

Influence of Retail Investors' Learning Behavior on Herd Bias: An Analysis of Philippine Stock Trading

Aga V. Pamplona

^aaga_pamplona@dls.edu.ph, ^bavmgpamplona@gmail.com

^aDe La Salle Lipa, 1962 J.P. Laurel National Highway, Mataas na Lupa, 4217, Philippines

^bCamella Lipa Hts. Brgy. Tibig, Lipa City Batangas 4217

Abstract

Retail investors often engaged in herding behavior, following institutional investors or peers in trading. However, herding resulted in excessive market volatility, incorrect stock valuations, and inefficiencies in capital markets. This empirical study explored the learning behavior of retail investors and its influence on herd bias in the Philippine stock market. Using a descriptive causal research design, an online questionnaire was distributed to retail investors on the Philippine Stock Exchange. The sample size comprised 395 respondents and the analysis utilized AMOS Structural Equation Modeling. The findings showed that trading experience did not significantly influence the self-reflection of Filipino investors and that as self-reflection increases, the tendency of investors to commit to herding or follow what other investors do decreases, and vice versa. The study also revealed that the investor-advisor relationship did not significantly contribute to learning. Furthermore, it was found that there are low levels of herd bias, gender-neutral learning levels, and significant variations in self-reflection based on age, education, and risk appetite. Additionally, the study aimed to develop capstone initiatives to enhance decision-making and provide better support for investors. These initiatives also aimed to bridge the gap between trading experience and self-reflection and improve the learning outcomes derived from relationships with investment advisors.

Keywords: herding; market volatility; empirical study; descriptive causal research design; Philippine Stock Exchange

1. Introduction

1.1. Background of the Study

Over the past few decades, understanding financial market changes have been the focus of researchers, investors, and respective agencies (Rahman & Ermawati, 2020). Two different perspectives are considered in this study: an efficient market, which suggests that asset prices reflect their true value, and a second perspective, which claims that investors' biases result in difficulty in accurately describing how asset prices are formed (Njindan, 2019). This research study, which is based on the second point of view, aims to investigate what influences herd bias in the Philippine stock market and understand the learning behavior of retail investors.

The research on behavioral finance indicated that individual investors were not as sophisticated as institutional investors due to their limited concentration, perception, learning, and handling capabilities (Shantha, 2019). This lack of sophistication leads to reliance on shortcuts when making decisions, which is harmful in fast-changing markets. Additionally, investors' irrational behavior caused fluctuations in security

prices, leading to an inefficient capital market. Therefore, the sophistication of investors was essential to ensure that the stock market operated successfully.

Herding behavior, a prominent bias, involved individuals disregarding their own beliefs and instead taking cues from others when making decisions (Shantha, 2019). Although studies have revealed evidence of herding behavior in various financial markets, little empirical evidence exists. This study aimed to fill this gap by analyzing the Philippine Stock Market, which is particularly vulnerable to herding due to high levels of uncertainty and a volatile trading environment.

This research is the first of its kind to examine investor behavior in terms of learning and how it influenced behavioral biases at the individual level, focusing on the Philippine stock market. It applied a model to examine individual investor behavior within an actual market, explored factors that contributed to a reduction of herding mentality, drew from primary data sources, and sought to support sustainable development goals by focusing on decent work and economic growth. Furthermore, the study resulted from a community needs assessment, which showed the need for the study due to the extreme financial market volatility and the problems encountered by retail investors, such as challenges in meeting desired profit gains and exposure to unrealized losses.

Reiterating the main goal of the study, which is to understand retail investors' learning behavior and its influence on herd bias, this study specifically aimed to determine if:

1. Investor's trading experience (TE) significantly influences the self-reflection (SR) that investors have when learning.
2. The level of self-reflection (SR) is related to the extent of herd bias (HB) that occurs when trading.
3. Self-reflection (SR) mediates the relationship between trading experience (TE) and herd bias (HB) that occurs when trading stocks.
4. Investor's authentic relationship with the investment advisor (ARAD) moderates the relationship between trading experience (TE) and self-reflection (SR).
5. Investor's authentic relationship with other investors (AROT) moderates the relationship between trading experience (TE) and self-reflection (SR).
6. Investor's desire for learning (DL) moderates the relationship between trading experience (TE) and self-reflection (SR).
7. Authentic relationship with other investors (AROT) has a significant influence on herd bias (HB) that occurs when trading stocks.
8. If there are significant differences in investors' self-reflection (SR) when they are grouped according to profile.
9. Lastly, create capstone initiatives that aim to address the findings of this study by providing a support system for retail investors and making them individually competent.

1.2. Research Frameworks

This research paper is based on the conceptual framework of the study "Individual Investors' Learning Behavior and Its Impact on Their Herd Bias: An Integrated Analysis in the Context of Stock Trading" (Shantha, 2019). The study aimed to explore how learning influenced individual investors in terms of reducing their herd bias. The model drew from psychology and learning-based theory to examine the learning behavior of investors and the stock market as their environment. The conceptual framework in Figure 1 was

based on a review of behavioral finance literature and insights from cognitive, behavioral, and social learning theories. It proposed hypotheses to explore what influenced an investor's behavior when learning and to understand if they became more knowledgeable over time (Shantha et al., 2018).

