

# *The Impact of Individual Investors' Self-Learning on Herd Bias in the Chinese Stock Market*

Yupeng Du<sup>1,a,\*</sup>

<sup>1</sup>UNSW Business School, University of New South Wales, Sydney, NSW, 2052, Australia  
a. z5473749@ad.unsw.edu.au

\*corresponding author

**Abstract:** In behavioral finance, herd bias refers to investors' rational or illogical responses to the market. The irrational approach emphasizes the psychological side of investors, implying that they may ignore an individual's pre-existing ideas and blindly follow the decisions made by other investors. Herd prejudice is common among all sorts of investors, but it tends to lessen over time in the Chinese stock market. The purpose of this study is to see if self-learning among individual investors reduces herd prejudice in the market, as well as to look at the elements that influence self-learning. Data was gathered by sending questionnaires to investors with accounts on the Chinese stock exchange. A partial least squares structural equation modeling analysis revealed that self-learning had a detrimental effect on herd bias. The most important aspect of self-learning is a desire to learn. Interactions with peers and a desire to learn encourage self-learning among investors; however, interactions with investment advisors have no meaningful effect. The impact of investor-peer interactions on self-learning and herd bias lessens as traders acquire experience and investors become more self-aware. In conclusion, this study provides new insights into the reasons for the reduction in herd prejudice in the Chinese stock market. It contains useful references for the scientific creation of investing plans.

**Keywords:** Herd bias, Self-learning, Chinese stock market, Conceptual framework

## 1. Introduction

By the end of 2022, the Chinese stock market boasted one of the world's largest populations of individual investors. The number of individual investor accounts opened on China's stock exchanges had surged to 212.14 million, constituting a staggering 98% of the total [1]. As more individuals participate in stock investment and trading becomes more frequent, it appears that rational decision-making among individual investors is decreasing. Stock prices are often driven by investor sentiment, which can be influenced by emotions and the actions of others. With the increased use of social media, it is easier for individual investors to let the opinions and choices of their social circle influence their stock investing decisions. This can lead to irrational behavior, such as buying stocks when others are buying and selling when others are selling. However, individuals can become more informed by acquiring stock market information and investment knowledge, which can help them avoid blindly following the behavior of others.

According to a large body of work in behavioral finance, institutional investors are thought to be more rational and sophisticated than individual investors. This view stems from the fact that private

investors have less access to information and are more susceptible to external variables such as psychological biases and market emotion [2]. Individual investors, unlike institutional investors, exhibit more persistent herd prejudice. Psychological biases are mostly responsible for the herd bias. As a result, individual investors exhibit stronger correlations when purchasing and selling equities [3]. This means that, because of restrictions in their attention, memory, and time, as well as intrinsic limitations in their information-processing ability, individuals are more likely to rely on decision-making heuristics and are vulnerable to peer influence. As people gain experience and relevant knowledge, they become less susceptible to psychological biases.

Numerous studies have been conducted to investigate the investment behavior of individual investors in the stock market, with a focus on behavioral biases. The herd bias has received a great deal of attention in the literature. This bias has been documented across many market states and features, but it tends to decrease over time. Regulatory improvements and investors' learning behavior have been proposed as factors for the lowering of herd bias in the research [4].

However, there has been no thorough examination of the evidence of a fading herd bias in the Chinese stock market. Is herd prejudice diminishing in the Chinese stock market? Is this change related to individual learning habits? To address the difficulties raised above, this research investigates whether individual investors in the Chinese stock market benefit from their investment experiences, resulting in better rational decision-making and the avoidance of herd mentality.

This analysis aims to investigate whether individual investors in the Chinese stock market incorporate knowledge from their previous trading experiences and whether this learning is associated with a reduction in their herd bias. The research data was gathered using a web-based questionnaire that was randomly distributed to individual investors in the Chinese stock market. This study examines the impact of investors' learning behavior on their behavioral bias, drawing on existing literature on herd bias. Partial Least Squares Structural Equation Modeling (PLS-SEM) is used to analyze the data with a model of investors' learning behavior [4].

