Psychological Biases in Entrepreneurial Investment Decision-Making: Evidence from Individual Investors in Vietnam

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ABSTRACT
The research examines how psychological factors influence the investment choices of individual investors in Vietnam's stock market from 2023 to 2024, with a particular focus on entrepreneurial and entrepreneurial-oriented investment decision-making in an emerging Asian economy. The purpose is to help individual investors and entrepreneurially active individuals refine their investment strategies and support more informed, long-term, and sustainability-oriented financial decision-making, thereby enhancing the market's overall quality. Using a comprehensive analytical model grounded in behavioral finance and entrepreneurial decision theory, the research examines the effects of herding behavior, anchoring bias, regret aversion, and over-optimism on investment decisions. The results indicate that these psychological factors influence decisions positively, with herd mentality having the greatest impact, followed by anchoring bias, regret aversion, and over-optimism in descending order. Additionally, the study reveals significant differences in decision-making among investors from various occupational sectors, age groups, and levels of investment experience. These findings provide valuable insights for entrepreneurial finance, investor education, and sustainable investment decision-making, and contribute to the development of a more robust and resilient financial environment supporting entrepreneurship and sustainable economic development in Vietnam. In this study, entrepreneurial investment decisions are understood as opportunity-driven and risk-bearing financial decisions made by individuals who may also engage in entrepreneurial, self-employed, or small business activities.

Keywords: Psychological Factors; Entrepreneurial Investment Decisions; Vietnam Stock Market; Individual Investors; Emerging Economy

1. Introduction

Vietnamese stock market has recorded impressive growth in the last 23 years which has been marked by enormous market size, number of listed companies and involvement of individual and institutional investors both domestic and foreign. As of December 31, 2023, according to data of the Vietnam Securities Depository and Clearing Corporation, there are about 7.25 million domestic trading accounts, most of which were personal investors. It is worth noting the prevalence of individual investors in determining markets and capital allocation strategies that are currently of significant importance to the field of entrepreneurial finance and economic development in Vietnam. But these people do not base their investment decisions on the analytical reasoning only and in most cases, it is the psychological factors that influence the decision to invest. The presence of emotional decision making may result into irrational behavior, which is negatively reflected on the performance of investments and it may also cause instability in the market. These psychological forces can increase market booms and worsen declines and hence the need to have a better understanding of the investor mindset to make informed decisions as well as having a strong and sustainable financial market.

Individual investors refer to those people who invest using their own accounts in order to meet individual financial goals. Emotional and cognitive factors influence their decision-making processes not only through the macroeconomic condition within the domestic and international environment and the firm-specific information, but also through their emotional and cognitive elements. The individual investors in most emerging economies such as in Vietnam are getting more and more involved in investment processes that overlap with entrepreneurial and opportunity-based financial decision-making. Such actions are the basis of the discipline of behavioral finance, that combines the study of psychology with financial theory to understand the irrational behavior in the market. Behavioral finance research studies the impact of psychological aspects on investment decisions made by individual investors and how psychological aspects of investment can potentially affect the global economic and entrepreneurial results.

Earlier research on the role of psychological determinants in investment decision-making has centered mostly on developed stock markets, especially in the United States and Europe. Indeed, the case of Odean (1999) in his seminal research titled, Do Investors Trade Too Much shows that overconfident investors are likely to overtrade at their own disadvantage. Equally, the study by Caparrelli et al. on herding behavior in Italian stock market demonstrates that less informed and knowledgeable investors often mimic the behavior of other investors or adopt group decision-making tendencies in order to minimize the unpredictability

and enhance a sense of security. These results imply that psychological biases are not merely widespread but also also powerfully effective in various market settings.

Pioneering research in behavioral finance has been questioning the fully rational investor assumption by reporting systematic results of biased decision-making in financial markets. The initial empirical evidence shows that stock markets tend to be excessive in responding to information so that prices do not have the fundamental value (De Bondt and Thaler, 1985). There are also the emotional reactions to negative and positive gains and losses in investor decision-making seeing in the disposition effect where investors dispose of winning investments sooner and hold on to losing investments longer than they should have (Shefrin and Statman, 1985). The wider market trends also indicate the influence of groupthink and over-confidence in speculative activities and stock bubble (Shiller, 2000). More so recently the adaptive markets hypothesis offers an integrative viewpoint in which it is held that investor behavior changes over time as they learn and adapt to shifting market circumstances instead of being fixed (Lo, 2005).

Although the stock market and the behaviors of investors in a particular country such as Vietnam show a growing intellectual attention, there is a relative lack of empirical studies that explicitly look at the individual investment decision making using the prism of behavioral finance. The current study fills this gap by identifying and analyzing the psychological determinants of the investment decisions of individual stock market participants in Vietnam.

This is an interesting time frame as the number of investor accounts at Vietnam stock market has grown significantly in the past years with overall trading accounts approaching the multi-millions as of pre-COVID-19 times and the market being quite volatile around the years 2022-2023. These dynamics explain why it is critical to investigate the role of psychological biases in making investment decisions within this new market setting. The study supports the use of behavioral finance theory in the explanation of investment decisions making, and provides realistic recommendations that would assist investors to enhance their performance as they are increasingly involved in opportunity driven and entrepreneurial financial activities. The research also intends to offer practical guidance to policy formulating bodies, educational institutions, and market players interested in encouraging more rational, informed, and sustainable decision making in Vietnam by offering contributions to the theoretical and empirical literature of the investor psychology.