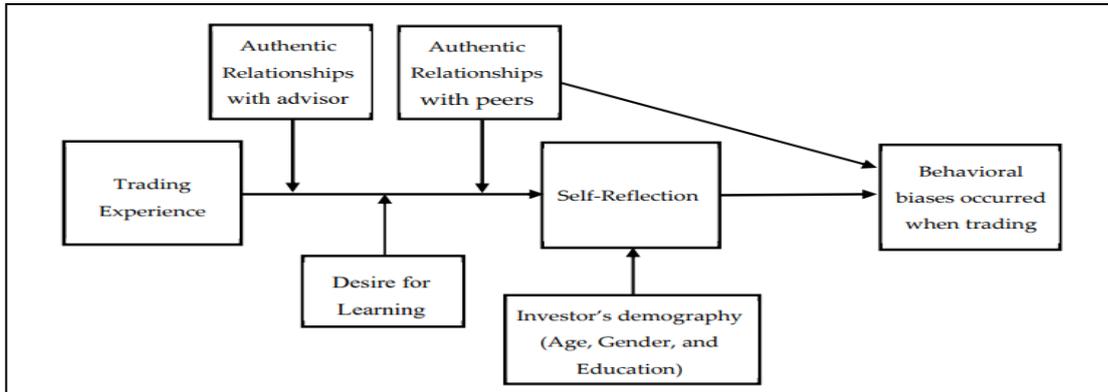


Figure 1. Conceptual framework

Source: Individual Investors' Learning Behavior and Its Impact on Their Herd Bias: An Integrated Analysis in the Context of Stock Trading (Shantha, 2019)

This study was conducted in the Philippine Stock Market and was guided by the operational framework illustrated in Figure 2, focusing on herd bias as the dependent variable. Similar variables from the adopted conceptual framework were used for consistency.

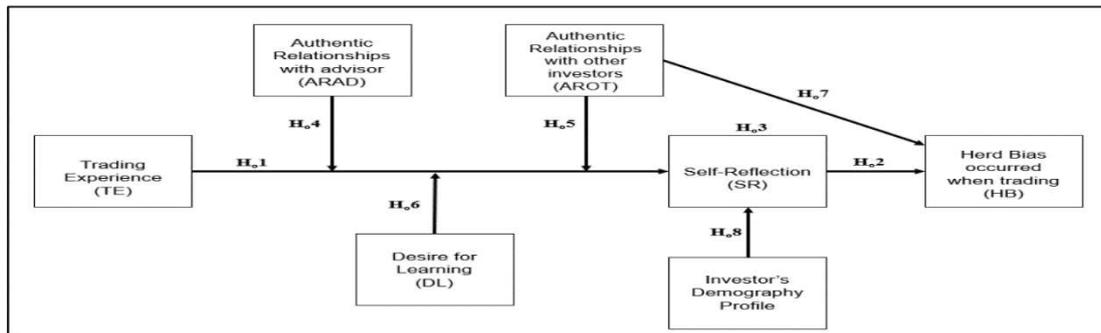


Figure 2. Operational Framework

This research seeks to discover if trading experience (TE) influences self-reflection (SR) and if the level of SR is associated with herd bias (HB) when trading stocks. Additionally, it seeks to discern if self-reflection (SR) mediates the relationship between TE and herd bias (HB) while trading stocks.

The model predicts that authentic relationships with an investment advisor and other investors enhance the individual learning process. These social relations enable investors to access useful resources and have more confidence in the data and facts gathered (Shantha et al., 2018). This study aims to ascertain if ARAD and AROT moderate the relationship between TE and SR.

The model proposes that an investor's desire for learning may improve their individual learning process. Affective elements such as interest, attention, emotions, and frustrations have been found to have an impact on cognitive brain functioning during learning (Shantha, 2019). This boosts creativity, motivation, and efficiency, which strengthens the capacity for self-reflection (Shantha et al., 2018). The research looks to assess whether investors' desire for learning (DL) moderates the relationship between a trading experience (TE) and self-reflection (SR).

As suggested in behavioral finance, social learning does not take place through imitation but rather when the learner has knowledge of the strategies being used. This study assesses if having an authentic relationship with other investors (AROT) can reduce herd bias (HB). It aims to determine if AROT has a significant influence on herd bias (HB).

As argued, an investor's self-reflective capability comes from their maturity with reference to cognitive development (Shantha et al., 2018). Therefore, the hypothesis is tested without controlling for demographic variables, and the results are discussed regarding how the level of self-reflection varies according to socio-demographic variables. The objective of the study is to determine if there are significant differences among investors' levels of self-reflection (SR) when grouped as per profile.

1.3. Hypothesis

The following null hypotheses were tested in this study:

H₀¹: An investor's trading experience (TE) does not significantly influence the self-reflection (SR) of an investor.

H₀²: The level of self-reflection (SR) is not significantly related to the extent of herd bias (HB) that occurred when trading.

H₀³: Self-reflection (SR) does not mediate the relationship between a trading experience (TE) and herd bias (HB).