The objective of this analysis is to offer insights into the extent and nature of individual investor learning and assess its influence on herd bias. This is achieved by scrutinizing the learning behavior of individual investors using data collected in an authentic market environment. The analysis seeks to provide empirical evidence regarding the factors contributing to the diminishing herd bias among individual investors. Moreover, the study aims to furnish valuable insights for alleviating herd bias in the Chinese stock market. It aspires to explore how the learning process of individual investors impacts their investment decisions, with the ultimate aim of providing investors with more reasoned behavioral guidance.

## 2. Literature Review

### 2.1. Herd Bias

The concept of herd bias was first introduced by Keynes, who argued that humans, like animals, tend to follow the behavior of their group [5]. Herd bias is a widely studied behavioral bias in behavioral finance and can be interpreted as a rational or irrational form of investor behavior. The irrational perspective centers on investor psychology, wherein investors neglect their pre-existing beliefs and mindlessly emulate the decisions of their peers [6]. Herd bias can be explained as the irrational behavior of an investor who follows and imitates other investors without a reliable strategy [7]. Previous studies have found that herd bias is widespread among different types of investors, and it is challenging for both individual and institutional investors to be entirely rational. Additionally, a variety of market states and characteristics may make this bias worse.

According to Kumar and Goyal's assessment, individual investors are more likely to exhibit herd prejudice [8]. This trend might be attributed to the dearth of information accessible to individual

investors, rendering it arduous for them to formulate autonomous decisions. Individual investors may exhibit a greater vulnerability to herd bias, causing them to rely on external behavior as a guiding factor in their investment decisions. The phenomenon of herd prejudice plays a crucial role in influencing the investment behavior of individual investors and the overall market.

## 2.2. Important Results

Behavioral finance currently focuses on exploring the evolution of behavioral biases, particularly the predictions of the adaptive market hypothesis for financial markets. This hypothesis suggests that market participants' behavior adapts to changes in time and market dynamics, resulting in adaptive trading strategies. Previous research suggests that investors' ability to learn from their mistakes is a crucial factor in the fluctuations of stock markets over time [9].

Trading behavior refers to the physiological and psychological actions that investors take when trading stocks, while trading experience is the subjective psychological state of an investor in a trading environment that affects their cognitive and emotional perceptions of trading outcomes. Reinforcement learning theory suggests that individual experience has a greater impact on future behavior. Hoffman and Post propose that investors' beliefs regarding return expectations, risk perceptions, and risk tolerance are shaped not only by the superficial impact during periods of high market volatility but also by their personal experiences with risk and return [10]. Both personal and social structures have an impact on the learning process of investors. Trading experience and learning form a cyclical process that continuously shapes investors' trading strategies and performance.

Learning involves accumulating knowledge and skills and individual and social learning to develop more adaptive trading strategies based on positive or negative reinforcement of past behavior. Trading experience represents an investor's cognitive, emotional, and social responses to past trading results and is a prerequisite for learning. Investors engage in trial-and-error trading and learn individually by reflecting on past trading experiences. Personal learning can be influenced by emotional states and social relationships, while social learning is informed by observing the behavior of others. Social learning fosters an environment where relevant information can be obtained through questioning and discussions that scrutinize the effectiveness of beliefs, ideas, and assumptions [11]. However, social learning can also lead to irrational behavior.

Learners receive feedback through social interactions, which also provide access to information and practical knowledge. The desire to learn and authentic relationships enhance investors' cognitive-reflective processes and help mitigate behavioral biases. Authentic relationships and the desire to learn directly influence the investor's frame of reference in social learning, making it more difficult to develop behavioral biases. Previous empirical research has shown that social learning practices are more popular. This is because imitating the behavior of others is more effective than relying on one's own ideas [12]. Additionally, the exploration found a negative correlation between investors' self-learning and herding bias in the Colombo Stock Exchange (CSE) market [13]. Therefore, this analysis anticipates that in the Chinese stock market, individual investors' learning behavior will be influenced by both their willingness to learn and their relationships with other investors. This is expected to have a negative effect on herding bias in future stock trading.