Within the framework of the developing economy in Vietnam, individual investors are often intertwined with entrepreneurs, self-employed, and small business owners, who can be actively involved in the venture that creates opportunities and takes risks in financial transactions. To most of them the involvement in stock market supplements the income generation of entrepreneurs, accumulation of wealth, and wealth planning in the long term. Their investment choices therefore do not just represent individual financial tastes, but also risky entrepreneurship that is more open to risks, uncertainty, and opportunity identification. The knowledge about the psychological elements that influence such decisions is thus of great importance to entrepreneurial finance as well as enhancing sustainable and robust economic growth in Vietnam.

2. Literature Framework and Hypotheses

2.1. Literature Framework

2.1.1. Heuristic and Bias Theory

The theory of Heuristic describes how investors base their decision-making on their experience-based rules of thumb to process information and solve decision-making problems. These heuristics are biased views of the investors and they are an indication that human judgments of probability and risk often differ with the normative theoretical probability models. Instead of identifying the probabilities with the actual occurrences, people have the tendency of identifying the probabilities with the descriptive images of the occurrences (Tversky and Kahneman, 2002). Initial research by them proposed elementary cognitive principles that people use in the process of making judgments in case of uncertainty. The following literature, such as by Slovic (1982) extended the research topic and gave rise to the so-called heuristics and biases paradigm in which emotional and psychological aspects are explicitly included in the process of decision making.

In their study of the decision-making behavior of individual investors, they came up with a number of cognitive heuristics. The investors often use the previous information to assess the new data and the resulting decisions are often subject to reference points like the previous rates of inflation, growth development, or the first initial public offering (IPO) price. It is called anchoring and leads to biased judgments and poor decision-making since investors do not appropriately change their judgments when leaving initial reference values. Bias Theory is a sort of expansion of the heuristic theory as it focuses more on the influence of emotional heuristics on making investment decisions. Studies by Baker and Nofsinger (2010) point out the role of emotive reactions and cognitive short-cuts in creating systematic biases in the context of financial decisions. Specifically, over-optimism includes some investors overconfident in the information that they have at their disposal and overconfident in their own skills. This false sense of security can lead investors to undervalue risks and think that they will not be

impacted by negative investment returns, which eventually will lead to ineffective and potentially detrimental investment choices.

2.1.2. Prospect Theory

The Prospect Theory is based on the value function as formulated by Tversky and Kahneman (1979) that the utility of investors can be thought of as concave with diminishing marginal utility. The theory is a behavioral explanation of the decision-making in risk and uncertainty conditions. Once the values of assets decrease and are below the point of reference of the individual, the investors would be more risk-seeking and would continue to make or invest more with the hope that they will be able to offset losses and not feel guilty. Conversely, when assets values are above the reference point, investors tend to be risk-averse and they are likely to sell portfolio too soon to gain profits despite the fact that additional returns can be attained. This one-sided reaction to gains and losses is symptomatic of regret aversion, in which investors will tend to reduce the emotional pain caused by realising losses. As a result, investors can postpone the sale of falling assets and sell profitable assets in a rush, which can cause non-efficient management of portfolios and inefficient long-term results.

2.1.3. Herding Behavior Theory

Herding behavior is a situation in which investors move in the direction of others as opposed to basing their movements upon available information, analysis or judgment (Bikhchandani and Sharma, 2001). The traditional economic theory presupposes that investors act rationally in selling or buying securities based on the information provided by the macroeconomic conditions, the market tendencies, the performance of the industry, and the fundamentals of firms to estimate the value and make proper decisions. Nevertheless, the occurrence of stock market bubbles and financial crisis in the past, especially in the late 1990s and early 2000s, prove that investors often fail to act rationally. In times of uncertainty, investors tend to stick to cognitive anchors, emotional account, and visible actions of other market participants. This kind of herd mentality can have a great impact on the individual investment decision, enhance the market trends and result in excessive volatility. This theory highlights the significant impact of social influence and group behavior as far as the influence on investment decision-making in the stock market is concerned.

2.2. Research Hypotheses

2.2.1. Herding Behavior

Past studies have established that the herding behavior has a high power in influencing the decision making process in investments as people tend to imitate the moves of others instead of conducting their own analyses (Bikhchandani and Sharma, 2001). Considering the situation in the Vietnamese stock market, individual investors can be especially vulnerable to comparison of the market tendencies and group behavior, resulting in a collective decision making behavior. This can heighten market movements and make prices more volatile as it is not the choice made on basis of fundamental analysis but to do what seems like the market is feeling. The concept of herding behavior is thus necessary in understanding the psychology of investors and in guiding regulatory provisions that seek to enhance informed decision-making and, consequently, an improved market stability.

H1: Herding behavior positively influences the investment choices made by individual investors in Vietnam's stock market.