H₀⁴: An investor's authentic relationship with the investment advisor (ARAD) does not moderate the relationship between a trading experience (TE) and self-reflection (SR).

H₀⁵: The investor's authentic relationship with other investors (AROT) does not moderate the relationship between a trading experience (TE) and self-reflection (SR).

H₀⁶: The investor's desire for learning (DL) does not moderate the relationship between a trading experience (TE) and self-reflection (SR).

H₀⁷: Authentic relationships with other investors (AROT) do not have a significant influence on herd bias (HB).

H₀⁸: There is no significant difference in investors' self-reflection (SR) when they are grouped according to profile.

2. Materials and Methods

2.1. Research Design

The study used a descriptive causal research design to determine if the independent variables have a significant influence on the dependent variable. This research design helped the researcher describe the herding phenomenon and its different characteristics, as this research design is used to describe an existing phenomenon as accurately as possible (Atmowardoyo, 2018). The study used structural equation modeling (SEM) to examine the data gathered from this study. SEM is a statistical technique for testing hypotheses

about causal relationships between observed and unobserved variables (Syafiq et al., 2022). In addition, AMOS version 23 and SPSS version 24 were the statistical tools used to execute the analysis.

2.2. Data Collection

This study focuses on retail investors trading stocks in the Philippine Stock Market as its unit of analysis. The questionnaire was disseminated via Google Forms as an online survey. The sample size needed for this study is 384 retail investors, determined through Raosoft, with a margin of error of 0.05 and 0.95 level of confidence. From the 1,300 investors who were randomly selected for this study, 395 responses were received, giving a 30% response rate during the data gathering from March to May 2023. Current market conditions as well as the neutral season during the study may have contributed to the low response rate.

2.3. Questionnaire Design

The questionnaire featured in Shantha's (2019) study includes variables used to form independent and dependent variables in the operational framework. These include trading experience, which gauges an investor's number of years in the Philippine stock market; self-reflection (7 items); desire for learning (10 items); authentic relationship with an investment advisor (5 items); and authentic relationship with other investors (5 items). While the questions used for herd bias (5 items) were adapted from the work of Zainul and Suryani (2021), additionally, the variables were also evaluated using a 5-point Likert scale: from "strongly disagree" to "strongly agree" and from "never" to "always." A qualifier of 6 months of investing experience in the stock market is also included in the questionnaire. Given that it takes a trader six months to become sufficiently consistent. Findings from a study also show that traders who are more active and have more experience generate higher investment returns (Garay and Pulga, 2021).

Meanwhile, Table 1 below shows the questionnaire specification, particularly the number of items per variable and the mean result interpretation.

Table 1. Instrument Specifications for Measurement Variables Section

Variables	Number of Items	5-point Likert Scales	Mean Results Interpretation
Self-Reflection (SR)	7	Strongly Disagree (1)	Very Low
Herd Bias (HB)	5	Disagree (2)	Low
		Neutral (3)	
Desire for Learning (DL)	10	Agree (4)	Moderate
		Strongly Agree (5)	
Authentic relationship with investment advisor (ARAD)	5	Never (1)	High
		Rarely (2)	
Authentic relationship with other investors (AROT)	5	Sometimes (3)	Very High
		Very Often (4)	
		Always (5)	

The researcher also conducted pilot testing of questionnaires and reliability testing using a sample size of 30 respondents. Reliability refers to the extent to which a measurement provides consistent results under steady conditions with identical subjects. The study of Zahreen et al. (2018) provides the following range of coefficients of Cronbach's alpha and their reliability level: a) > 0.90 = excellent; b) $0.80-0.89$ = good; c) $0.70-0.79$ = acceptable; d) $0.60-0.69$ = questionable; e) $0.50-0.69$ = poor; and f) < 0.50 = unacceptable.

Thus, Cronbach's alpha for each variable and reliability level is presented below.

Table 2. Reliability of Constructs for Measurement Variables of Pilot Test

Variable	Item	Reliability (n=30)	Reliability Level
Self-Reflection (SR)	SR1, SR2, SR3, SR4, SR5, SR6, SR7	0.965	Excellent
Herd Bias (HB)	HB1, HB2, HB3, HB4, HB5	0.815	Good
Desire for Learning (DL)	DL1, DL2, DL3, DL4, DL5, DL6, DL7, DL8, DL9, DL10	0.969	Excellent
Authentic relationship with investment advisor (ARAD)	ARAD1, ARAD2, ARAD3, ARAD4, ARAD5	0.912	Excellent
Authentic relationship with other investors (AROT)	AROT1, AROT2, AROT3, AROT4, AROT5	0.919	Excellent
Overall		0.94	Excellent

The instrument passed the reliability test, having an excellent Cronbach's alpha score of 0.940. This indicates the reliability of questionnaires making up the scale; results close to 1.0 mean better consistency (Adeniran 2019).

2.4. Measurement Scales

This study evaluates the trading experience of participants by asking them to state their number of years of trading in the Philippine stock market. To measure how investors use self-reflection for learning, the study builds on Shantha's (2018) work. Self-reflection is measured through seven items: three related to process reflection and four associated with premise reflection.