## 2.3. Summary

The research summary highlights the significant impact of herd prejudice on investor decision-making. The experiences, desire to learn, and interactions with others of individual investors all have an impact on their self-learning. This, in turn, can impact the herd bias in stock trading. The purpose of this paper is to analyze the correlation between self-directed learning and the gradual reduction of the herding bias in the Chinese stock market.

Figure 1 depicts the approach, which encourages investors to participate in individual learning while reviewing their previous trading experience in order to mitigate herd prejudice. Establishing authentic ties with advisers and peers can help individuals improve their learning process. These social relationships provide investors with access to important information and practical skills for correcting mistakes. As a result, investors' genuine relationships with financial advisors and peers are projected to be positively connected with their level of self-education. The approach posits that an investor's desire to learn improves the individual learning process. Simply mimicking the behavior of others is not considered social learning. As a result, herd prejudice will have a direct and detrimental impact on true peer connections.

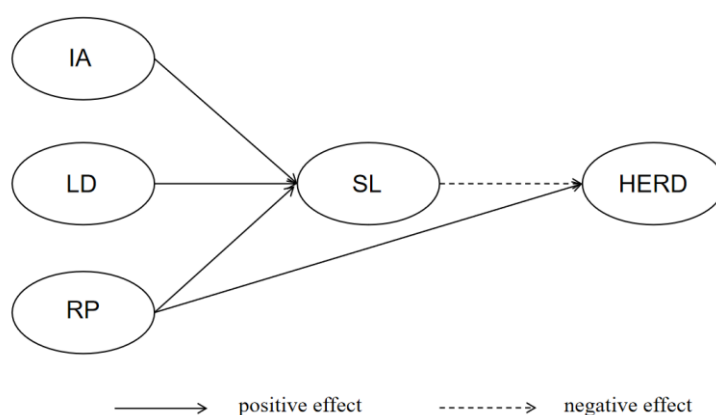


Figure 1: Conceptual framework.

Hypothesis 1: The degree of self-learning (SL) is negatively related to the degree of herd bias (HERD).

Hypothesis 2: Investors' relationships with investment advisors (IA) are positively correlated with the degree of SL.

Hypothesis 3: Investors' relationships with peers (RP) are positively correlated with the degree of SL.

Hypothesis 4: Investors' desire to learn (LD) is positively correlated with the degree of SL.

Hypothesis 5: RP is positively correlated with the degree of HERD that occurs when trading stocks.

### 3. Method

#### 3.1. Research Design

This analysis aims to validate the hypothesis of a correlation between the real experiences and behaviors of individual investors. The quantitative analysis method was applied to gain insight and confirm the relationship between the subjects. The individual investors' experience and behavioral data were collected through a questionnaire survey and analyzed using PLS-SEM to conclude.

Regarding methodological choices, the author adheres to the study by Mishra and Metilda, who carried out a thorough investigation of the impact of investment experience on overconfidence bias by giving mutual fund investors a questionnaire [14]. Similarly, based on the investigation of the herd bias in CSE by examining the behavioral factors involved [15]. Because of the similarities between this study and previous studies, the use of a questionnaire for data collection is justified.

In terms of data analysis, the paper recommends using PLS-SEM, as suggested by Sarstedt et al. This method is appropriate for forecasting, explaining target constructs, and identifying their predecessors [16]. The method exhibits high statistical power when dealing with complex models and

is suitable for accommodating flexibility in sample size and parameter distribution assumptions. This choice ensured the effectiveness of analyzing the collected data and drawing robust conclusions.

