavioral biases on investment decisions 'a systematic review'. International Journal of Management, 11(4), 68-76. https://ssrn.com/abstract=3600023

Tekce, B., Yılmaz, N. & Bildik, R. (2016). What factors affect behavioral biases? Evidence from Turkish individual stock investors. Research in International Business and Finance, 37, 515-526. https://doi.org/10.1016/j.ribaf.2015.11.017

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. Science, 185(4157), 1124-1131. https://doi.org/10.1126/science.185.4157.1124

Twin, A. (2022, May 27). What are long-term investments? https://www.investopedia.com/terms/l/longterminvestments.asp (access on 13 June 2022)

Waweru, N. M., Munyoki, E., & Uliana, E. (2008). The effects of behavioural factors in investment decision-making: a survey of institutional investors operating at the Nairobi Stock Exchange. International Journal of Business and Emerging Markets, 1(1), 24-41. https://doi.org/10.1504/IJBEM.2008.019243