A 5-point Likert scale, ranging from strongly disagree to strongly agree, and a frequency Likert scale, such as from never to always was used in the study. The Likert scale allowed the respondents to indicate their degree of agreement or disagreement with the variables used in the study (Taherdoost, 2019).

2.5. Data Analysis and Interpretation

The operational model, as shown below, looks to forecast determinants of investors' learning behavior and explains how they influence herd bias. AMOS SEM was used to examine the results of the data gathering. The following is also used in data analysis according to Shantha's (2019) study procedure: a t-test and ANOVA at the 0.05 level of significance were used to determine whether self-reflection differs when grouped by profile. T-test assesses the mean difference between two groups, while an ANOVA looks at the means among three or more groups (Mishra et al., 2019).

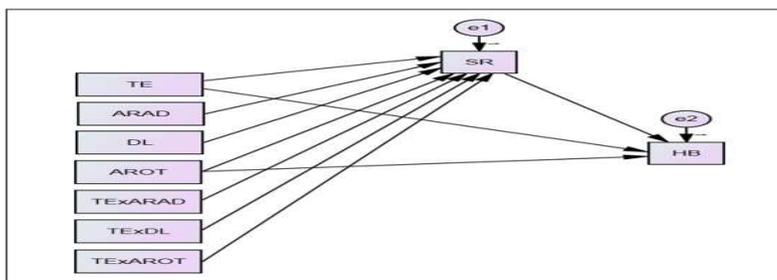


Figure 3. Operational Model of Retail Investors' Learning Behavior

2.6. Ethical Considerations

This research explores the learning behavior of retail investors and how it influences herd bias. Methodologies are in place to ensure that ethical concerns are addressed. Participation is voluntary, anonymity is maintained, and no personal data is collected. Potential harm, such as physical, social, psychological, and all other kinds of harm, is kept to a minimum. Informed consent was also provided before participation; respondents were made aware of the purpose, benefits, and risks of taking part in the study. There is a guarantee of confidentiality; all data collected remains private, and no one else will be able to link personal information to other data. The collected information will only be stored for a period of 3 months upon completion of the study. When the information is no longer required, the collected data will be disposed of properly.

3. RESULTS AND DISCUSSION

Figure 4 shows the results of this study of investors' learning behavior using AMOS-SEM.

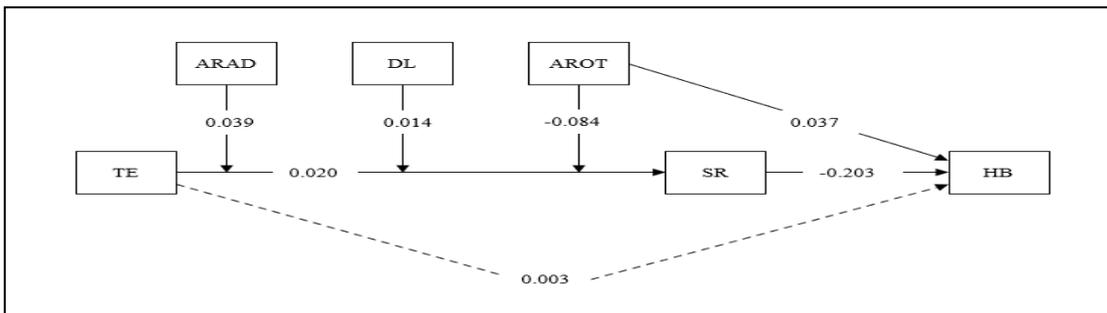


Figure 4. Results of Retail Investors' Learning Behavior

Meanwhile, Table 3 below shows the detailed results for retail investors' learning behavior and the decision criteria for the null hypothesis.

Table 3. Detailed Results for Retail Investor's learning behavior

Hypothesis	Path	Path Coefficient	Standard Error	p - Value	Decision
Ho ¹	TE→ SR	0.02	0.01	0.054	Accepted
Ho ²	SR→ HB	-0.203	0.065	0.002	Rejected
Ho ³	TE→ SR→ HB	0.003	0.015	0.288	Accepted
Ho ⁴	TE x ARAD→ SR	0.039	0.022	0.078	Accepted
Ho ⁵	TE x AROT→ SR	-0.084	0.025	***	Rejected
Ho ⁶	TE x DL→ SR	0.014	0.024	0.55	Accepted
Ho ⁷	AROT→ HB	0.037	0.052	0.48	Accepted

Note: *** significant at .05 level

According to the results of the hypotheses tested, trading experience (TE) does not significantly influence the self-reflection (SR) the investor has when learning. The p-value for Ho¹ is 0.054 (P >.05), which means the result is not significant. This result can be attributed to the different periods in which the study was

conducted as well as to the prevailing market conditions and events associated with them, such as the pandemic.

Additionally, Ho² results show that an increase in the SR construct reduces the herd bias construct. This is supported by the p-value for Ho², which is 0.002 (P<.05) which is significant. The path coefficients result also shows that the level of self-reflection (SR) is negatively related to the extent of herd bias (HB) that occurred when trading stocks.

Furthermore, the p-value for Ho³ is 0.288 (P>.05) which is not significant. This means that self-reflection (SR) does not mediate the relationship between a trading experience (TE) and herd bias (HB). Table 4 below shows the complete results of the mediation testing for Ho³.