2.2.2. Anchoring Bias

The concept of anchoring bias, as defined by Tversky and Kahneman is the tendency of people to overuse references when making decisions, which might have no direct relevance to the situation at hand. In the stock market of Vietnam, investors have the option of basing their judgment on stock prices and market prices on previous data of historical site prices, previous performance measures or even the IPO prices. Such dependence on anchors may lead to distortion of judgment, asset mispricing, and trading behavior, which run down to market efficiency. The analysis of the effects of the anchoring bias can be useful not only in the study of investor behavior but also in the arena of investor education and regulatory measures of the market.

H2: Anchoring bias positively influences the investment choices made by individual investors in Vietnam's stock market.

2.2.3. Regret Aversion

According to Prospect Theory one of the psychological factors that influence the decision-making process under uncertainty is the regret aversion. Investors in the stock market of Vietnam might be prone to compel themselves not to experience the emotional pain of incurring losses and thus they will tend to have poor-performing assets in their hands longer than what rational economic theories suggest. This behavior has the potential to decrease the liquidity levels in the market and enhance volatility since decisions are made based on emotional factors and not on the objective assessment. Knowledge of regret aversion would be useful in the creation of investor education programs and regulatory policies that would promote rational investment practices and stability of markets in the long term.

H3: Regret aversion positively influences the investment choices made by individual investors in Vietnam's stock market.

2.2.4. Over-Optimism

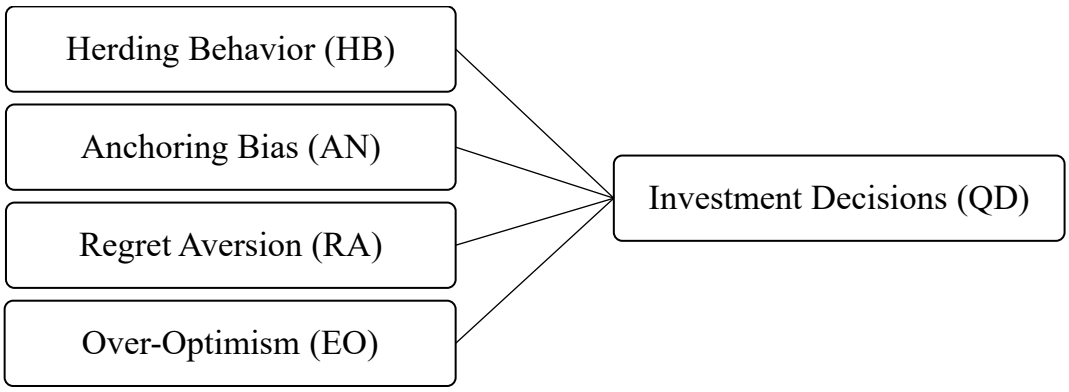
As experienced by Slovic over-optimism makes investors overestimate their capabilities and the accuracy of their investment decisions. The effect of the above in the setting of Vietnam company stock exchange is that individual investors could have an overconfidence in their stock market forecast and investment prowess and begin to trade more frequently and take a greater amount of risk. The presence of over-optimism may cause distortion of risk perception, encourage speculative behavior, and inefficiency in the market. Through the analysis of the scope and impact of over-optimism, the study seeks to make some contributions to the behavior of investors and guide strategies designed to increase the resilience of investors and general market integrity.

H4: Over-optimism positively influences the investment choices made by individual investors in Vietnam's stock market.

3. Research model and methodology

3.1. Research model

The study design combines the theoretical models of behavioral finance to determine the role of certain psychological biases in the behavior of investors and market performance. The model consists of a number of important constructs based on the extensive literature review and the empirical research in the form as follows:



Independent Variables: Psychological Biases

- Herding Behavior: This construct is used to describe the tendency of investors to follow the behavior and the choices made by others in the marketplace rather than making their own judgment.
- Anchoring Bias: Is the tendency of investors to overly rely on the starting points or historical information in making investment decisions.
- Regret Aversion: This is based on the fact that investors are likely to shun those activities that may result in regrets or emotional anguish, like the knowledge that they have suffered losses.
- Over-Optimism: This is the overestimation of the capability of investors to forecast the market trends and precision of their investment decisions.

Dependent Variable

Investment Decisions: This is a broad measure that determines actual decisions made by the individual investors over buying, selling or holding stocks of Vietnam stock market.

Moderating Variables

Demographic Factors: The relationships between psychological biases, risk perception, and investment decisions might be moderated by variables that include age, gender, educational background and investment experience.

Theoretical frameworks of the research model are based on behavioral finance theories, such as Prospect Theory and the outcomes of the studies conducted with investors on how they behave and make investment decisions. Prospect Theory provides a platform of following the psychological bias effect on the risk preference and decision making under uncertainty situations, in line with the focus of the study that is to investigate such dynamics in the context of the changing stock market in Vietnam.

The contributions of Bikhchandani and Sharma (2001), Tversky and Kahneman (1982), Slovic et al. (2000), and Odean (1999) in terms of their empirical studies have provided a foundation to the effects of the psychological biases in the behavior of the investor in various markets. Using this research model, the study will add new empirical data that would be specific to the Vietnamese stock market and clarify how psychology factors determine the choice of individual investors.