### 3.2. Data Collection

Data for this analysis was collected via a web-based questionnaire. The questionnaire link was emailed to investors with accounts on the Chinese Stock Exchange. This strategy decreases interviewer bias because participants may make their own decisions and are less prone to social expectation bias. The survey form contained 27 questions that probed various facets of individual investors, including gender, trading experience, and a desire to learn. The survey was performed over three weeks, beginning December 20, 2023, and yielded 363 valid replies.

To assess the conceptual model construct, the paper constructed a measurement scale with five broad segments. The extent to which investors reflect on their learning was assessed using Kember et al.'s seven-item measure [16]. Fisher and King's measure was used to assess the participants' desire to learn [17]. Kale et al. used their research to assess real-world connections with advisers and peers [18]. Except for gender and years of trading experience, all questionnaire measures were administered using a five-point Likert scale.

### 3.3. Data Analysis

308 valid questionnaires were retained after strict screening of the collected data. Screening was based on response time, with questionnaires taking less than 2 seconds per question and less than 50 seconds in total being excluded. Additionally, questionnaires with more than 12 consecutive answers and significant consistency in odd-even answers were also considered invalid data.

Out of the collected questionnaires, the percentage of male respondents was 51.3%, while the percentage of female respondents was 48.7%. Regarding investment experience, 7.8% of respondents had less than one year of experience, while 12.0% had more than 10 years. The data reveals a relatively balanced mix of male and female investors with varying levels of experience. Regarding trading frequency, 42.6% of respondents reported occasional stock trading, while 13.4% traded daily.

The analysis categorizes respondents into two groups based on their trading experience: individuals with  $TE < 5$  and those with  $TE > 5$ . The two groups comprise 170 and 138 samples, representing 55.2% and 44.8% of the total sample size, respectively.

## 4. Result

The analysis first assessed the predictive power of the construct models and tested the hypothesized relationships. The loading correlation tests, as shown in Table 1, showed that the indicator terms had satisfactory reliability levels on their respective constructs. All other indicators also exhibited loading values greater than 0.7. Additionally, the constructs' Cronbach's alpha and composite reliability values exceeded 0.7, indicating internal consistency and reliability [19]. Furthermore, all the constructs demonstrate convergent validity, with an average variance extracted value (AVE) surpassing the threshold of 0.5.

Table 1: The measurement quality assessment.

Construct	Indicator Item	Loading Values	Cronbach's Alpha	CR	AVE
SL	SL_1	0.854	0.782	0.936	0.676
	SL_2	0.835			
	SL_3	0.786			
	SL_4	0.851			
	SL_5	0.819			
	SL_6	0.819			
	SL_7	0.788			
IA	IA_1	0.813	0.834	0.848	0.651
	IA_2	0.831			
	IA_3	0.776			
RP	OI_1	0.828	0.810	0.804	0.672
	OI_2	0.811			
LD	LD_1	0.860	0.878	0.949	0.698
	LD_2	0.863			
	LD_3	0.831			
	LD_4	0.853			
	LD_5	0.794			
	LD_6	0.811			
	LD_7	0.848			
	LD_8	0.820			
HERD	HERD_1	0.850	0.799	0.863	0.677
	HERD_2	0.803			
	HERD_3	0.814			

The following Table 2 describes the main results related to investor learning behavior. The values for the HERD and SL constructs in TE less than 5 years are 0.616 and 0.708, and the values are 0.541 and 0.644. The values for the HERD and SL constructs in TE greater than 5 years are 0.614 and 0.768, and the values are 0.653 and 0.677. This indicates that the pathway model achieved acceptable levels of predictive accuracy and relevance, indicating good fit and explanatory effects.

Table 2: Predictive accuracy and relevance of models.