Table 4. Mediation Analysis

	Direct Effects	P-value	Indirect Effects	P-value	Total Effects	P-value
TE >SR>HB	-0.001	0.949	-0.002	0.288	-0.003	0.751

As shown by Ho⁴, Ho⁵, and Ho⁶ on the relationship between TE and SR, the moderating effects of the ARAD, AROT, and DL constructs are evaluated. Based on the results, the p-value for Ho⁴ is 0.078 (P>.05) which is not significant. This means that an investor's authentic relationship with the investment advisor (ARAD) does not moderate the relationship between a trading experience (TE) and self-reflection (SR).

For Ho⁵, the p-value is significant (P<.05). This means that investors' authentic relationships with other investors (AROT) moderate the relationship between a trading experience (TE) and self-reflection (SR).

Meanwhile, for Ho⁶ given its p-value of 0.550 (P>.05) result is not significant, which means that investors' desire for learning (DL) does not moderate the relationship between a trading experience (TE) and self-reflection (SR).

Given that the p-value for Ho⁷ is 0.480 (P>.05) result is not significant. This means that an authentic relationship with other investors (AROT) does not significantly influence the herding bias (HB) that occurs when trading stocks. This means that social interaction or peer relationships do not influence the decision of investors to resort to herding.

Ho⁸ seeks to determine whether there are differences in the level of self-reflection between male and female respondents and among various groups. Based on the result of the independent sample t-test conducted to compare the level of self-reflection between males and females, there were no significant differences, as shown in the table below, with the p-value at 0.346 (P>.05).

Table 5. T-test for Equality of SR between Male and Female Investors

Investor Group	Mean	Standard Deviation	Standard Error of Mean	t-Value	p-Value
Male	4.0772	0.64315	0.03671	-0.944	0.346

On the other hand, self-reflection varies among different age groups, as shown in the table below, with a p-value of 0.04 (P<.05) which is significant. This means that self-reflection significantly changes between age

groups.

Table 6. ANOVA Test for Equality of SR among the Different Age Groups

	Self-Reflection				
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.622	4	0.905	2.529	0.040
Within Groups	139.650	390	0.358		
Total	143.271	394			

Furthermore, multiple comparisons using Tukey show that there is a significant difference between the 22-year-old and below age group when compared to the 55-73-year-old age group, given a significant p-value of 0.022 ($P < .05$) as well as to the 74-91-year-old age group, with a significant p-value result of 0.045 ($P < .05$). Additionally, the mean result descriptives reveal that the level of self-reflection increases as the investor matures in terms of age.

The study also reveals that self-reflection varies among different education levels, as shown in the table below, with a significant p-value of 0.003.

Table 7. ANOVA Test for Equality of SR among the Different Education Levels

	Self-Reflection				
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.040	4	1.510	4.102	0.003
Within Groups	143.557	390	0.368		
Total	149.597	394			

Multiple comparisons using Tukey show that there is a significant difference between investors with a high school education level when compared to all other education levels from college until the doctoral degree level. Meanwhile, the mean result descriptives for the education level reveal that the level of self-reflection increases as the level of the investor's education increases.

Lastly, the study shows that self-reflection varies among different investors' risk appetites, as shown in the table below, with the p-value at 0.000 ($P < .05$) which is significant. This means that self-reflection significantly changes with different investors' risk appetites.

Table 8. ANOVA Test for Equality of SR among Investors' Risk Appetite

	Self-Reflection				
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.007	4	2.252	6.246	0.000
Within Groups	140.590	390	0.360		
Total	149.597	394			

While the multiple comparisons using Tukey show that there is a significant difference between investors with a very low-risk appetite and investors with a very high-risk appetite, as indicated by the significant p-

value of 0.004. On the other hand, the mean result descriptives for the risk appetite of investors reveal that the level of self-reflection decreases as the investor's risk appetite increases.

3.1. Mean Result Discussion for Variables in the Study

The table below presents the descriptive statistics for the variables analyzed in this study, along with the corresponding mean values and interpretation.

Table 9. Mean Result Descriptives for Variables in the Study

Variables	Mean	Std. Deviation	Mean Result Interpretation
Self-Reflection	4.09	0.603	High
Herd Bias	2.43	0.73	Low
Desire for Learning	4.28	0.585	Very High
Authentic relationship with investment advisor	3.29	0.772	Moderate
Authentic relationship with other investors	3.48	0.71	High

The results of the descriptive statistics for self-reflection reveal a mean value of 4.09, indicating a significantly high level of self-reflection among Filipino retail investors. This emphasizes the importance of self-reflection or learning in the context of investment decision-making. A high mean value suggests that Filipino retail investors possess a strong inclination toward critical analysis and self-awareness when evaluating investment opportunities.

The analysis of descriptive statistics on herd bias yielded a mean value of 2.43, suggesting a relatively low level of herd bias. This indicates that Filipino retail investors tend to exhibit a limited inclination to follow the crowd or be influenced by the actions and decisions of others. The observed low mean value emphasizes the importance of independent thinking and rational decision-making in the investment behavior of Filipino retail investors.