3.2. Research Methodology

3.2.1. Research Design

The research design applied in the study is quantitative research design to investigate the effect of psychological factors on investment decision making of individual investors in the Vietnam stock market. These investment choices are viewed as opportunities-based financial choices that could finance entrepreneurial and self-employment, but

not speculative trading behavior. To gather primary data, a sample of active individual investors, a cross-sectional survey design was used to collect data. Such a design allows capturing the psychological biases and observed investment behaviors of investors in a systematic manner in the 2023-2024 period when the market was more volatile and an economy was less certain.

3.2.2. Sampling and Sample Size

The individual investors actively trading in the stock market in Vietnam were included as the sampling frame. Stratified random sampling method was used to provide sufficient representation on the basis of several major demographics including age, gender and education background and investor profile in terms of experience of investment and size of portfolio. Appropriate statistical criterion was used to determine the final sample size that would be enough in terms of power and strength to be used in the further empirical analysis.

3.2.3. Data Collection

Data was gathered using structured questionnaires which were sent electronically and through face-to-face interaction, as preferred by the respondents. The questionnaire was prepared out of established and tested measurement scales that were obtained through behavioral finance literature. It contained questions that were meant to test herding behavior, anchoring, regret aversion and over-optimism and investment decision making behavior.

3.2.4. Variables and Measurement

The study employed multiple constructs to capture the key elements of investor behavior.

Independent Variables: Psychological biases namely herding behavior, anchoring bias, regret aversion, and over-optimism were measured using Likert-scale items adapted from validated instruments in prior empirical studies.

Mediating Variable: Risk perception was used to test the perceptions and evaluation of uncertainty and risk by investors as it relates to their investment decisions.

Dependent Variable: The operationalization of investment decisions was based on the real buying, selling, and holding actions of the respective individuals of the stock market in Vietnam.

3.2.5. Data Analysis

Survey data collected regarding individual investors in Vietnam were analyzed with the help of quantitative survey to test the proposed relationship in the research model. The combination of statistical procedures was employed to identify the construct validity and reliability and thus included Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Regression was then applied to test the hypothesized relationships on the direction and significance of the relationship. The analytical process was based on descriptive statistics, correlation analysis, and regression analysis, including hierarchical regression and mediation analysis to discover the impact of psychological biases and risk perception on investment decisions as well as examine the possible moderating effect caused by demographic variables. The analytical processes provide empirical results which can be applied in the investor behavior, policy formulation and market stability.

4. Research results and discussion

4.1. Research results

Alpha coefficients of Cronbach (0.805 to 0.926) also reflect high internal consistency of the elements of measuring the psychological biases as well as elements in investment decision making. These values are higher than the standard level of reliability that it is known that the scales can be used to measure the desired constructs. The use of these measurement instruments is thus appropriate in the study as a tool of examining the role of the psychological variables on the investment decisions of the individual investors in Vietnam stock market.

4.1.1. Assessing Factor Validity with Cronbach's Alpha

	Cronbach's Alpha	N of Items
HB	0.925	4
AN	0.926	5
RA	0.890	4
EO	0.806	4
QD	0.805	3

4.1.2. Exploratory Factor Analysis Results

The results of Kaiser-Meyer-Olkin (KMO) measure of the sampling adequate and Bartlett Test of Sphericity are mentioned in table 2. The value of 0.829 exceeds 0.5 that defines a minimum threshold that needs to be met to conclude that the sample size is adequate to conduct factor analysis and that the relationship between the variables is adequate. Furthermore, Bartlett Test of Sphericity is of substantial statistical significance (Sig. < 0.001), which confirms the fact that the correlation matrix can not be compared to an identity one. This suggests that the data can be used to investigate factor analysis and derived meaningful underlying factor structures. As a result, the factor analysis is a good foundation to analysing the relationship between psychological factors and investment decisions in the stock market of Vietnam among individual investors.

Table 2. KMO measure and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0. 29
Bartlett's Test of Sphericity	Approx. Chi-Square	2477.719
	df	136
	Sig.	<0.001

According to the factor extraction findings, four factors were carried forward with an eigenvalue more than 1 with the lowest eigenvalue of 1.626. This validates the validity of extraction of four different groups of factors. Moreover, the total variance explained by these four factors equals 76.291, and it is more than the generally accepted level of 50. The high degree of explained variance is an indication that the extracted factors are a good way of reflecting the underlying structure of the observed variables.

Table 3. Rotated Component Matrix

	Component			
	1	2	3	4
AN2	.880			
AN3	.866			
AN4	.866			
AN5	.865			
AN1	.864			
EO4		.787		
EO1		.814		
EO2		.753		
EO3		.789		
RA3			.879	
RA2			.861	
RA4			.810	
RA1			.803	
HB1				.875
HB3				.843
HB4				.886
HB2				.871

The findings reported in Table 3 indicate that the items in the observed variables have a factor loading above 0.5, and all items are highly loaded into one factor. This trend shows that the convergent validity is satisfactory and the discriminant validity is evident among the constructs. The exploratory factor analysis (EFA) thus affirms that the measurement scales employed in the research are of the correct methodological standard and suitable in the application of empirical research.