	TE < 5 years		TE > 5 years	
	HERD	SL	HERD	SL
<b>R-square</b>	0.616	0.708	0.614	0.768
<b>Q-square</b>	0.541	0.644	0.653	0.677

Table 3 illustrates that individual investors' self-learning is adversely associated with herd prejudice, which supports Hypothesis 1. For the group with fewer than 5 years of TE investing experience, a one-standard deviation increase in the SL construct resulted in a 52.1% decrease in the HERD construct. In the group of investors with trading expertise, a one-standard deviation rise in the SL construct led to a 38.7% decrease in the HERD construct.

The effects of the RP, LD, and IA constructions on SL were also investigated, which yielded substantial support for Hypotheses 3 and 4. The SL construct grew by 13.7% and 66.3% (TE<5), and 8.7% and 63.2% (TE>5), for every standard deviation rise in the RP and IA constructs. Furthermore,

the LD construct had a deleterious impact on the HERD construct via the SL construct. As a result, DL might be considered a direct predictor of SL.

However, the results did not support Hypothesis 2, which suggested that IA's effect on SL was not statistically significant in this model. The data validated Hypothesis 5. For the RP construct, each standard deviation increase resulted in a 33.2% (TE<5) and 18.0% (TE>5) rise in the HERD construct, respectively.

Further investigation of the impact of each forecast construct on the SR construct reveals that the LD construct has the most significant effect. Specifically, the values are 0.558 (TE<5) and 0.632 (TE>5), demonstrating a significant influence. In contrast, the RP construct has the least influence, independent of trading experience.

Table 3: Model path coefficients and their significance.

	TE < 5 years			TE > 5 years		
	Path coefficients	f-square	P-value	Path coefficients	f-square	P-value
IA -> SL	0.095	0.012	0.221	0.061	0.001	0.312
LD -> SL	0.663	0.558	0.000	0.879	0.632	0.000
RP -> HERD	0.332	0.152	0.000	0.180	0.032	0.015
RP -> SL	0.137	0.026	0.038	0.087	0.022	0.042
SL -> HERD	-0.521	0.376	0.000	-0.387	0.147	0.018
IA -> SL -> HERD	0.049		0.273	0.006		0.343
LD -> SL -> HERD	-0.346		0.000	-0.340		0.015
RP -> SL -> HERD	0.071		0.069	0.003		0.116

In summary, this analysis concluded that IA had no statistically significant effect on SL constructs for both TE<5 and TE>5, while LD and RP had a positive effect on SL constructs. Additionally, for HERD, SL had a negative effect while RP had a positive effect, regardless of whether TE<5 or TE>5. The revised conceptual framework is revealed in Figure 2.

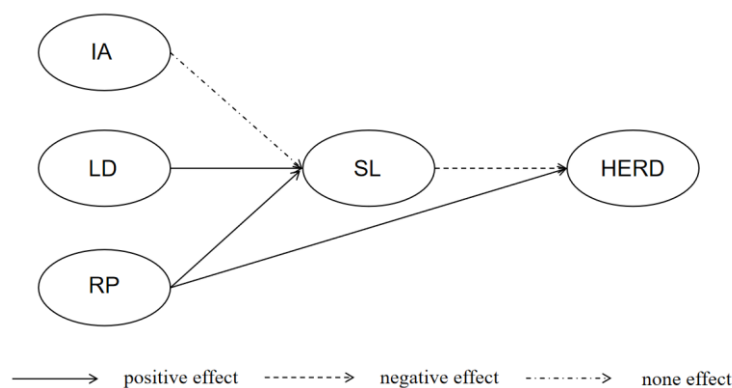


Figure 2: Revised conceptual framework.

Finally, this analysis examines the impact of trading experience on the relationship between different variables. The effects of RP on SL, SL on HERD, and RP on HERD are more significant among less experienced investors. Additionally, the effect of LD on RP is greater among more experienced investors.



## 5. Discussion

This analysis examines the relationship between individual investors' learning behaviors and their response to herd bias in the Chinese stock market. The findings confirm, for the first time, the negative impact of investors' self-learning on herd bias and highlight self-learning as a key factor in the reduction of herd bias over time in the Chinese stock market. Previous trading experiences were found to be reflected at the cognitive level, resulting in learning outcomes that reduced behavioral bias.