Meanwhile, the analysis of descriptive statistics on the desire for learning reveals a very high mean value of 4.28. This indicates a substantial level of desire for learning within this group. Filipino retail investors display a strong eagerness to acquire knowledge and enhance their understanding of investment practices. The observed high mean value emphasizes the significance of continuous learning as a driving force behind informed decision-making among retail investors.

Additionally, the analysis of the extent of authentic relationships with investment advisors among Filipino retail investors yielded a mean value of 3.29. This suggests a moderate level of authentic relationships between investors and their advisors. The observed mean value indicates room for improvement. Recognizing the importance of authentic relationships in the investment advisory process, further efforts can be made to enhance the quality and depth of these connections to foster better collaboration and maximize the value of professional guidance for Filipino retail investors.

Lastly, the analysis of descriptive statistics on the level of authentic relationships with other investors among Filipino retail investors yielded a mean value of 3.48. This indicates a high level of authentic relationships among retail investors when engaging with their peers. The observed mean value suggests that

Filipino retail investors exhibit a strong tendency to form genuine connections characterized by trust and collaborative interactions with fellow investors. This emphasis on authentic relationships highlights the importance of social interaction and peer learning within the investment community, as they foster an environment of support, knowledge exchange, and collective growth.

4. Conclusions and Recommendations

This research study, through the gathered empirical evidence, adds knowledge and valuable insights for understanding retail investors' learning behavior and its influence on herd bias. In this study, eight hypotheses were developed. The key findings are as follows:

The study found that trading experience (TE) does not significantly influence the self-reflection (SR) of Filipino investors when it comes to decision-making and investing; this means Ho1 is accepted. In addition, self-reflection is negatively related to the herding bias, meaning that as self-reflection or investor learning increases, the tendency of investors to commit to herding or follow what other investors do decreases, and vice versa. This means Ho2 is rejected. Also, the result of the study shows that self-reflection (SR) does not mediate the relationship between a trading experience (TE) and herd bias (HB) that occurred when trading stocks, which means Ho3 is accepted, and that trading experience does not affect herd bias through the mediating effect of self-reflection.

Furthermore, the study found that an investor's relationship with an investment advisor does not influence their learning, but their direct relationships with other investors or their interactions with the social community do. With these results, Ho4 is accepted, while Ho5 is rejected. This can be attributed to the limited interaction between the individual investor and the investment advisor, especially during the pandemic. Results also revealed that an investor's desire for learning is not a moderator between trading experience and self-reflection, with this Ho6 is accepted.

The study also reveals that relationships with other investors do not significantly influence herd bias during trading, which means that social interaction or peer relationships do not influence the decision of investors to resort to herding. This means Ho7 is accepted.

Finally, the study confirms that the level of learning is gender neutral. This means that female investors have the same level of learning as male investors, which means Ho8 is accepted based on gender profile. Additionally, the study also reveals that the level of an investor's self-reflection varies among different age groups and that as the investor's age matures, the level of self-reflection increases. The study also shows that the level of self-reflection varies between education levels and that self-reflection increases as the level of education increases, which highlights the importance of education on an investor's learning. Lastly, the study confirms that the level of self-reflection varies between an investor's risk appetite and that as an investor's risk appetite increases, the level of self-reflection decreases. This means that investors with a very high-risk appetite are more likely to commit to herding since the level of self-reflection decreases.

In conclusion, the study findings indicate that trading experience does not significantly influence the learning behavior of Filipino retail investors. This lack of influence can be attributed to the growing number of retail investors in the Philippine stock market with limited trading and investing experience. Additionally, the study reveals that the relationship between retail investors and investment advisors does not contribute significantly to their learning. This observation could be explained by the limited interaction between

individual investors and advisors, particularly during the pandemic. Furthermore, the study highlights the low presence of herd bias among Filipino investors. This finding suggests that Filipino investors demonstrate a high level of self-reflection, which is influenced by social interaction with other investors and a strong desire for learning.

4.1. Recommendations

Given the conclusions above, the following are recommended to enhance decision-making and provide better support for retail investors. These initiatives also aim to address the findings of the study by bridging the gap between trading experience and self-reflection as well as improving the learning outcomes derived from relationships with investment advisors.

Recommendations include establishing a dedicated forum or group for Filipino retail investors to share experiences and engage in discussions. Conducting regular topic-specific discussions and organizing local meetups with structured formats can enhance self-reflection. Encouraging participants to share success stories, challenges, and lessons learned fosters a supportive learning environment.

Developing an online platform that offers educational resources, interactive modules, and self-assessment tools covering topics such as analysis, risk management, strategies, and psychology is also recommended. Incorporating real-world case studies and interactive simulations will enhance the learning experience. Additionally, including self-reflection exercises after each module and providing progress tracking and goal-setting features will further support the individual development of retail investors.

Lastly, to bridge the gap between retail investors and investment advisors, it is recommended to encourage investment advisors to adopt a transparent and communicative approach. This includes providing clear explanations of investment strategies, risks, and potential returns in easily understandable language and avoiding technical jargon. Investment advisors should also provide detailed investment reports that outline the rationale behind decisions, highlight performance metrics, and identify lessons learned from both successful and unsuccessful investments. This fosters investor insight into the decision-making process and promotes continuous learning.