4.1.3. Confirmatory Factor Analysis results

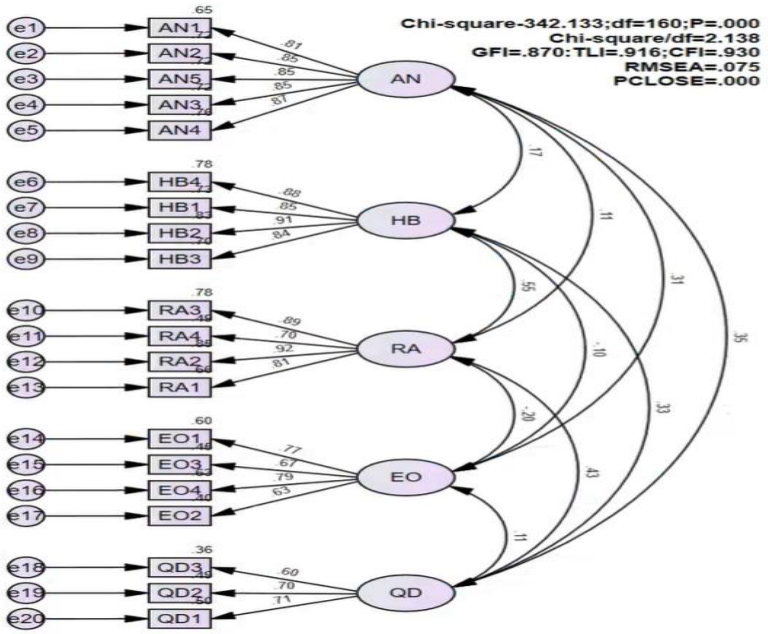


Figure 2. Confirmatory Factor Analysis model

The evaluation of model fit, based on the criterion proposed by Hair et al. (2010), indicate satisfactorily good results in a variety of goodness-of-fit measures. The Chi-square/df ratio is 2.138 which is lower than the required ratio of 3 which implies a good fit of the model. Besides, the Comparative Fit Index (CFI) stands at 0.930, which is higher than the acceptable set value of 0.90, and the Goodness of Fit Index (GFI) stands at 0.870, which is above the acceptable set point of 0.80. Tucker-Lewis Index (TLI) is reported to be 0.916, which additionally is an indicator of a reasonable to good model fit. The value of the Root Mean Square Error of Approximation (RMSEA) equals 0.075, which is lower than the upper limit of this index (0.08), which is another argument in favor of the model appropriateness. Taken together, all these fit indices warrant the suitability of the proposed factor structure. Moreover, the factor loading of all the observed variables is statistically significant based on p-value below 0.05, which enhances the applicability of the measurement model.

Table 4. Standardized Regression Weights

No	Relationship			Estimate	Composite Reliability	Total Variance Extracted
1	AN1	<---	AN	0.807	0.926172	0.715147
2	AN2	<---	AN	0.849		
3	AN5	<---	AN	0.849		
4	AN3	<---	AN	0.85		
5	AN4	<---	AN	0.872		
6	EO4	<---	EO	0.795	0.810988	0.51973475
7	EO1	<---	EO	0.772		
8	EO2	<---	EO	0.633		
9	EO3	<---	EO	0.671		
10	RA3	<---	RA	0.886	0.901538	0.69813775
11	RA2	<---	RA	0.701		
12	RA4	<---	RA	0.923		
13	RA1	<---	RA	0.815		
14	HB1	<---	HB	0.855	0.926046	0.75807725
15	HB3	<---	HB	0.836		
16	HB4	<---	HB	0.882		
17	HB2	<---	HB	0.908		
18	QD3	<---	QD	0.672	0.750607	0.501297333
19	QD1	<---	QD	0.702		
20	QD2	<---	QD	0.748		

A value of 0.5 or above is an estimate of validity. The reliability analysis indicates that, all the primary variables AN (0.926), EO (0.811), RA (0.902), HB (0.926) and QD (0.751) have a greater value than the threshold of 0.7, which indicates the appropriateness of the observed variables in the measurement framework of the model.

4.1.4. Testing for Regression Assumption Violations

After examining the plot of the residuals, it becomes clear that the residuals are spread randomly, and there is no apparent pattern in the distribution of the spread. This fact causes us to conclude that the assumption of linear relationship is fulfilled.