The desire to learn and relationships with peers have a direct impact on individual learning constructs, with the desire to learn having a greater impact and relationships with peers having a lesser impact. The research suggests that the connection between individual investors and investment advisors did not have a significant impact on self-learning. This lack of significance may be due to the infrequent and smaller-scale stock trading activities among individual investors in the Chinese stock market, resulting in limited interactions with investment advisors. The analysis also found evidence of increased herd bias due to peer relationships. Uncertainty and the predominance of novice investors in the Chinese stock market can explain the possibility that peer relationships contribute to increased herd bias. Peer relationships contribute more to the increase in investors' herd bias than promoting self-learning among individual investors to reduce herd bias.

The findings also highlight the impact of trading experience on each hypothesis. Experienced traders may be less influenced by relationships with peers when it comes to self-learning and herd bias. This could be due to the instability of the Chinese stock market, which is primarily made up of unsophisticated investors. As a result, experienced investors already possess the necessary knowledge, and peer relationships may not be able to provide high-quality information to reinforce their learning process. This leads to a reduced moderating role of peer relationships in the self-learning process. The impact of peer relationships on the herding bias of experienced investors is reduced due to their existing self-judgment. In the case of more experienced traders, the desire to learn has a greater effect on self-learning, while the negative impact of self-learning on herd bias decreases. This may be because experienced individuals have lower herd bias and are therefore less affected.

These findings confirm that investors' success depends on their ability to learn and formulate effective strategies. To improve investment performance, stock exchanges should regularly engage in educational initiatives aimed at enhancing investors' financial literacy. The aim is to encourage investors to learn by showcasing success stories, setting learning goals, and providing incentives. To accomplish this, investor education should focus on providing transparent market information, emphasizing individual independent decision-making, and encouraging reliance on professional market analysis. Peer relationships can also be leveraged to facilitate social learning, rather than blindly following the crowd. Incorporating these influences into measures by stock exchanges and investment advisers is expected to increase investor sophistication and stock market participation while decreasing herd bias in the market.

## 6. Conclusion

The paper delves deeply into the behavior of individual investors in the Chinese stock market, focusing specifically on herd bias. The data indicate a strong link between self-learning and herd prejudice. This research gives empirical evidence for the market's reducing herd bias and its relevance to individual investors' learning behavior. The findings indicate that self-learning has a detrimental impact on herd prejudice, which contributes to a better understanding of how herd bias develops and changes.

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understanding of how herd bias develops and changes. It is critical to minimize herd prejudice through self-learning. Validating the impact of characteristics such as motivation to learn, investor-peer interactions, and relationships with investment advisors on self-learning allows for a more in-depth understanding of the influences driving investor behavior. Among these elements, investor-peer interactions and a desire to learn are recognized as the most important influences on self-learning.

Furthermore, the study discovered that investors' interactions with their financial advisors had no meaningful effect on their ability to self-learn. This underlines the importance of market unpredictability and investment advisor considerations in the success of investor education. The findings show that as investors gain experience and expertise, they tend to become more autonomous and rational in their investing decisions.

The article suggests that the impact of investor-peer interactions on self-learning and herd bias decreases with trading experience. This provides a new perspective on why herd prejudice declines over time in the Chinese stock market. The findings provide useful insights for developing more scientific investing strategies and policies. They highlight the tendency of individual investors to gradually deviate from herd bias over time as they gain knowledge and experience.

In conclusion, this study investigates individual investor behavior in the Chinese stock market, emphasizing the relationship between self-learning and herd bias. Future research could broaden the scope of the study by looking into additional types of behavioral biases to improve its comprehensiveness. The inclusion of additional factors that may influence self-learning, such as individual characteristics, psychological factors, and market environment, is expected to improve understanding of investor behavior, establish more precise behavioral models, and provide better guidance for investor education and decision-making.

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