4.2. Limitations for Future Research

The following restrictions apply as limitations for future research: Due to the differences in the investment and regulatory environments functioning in fully established and emerging nations, the study's conclusions might not be generalizable to those areas. Herd bias has also been the subject of the investigation into learning behavior. Thus, when various kinds of behavioral biases are looked at, the nature and scope of the learning may change. Additionally, the retail investor is the unit of analysis considered in this study. As a result, the findings of this study cannot be used to forecast how other investor types, like institutional investors, would learn. The study is also not generalizable to investors in cryptocurrency and other foreign stock exchanges. Future efforts can therefore help to address these constraints by expanding related studies to more investor groups (such as institutional investors and financial analysts), different behavioral biases (such as heuristic and prospect biases), investors of cryptocurrency and other foreign exchange, as well as additional market classifications.

References

- Adeniran, A. (2019). Application of Likert Scale Type and Cronbach's Alpha Analysis in an Airport Perception Study. Retrieved from https://www.researchgate.net/publication/332627312_Application_of_Likert_Scale_Type_and_Cronbach's_Alpha_Analysis_in_an_Airport_Perception_Study
- Atmowardoyo, H. (2018). Research Methods in TEFL Studies: Descriptive Research, Case Study, Error Analysis, and R & D. *Journal of Language Teaching and Research*, 9(1), 197. Retrieved from <https://doi.org/10.17507/jltr.0901.25>
- Balakina, O., Backman, C., Hackethal, A., Hanspal, T., & Lammer, D. (2022). Good Peers, Good Apples: Peer Effects Lead to Better Financial Outcomes. *Good Peers, Good Apples: Peer Effects Lead to Better Financial Outcomes*. Retrieved from https://scholar.google.com/citations?view_op=view_citation&hl=en&user=pqzgoHUA AAAAJ&citation_for_view=pqzgoHUA AAAJ:mB3voiENLucC
- Bondoc, B., & Martin, C. (2021). Market Herding and Market Stress in the EMEAP Economies. *Market Herding and Market Stress in the EMEAP Economies*. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Market+Herding+and+Market+Stress+in+the+EMEAP+Economies&btnG=
- Chauhdary, N. S., Ghufuran, B., & Khakwani, M. S. (2021). Impact of Behavioral Biases and Decision Analysis Methods on Investment Performance of Individual Investors at PSX. *Journal of Accounting and Finance in Emerging Economies*, 7(4), 1003–1017. Retrieved from <https://doi.org/10.26710/jafee.v7i4.2103>
- Dimock, M. (2019). Defining generations: Where Millennials end and Generation Z begins. Pew Research Center. Retrieved from <https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/>
- Garay, U., & Pulga, F. (2021). The performance of retail investors, trading intensity and time in the market: evidence from an emerging stock market. Retrieved from <https://doi.org/10.1016/j.heliyon.2021.e08583>
- Gunathilaka. (2021). Effect of Socio-demographic Factors (Age, Occupation and Education) on Behavioral Biases of Individual Investors' Decision-making - Evidence from The Colombo Stock Exchange. *Effect of Socio-Demographic Factors (Age, Occupation and Education) on Behavioral Biases of Individual Investors' Decision-Making - Evidence from the Colombo Stock Exchange*. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Effect+of+Socio-demographic+Factors+%28Age%2C+Occupation+and+Education%29+on+Behavioral+Biases+of+Individual+Investors%E2%80%99+Decision-making+-+Evidence+from+The+Colombo+Stock+Exchange&btnG=
- Gupta, C. (2018). Herding Bias And Portfolio Performance. *THINK INDIA (Quarterly Journal)*. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Herding+Bias+And+Portfolio+Performance+gupta&btnG=
- Kawshala, B., Anuradha, P. A. N. S., & Shamil, M. M. (2020). SOCIO-ECONOMIC, TRADING SOPHISTICATION AND SELF-REFLECTION ON INVESTORS' HERDING BIAS: EVIDENCE FROM COLOMBO STOCK EXCHANGE. *International Journal of Management, Innovation & Entrepreneurial Research*, 6(2), 128–138. Retrieved from <https://doi.org/10.18510/ijmier.2020.6212>
- Kumar, A., & Suraj. (2021). Understanding and Evaluating Peer Effect on Financial Decision Making Process. *Journal of Positive School Psychology*, 6(5). Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Understanding+and+Evaluating+Peer+Effect+on+Financial+Decision-Making+Process&btnG=
- Madaan, G., & Singh, S. (2019). An Analysis of Behavioral Biases in Investment Decision-Making. *International Journal of Financial Research*, 10(4), 55. Retrieved from <https://doi.org/10.5430/ijfr.v10n4p55>
- Mishra, P., Singh, U., Pandey, C., Mishra, P., & Pandey, G. (2019). Application of student's t-test, analysis of variance, and covariance. *Annals of Cardiac Anaesthesia*, 22(4), 407. Retrieved from https://doi.org/10.4103/aca.aca.94_19
- Muharam, H., Dharmawan, A., Najmudin, N., & Robiyanto, R. (2021). Herding Behavior: Evidence from Southeast Asian Stock Markets. *Recent Developments in Asian Economics International Symposia in Economic Theory and Econometrics*, 207–220. Retrieved from <https://doi.org/10.1108/s1571-038620210000028012>
- Njindan Iyke, B. (2019). A TEST OF THE EFFICIENCY OF THE FOREIGN EXCHANGE MARKET IN INDONESIA. *Buletin Ekonomi Moneter Dan Perbankan*, 439–464. Retrieved from <https://doi.org/10.21098/bemp.v0i0.976>
- Rahayu, A. D., Putra, A., Oktaverina, C., & Ningtyas, R. (2020). Herding Behavior In The Stock Market: A Literature Review. *International Journal of Social Sciences Review*, 1(2). Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Herding+Behavior+in+The+Stock+Market%3A+A+Literature+Review&btnG=
- Rahman, R. E., & Ermawati, E. (2020). AN ANALYSIS OF HERDING BEHAVIOR IN THE STOCK MARKET: A CASE STUDY OF THE ASEAN-5 AND THE UNITED STATES. *Buletin Ekonomi Moneter Dan Perbankan*, 23(3), 297–318. Retrieved from <https://doi.org/10.21098/bemp.v23i3.1362>
- Shantha, K. (2019a). Learning Behaviour of Individual Investors and its Effect on their Behavioural Bias: The Mediating Role of Self-reflection. 8th International Conference on Management and Economics. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Learning+Behaviour+of+Individual+Investors+and+its+Effect+on+their+Behavioural+Bias%3A+The+Mediating+Role+of+Self-reflection&btnG=
- Shantha, K. (2019b). Individual Investors' Learning Behavior and Its Impact on Their Herd Bias: An Integrated Analysis in the Context of Stock Trading. *Sustainability*, 11(5), 1448. Retrieved from <https://doi.org/10.3390/su11051448>