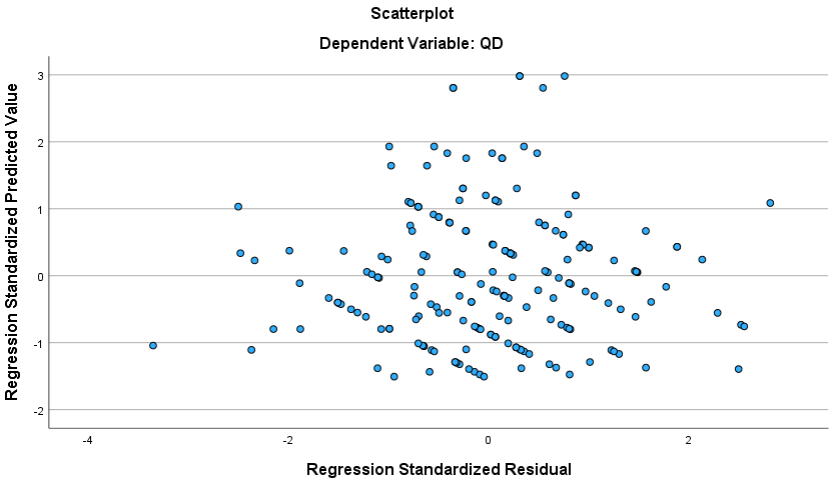


Figure 3. Residual scatter plot

The value of R2 of 0.639 shows that the independent variables explain 63.9 percent of the variance in the dependent variable leaving the rest (36.1 percent) to the external factor and random errors. Furthermore, the value of Durbin-Watson of 1.579 within the acceptable relation of 1.5-2.5, implies the absence of autocorrelation.

Table 5. Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.800[a]	0.639	0.632	0.372	1.579

Additionally, the Tolerance values exceed the minimum requirement (> 0.5) and all Variance Inflation Factor (VIF) values are below 2, confirming that multicollinearity is not an issue.

Table 6. Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
EO	0.895	1.117
AN	0.894	1.118
RA	0.726	1.378
HB	0.729	1.372

The mean value is $2.14E^{-15}$ (or 2.14×10^{-15}) with a standard deviation of 0. This indicates that the assumption of normally distributed residuals is not violated.

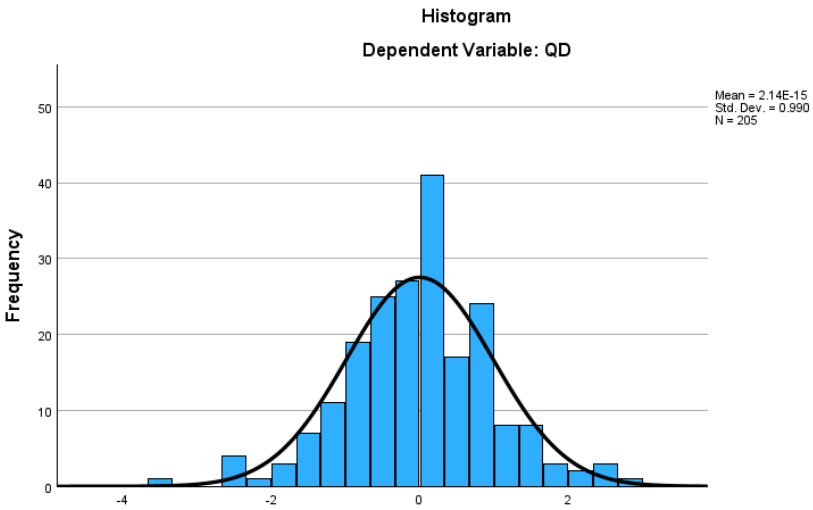


Figure 4. Histogram

According to the P-Plot, the experimental variables show a trend in which they are very close to the supposed curve taking the shape of a diagonal. This coincidence implies that the residuals follow a normal distribution. Thus, it would be safe to conclude that the test of normality of residuals is sensible.

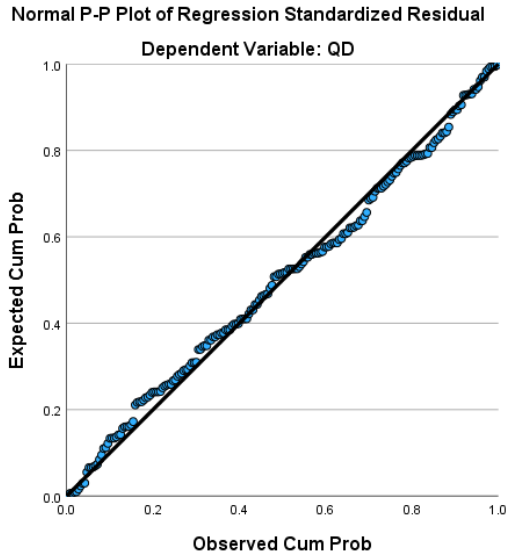


Figure 5. Plot of Regression Standardized Residual

Table 7. ANOVA

The ANOVA test shows F-statistic is 88.652 with significance level (Sig) of below 0.001, which states that the regression model developed is an effective fit to the data set. This linear regression model is strong and can use it on the whole population and hence it is suitable.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	49.029	4	12.257	88.652	<.001[b]
Residual	27.652	200	.138		
Total	76.681	204			

4.1.5. Regression results

The regression model indicates that the standardized regression coefficients of all the four independent variables AN (Anchoring bias), EO (Over-Optimism), HB (Herding Behavior) and RA (Regret Aversion) possess significant influences in the decision making process of individual investors. All the coefficients are statistically significant at less than 0.5% (0.001). In addition, the values of all the coefficients are positive which implies that the independent variables have a positive effect on the dependent variables.