- Shantha, K. V. A., Xiaofang, C., & Gamini, L. (2018). A conceptual framework on individual investors' learning behavior in the context of stock trading: An integrated perspective. *Cogent Economics & Finance*, 6(1), 1544062. Retrieved from <https://doi.org/10.1080/23322039.2018.1544062>
- Syafiq, M., Badaruddin, S., & Purwoko, A. (2022). Integrated structural equation modeling and causal steps in evaluating the role of the mediating variable. *MethodsX*, 9, 101777. Retrieved from <https://doi.org/10.1016/j.mex.2022.101777>
- Taherdoost, H. (2019). What Is the Best Response Scale for Survey and Questionnaire Design; Review of Different Lengths of Rating Scale / Attitude Scale / Likert Scale. Retrieved from https://scholar.google.com.ph/scholar?q=What+Is+the+Best+Response+Scale+for+Survey+and+Questionnaire+Design%3B+Review+of+Different+Lengths+of+Rating+Scale+Attitude+Scale+Likert+Scale&hl=en&as_sdt=0&as_vis=1&oi=scholar
- Tangjitprom, N. & Yao, J. (2019). Herding Behaviors in ASEAN Stock Markets. *Journal of Economics and Management Strategy*, 6(1). Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Herding+Behaviors+in+ASEAN+Stock+Markets+Yao&btnG=
- The Philippine Stock Exchange (2022). Retrieved from <https://documents.pse.com.ph/wp-content/uploads/sites/15/2022/06/Stock-Market-Investor-Profile-2021-final.pdf>
- Vijayakumar, M. D. (2019). Investment Decisions, Herd Behaviour and Retail Investors. *International Journal of Innovative Technology and Exploring Engineering*. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Investment+Decisions%2C+Herd+Behaviour+and+Retail+Investors&btnG=
- Weixiang, S., Qamruzzaman, M., Rui, W., & Kler, R. (2022). An empirical assessment of financial literacy and behavioral biases on investment decision: Fresh evidence from small investor perception. *Frontiers in Psychology*, 13. Retrieved from <https://doi.org/10.3389/fpsyg.2022.977444>
- Wong, T. S. (2018). Characteristics of Stocks and Individual Investor Herd Behavior: A Causal-Comparative Study. Retrieved from https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Characteristics+of+Stocks+and+Individual+Investor+Herd+Behavior%3A+A+Causal-Comparative+Study&btnG=
- Xiong, Y. (2022). Analysis on the Benefits and Reasons Why Short Sale Should Not Be Prohibited. In *Advances in economics, business, and management research* (pp. 1268–1274). Atlantis Press. Retrieved from https://doi.org/10.2991/978-94-6463-052-7_141
- Zahreen Mohd Arof, K., Ismail, S., & Latif Saleh, A. (2018). Contractor's Performance Appraisal System in the Malaysian Construction Industry: Current Practice, Perception and Understanding. *International Journal of Engineering & Technology*, 7(3.9), 46. Retrieved from <https://doi.org/10.14419/ijet.v7i3.9.15272>
- Zainul, Z. R., & Suryani, I. (2021). Identification of Herding Behavior, Overconfidence and Risk Tolerance Based on Gender Perspective on Stock Investors in Aceh. *Advances in Economics, Business and Management Research*. Retrieved from <https://doi.org/10.2991/aebmr.k.211124.024>