Table 8. Regression results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.647	.239		2.714	.007
EO	.158	.044	.163	3.626	<.001
AN	.214	.032	.304	6.761	<.001
RA	.191	.032	.296	5.939	<.001
HB	.285	.030	.478	9.606	<.001

Based on the regression coefficients, we can formulate a standardized regression equation as follows:
QD = 0.163×EO + 0.304×AN + 0.296×RA + 0.478×HB + ε
The most positive effect on the investment decisions among investors in the Vietnamese stock market is the herd behavior, with its beta coefficient of 0.478. The regret aversion comes next with a coefficient of 0.296, neurotic decision-making with 0.304 and excessive optimism with the least significant effect of 0.163. This means that increasing the regret aversion by 1 unit leads to an increase of investment decision decision by 0.296 units in the measured decision, and so on the other psychological factors.

4.1.5. Testing Differences in Investment Decisions Among Demographic Groups

Independent sample T-test on investment decisions across various educational backgrounds.

Hypothesis H0: There is no difference in variance between the financial and non-financial sectors. Levene's test for equality of variances shows a significance level (Sig.) > 0.05. As a result, we fail to reject the null hypothesis.

Table 9. Independent Sample T-test on investment decisions across different academic backgrounds

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Average QD	Equal variances assumed	.072	.789	5.258	203	.000
	Equal variances not assumed			5.262	143.016	.000

To assess mean differences, the hypothesis H0 assumes there is no difference in means between the financial and non-financial sectors. A t-test is conducted in the "t-test for Equality of Means" section. With a significance level (Sig) below 0.05, we reject the hypothesis H0, indicating a statistically significant mean difference among respondents from different professions.

One-way ANOVA variance test on investment decisions across age groups.

Hypothesis H0: There is no difference in variance among the groups. Levene's test using mean values shows a significance level (Sig.) > 0.05. Thus, we accept the hypothesis H0.

Table 10. Tests of Homogeneity of Variances of Age Groups

		Levene Statistic	df1	df2	Sig.
Average QD	Based on Mean	.343	2	202	.710
	Based on Median	.274	2	202	.761
	Based on Median and with adjusted df	.274	2	196.269	.761
	Based on trimmed mean	.349	2	202	.705

According to the findings of the ANOVA F-test of the analysis with the between groups, the level (Sig.) of less than 0.05 we reject a null hypothesis (H0), which states that the means are the same across the age groups. This is an indicator that there is a statistically significant difference in means amongst the age groups.

Table 11. ANOVA of Age Groups

	Sum of Squares	df	Mean Square	F	Sig.

Between Groups	13.923	2	6.962	13.411	.000
Within Groups	104.857	202	.519		
Total	118.780	204			

One-way ANOVA variance test on investment decisions across investment experience groups.
Hypothesis H0: There is no difference in variance among the groups. Levene's test, based on mean values, shows a significance level (Sig.) greater than 0.05. Hence, we accept the hypothesis H0.

Table 12. Tests of Homogeneity of Variances of Investment Experience Groups

		Levene Statistic	df1	df2	Sig.
Average QD	Based on Mean	.440	2	202	.645
	Based on Median	.251	2	202	.778
	Based on Median and with adjusted df	.251	2	197.093	.778
	Based on trimmed mean	.422	2	202	.657

Referred to the results of ANOVA F-test analysis, in which the significance level (Sig.) values are less than 0.05, we reject a null hypothesis (H0) that the means of the groups with different investment experience levels are similar. This shows that there is a statistically significant difference of means between these groups.

Table 13. ANOVA of Investment Experience Groups

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.077	2	3.038	5.446	.005
Within Groups	112.704	202	.558		
Total	118.780	204			

4.2. Discussion

The study is a combination of the established behavioral finance theories as well as the earlier empirical studies in a bid to investigate the influence of the psychological factors in the process of making investment decision by individual investors in the stock market in Vietnam. Formulated in the backdrop of large-scale economic downturns in 2022, additional macroeconomic insecurity in 2023, and the thriving expansion in the quantity of new investors within the past five years, the findings demonstrate a ubiquitous quality in the presence of psychological biases in leading investor conduct. According to the findings, over-optimism, anchoring bias, regret aversion, and herding behavior are all standardized and highly significant to investment decisions in this new market situation.

The empirical model utilized in the process of the study is a substantial testament that each of the psychological variables in the study influences investment decision, albeit to varying extents. It is also analyzed that the decision-making behaviour of the large difference of the demographic characteristics such as occupational background, age group and experience in investment. The implication of these results is that the effects of psychological biases cannot be uniform on investors, rather they respond to the personal factors and levels of experience of the investor which once again justifies the significance of investor heterogeneity in behavioral finance studies.

The results show that the non-financial sector investors are more susceptible to psychological biases than the investors who work in the financial sector or in the other related field. Such vulnerability may be attributed to variations of financial-literacy, information access and exposure to reading market signals.

. Differences in terms of age are also apparent. Investors under the age of 18 become the most vulnerable group, then there are people over 25 years, and people between 18-25 years have a relatively smaller vulnerability to psychological biases. The pattern can be an indication of age disparities in financial education and exposure to investment knowledge. Older investors tend to be more cautious; however, they are also prone to the overconfidence trap, which is what can cause cognitive biases and false perception of risk (Barber and Odean, 2001).

The experience of investment is also found to be very crucial in mediating the role of the psychological factors on decision-making. As it has been observed in the previous studies, more experienced investors have a low behavioral bias exposure (Kumar, 2008). Conversely, people with low experience, especially those who have made 3-6 months of investment activity are the ones with the highest vulnerability in terms of psychological influences. This result points to the learning implications of being in the market and also, reveals the significance of experience in the formation of disciplined and rational investment behavior.

The findings of the study are in line with the existing reading in the behavioral finance literature and they

show that psychological biases have a long-standing effect on making investment decisions. Major implications of the herding behavior, anchoring bias, regret aversion, and over-optimism in the study is consistent with information that investor sophistication is critically important when it comes to determining exposure to behavioral biases with less experienced investors being highly vulnerable (Dhar and Zhu, 2006). Secondly, the close relationship of psychological factors with trading behavior confirms previous results that informational and emotional biases are likely to inform investment decision-making as opposed to fundamental analysis (Grinblatt and Keloharju, 2001).

Another interesting result of this paper is that herding behavior among individual investors in the stock market in Vietnam is particularly significant and more intense when compared to some previous works. The trend can be fueled by the fact that over the past few years, the number of new entrants in the market has continued to rise, with a significant number of them basing their markets on short-term market signals, web-based sources of information and speculative investments like day trading (Farber et al., 2006). Recurrent herding may destroy autonomous determination and the timing of corrective measures to the market foundations, and cause undue fluctuations, which make chances of market bubbles and their consequent redressing more prevalent.

On the other hand, anchoring bias also becomes a significant determinant in the investment decision-making. In case investors use past reference points in pricing current assets they tend to make bias valuation which can lead to mispricing. Such reliance may also make investors place too much faith in the current market and trade volumes as opposed to re-assessing the information itself. (Lakonishok and Smidt, 1989). This tendency highlights the challenges that investors have to adapt to the dynamism of the market under the influence of the need to change expectations. Regret aversion still has a moderate but significant effect on investment behavior. The investors will tend to rush and rectify previous errors, and occasionally resort to hasty decision making without proper analysis. The resultant tendency may lead to more exposure to unwarranted risk because investors will be looking at recuperating previous losses (Fogel and Berry, 2006). The results have demonstrated the significance of emotional control in investment choice and have proposed that specific goals, following investment principles, and planning are critical measures to curb the negative influence of psychological biases. In addition to the behavior of individual investors, the paper also focuses on why the stock market development of Vietnam along with international standards should be furthered. The impact of behavioral distortions can be reduced by enhancing regulatory control by regulatory agencies like the State Securities Commission, improvement of market technology and creation of derivative instruments. Strict compliance with rules and consequences on breaking the rules is extremely important to creating a clear stable wholesome market environment that will enable sustainable growth and increase investor confidence.

5. Conclusion

The research helps in the knowledge base of individual investor behavior in the Vietnam stock market by methodically studying the effects of psychological factors in investment decision-making. The results verify that behavioral biasesMherding behavior, anchoring bias, regret aversion, and over-optimism are highly relevant to the development of investors but have different impacts on decisions based on the demographic and experience groups. One of the main findings of the research is that there are specific decision-making processes that are based on occupational experience, age, and investment experience. Younger investors are more susceptible to psychological bias, which is probably because of a lack of experience and a greater disposition to take risks. Conversely, older investors are more reserved in the sense that their decisions are influenced by their financial knowledge and experience and are, nevertheless, vulnerable to some cognitive bias like overconfidence.

The other important conclusion in the findings is the involvement of the experience of the investment in the minimization of the effects of the psychological factors. The behavioral biases are less prone to experienced and more seasoned investors, which suggests that the exposure of the market and the learning outcomes give a more disciplined and informed decision making process. The study findings bring out the significance of experience and education in encouraging rational investment in the new financial markets. Since the proposed research is a prospective one, it may be extended by incorporating larger and more diverse samples, and other psychological and situational variables influencing investment behavior. The information regarding the complex interrelationship between psychological variables and investment decisions can be expanded further with the help of more advanced analytical tools such as structural equation modelling (SEM).

Based on the empirical evidence, several policy relevant insights can be obtained. Particular investor education programs should be developed to be more aware of the common psychological biases and their potential consequences. The improved understanding of the behavioral predispositions will be useful in making rational decisions and reducing the prevalence of herd behaviour and speculations. At the same time, the regulatory authorities such as the State Securities Commission should proceed to increase the market controls by further enhancing

the market transparency as well as investor protection processes and to make sure that not only market manipulation but also other market practices are highly discouraged. These are vital measures towards saving the markets and investor confidence. Moreover, financial institutions and brokerage firms will also be in a position to take an active role in this by integrating the principles of behavioral finance into advisory services and investment products. Individualized financial advice that considers people risk preferences, experience levels and psychological dispositions can assist investors to better navigate the market turmoil and work towards long term financial goals. Finally, the study will contribute to the academic knowledge and provide useful insights to policymakers, educators and practitioners in the market by analyzing the psychological basis of investment behavior. All these works towards making the Vietnamese stock market a more robust, efficient and sustainable stock market.

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