BEHAVIORAL FACTORS INFLUENCING INDIVIDUAL INVESTORS' DECISION MAKING IN VIETNAM MARKET

Luu Thu Quang
Faculty of Finance. Ho Chi Minh University of Banking, Vietnam

Nguyen Duy Linh
Faculty of Finance. Ho Chi Minh University of Banking, Vietnam

Diep Van Nguyen
Faculty of Finance and Banking. Ho Chi Minh City Open University, Viet Nam

Duong Dang Khoa
Faculty of Finance and Banking. Ton Duc Thang University, Vietnam

ABSTRACT

Using behavioral factors (mood, overconfidence, underreaction, overreaction, and herding behavior) as proxy variables in the Vietnamese stock market, this article tries to explore the link between investor demographics (gender, age, experience, and educational ability) and their investment decisions. This study compiles information from a structured questionnaire survey of 400 local, international, institutional, and individual investors in Vietnam. It employed partial multiple regression to examine how investors' demographic variables affected their investment choices using behavioral traits as mediator variables. According to the results, investor emotion, overconfidence, over/underreaction, and herd behavior all have a large impact on investing decisions. Additionally, investors' investing selections are significantly and favorably influenced by their age, gender, and degree of education. Although experience does not have a significant effect on financial decisions, investors start to ignore emotional aspects as they become more experienced.

Keywords: investment decision; overreaction; herd behavior; overconfidence

DOI: http://dx.doi.org/10.15549/jeecar.v10i2.1032

INTRODUCTION

Over the past two decades, the Vietnamese economy has experienced significant changes. This transformation has mainly concentrated on the implementation of privatization policies and the gradual transition to a market economy. As a result, there have been more investment opportunities for both domestic and international investors. Thus, trading activities, the market size, and the variety of security options have all significantly increased within the Vietnamese economy. Consequently, the Vietnamese stock market is a great study

opportunity for the field of finance and investing.

Previous studies have mostly concentrated on financial market performance to investigate new investment strategies that would enable investors to maximize returns with the least amount of risk (Fama, 1965). A separate and more recent body of research demonstrates that psychological and emotional elements like fear, greed, and overconfidence can have a significant impact on investing choices (Meir et al., 2006).

In order to examine the link between investor demographics and investment choices in the Vietnamese stock market, behavioral variables will be used as a mediator in this article. This study examines 400 investor replies to a standardized questionnaire and reveals that herd behavior, overconfidence, overreaction, and investor emotion all have a substantial impact on investing decisions. The findings also point to the considerable influence of age, gender, and level of education on emotion, overconfidence, underconfidence, and overreaction when it comes to investing. The findings suggest that there is no evidence that investment experience has a significant impact on behavioral factors or investment choices; however, they do suggest that as investors become more skilled in this area, the emotional impacts of overconfidence, over or underreaction, and herd behavior are more likely to be ignored.

According to conventional literature (Metawa et al., 2019; Pikulina et al., 2017; Meir et al., 2006), investors make decisions about their investments with the logical assumption that they would update their choices when new information becomes available and maximize the expected rate of return for a particular degree of risk. The inability of technical analysis (TA) and fundamental analysis (FA) to accurately estimate the intrinsic value of a share is highlighted by Chandrasekhar (2009). The need to investigate and evaluate changes in securities prices, investor trends, and variables affecting investment decisions is therefore evident. As a result, the field of behavioral finance is developed to explain price variations in securities, as well as how emotions and other psychological aspects affect investors' choices.

Prior research on investment (Metawa et al, 2019; Barber & Odean, 2001; Meir et al., 2006) has mostly concentrated on developed markets in North America, Europe, or Africa, but Asian market-specific behavioral finance research is scarce (Abuova & Ra, 2018). By examining behavioral aspects of the Vietnamese market, this article aims to close that gap. The study's findings might be useful in understanding typical investor behavior in the Vietnamese market. Additionally, this study examines both domestic and international, as well as institutional and individual investors in order to create a wide generalization of the results.

LITERATURE REVIEW

Investor sentiment

Investor sentiment, according to Baker and Wurgler (2006), is any belief an investor has that is not backed by crucial facts, such as belief in future cash flows or discount rates. Investors who trade on conventional models are usually pessimistic or optimistic, due to the correlation between trading activity and investor sentiment. The investor response in this instance lends support to the sentiment hypothesis. An example of sentiment hypothesis would be if basic research suggests selling a certain company's stock, but the investors choose to keep the stock based on their own opinions, or vice versa. According to Charles et al. (1991), in the segmented market, which is predominantly made up of retail investors, the discount of closed-end funds represents compensation for resale price risk. Additionally, they contend that a significant influence on a particular investor's investment behavior is investor sentiment. Their empirical results point to a significant correlation between changes in closed end fund discounts and monthly returns of NYSE businesses during the time period from July 1965 to December 1985. Additionally, they discovered that variations in investor mood can be partly blamed for the discount anomaly and its impact on small business. This shows that when investors change their outlook, small firm returns go down (up), and discounts widen (shrink).

To determine if a price can be assigned to investor sentiment, David & Shull (1996) analyzed monthly fluctuations in closed-end funds and SME returns. According to their findings, investor moods are reflected in the stock prices of open-end funds, and tax incentives encourage individual investors to come to back market trading. To determine the impact of traders' attitudes on volatility and expected returns, they used the Investor

Intelligence Sentiment Index (IISI) as a direct indicator of investor sentiment.

Investor overconfidence

Overconfidence is displayed when people overestimate the validity of their knowledge and abilities (DeBondt & Thaler, 1995; Hvide, 2002). Excessive trading is one effect of investors' overconfidence, according to numerous studies. Financial analysts are known to make slow revisions to their assessments of companies, even when there is clear evidence that the previous assessment was incorrect. Many times, analysts and investors overestimate their knowledge in certain fields (Evans, 2006). Overconfidence is thought to increase risk tolerance, mental agility, and persistence and determination; in other words, having too much confidence can help improve work performance. Additionally, it has been observed that exaggerating one's abilities can help others see one's abilities more favorably, which could lead to quicker promotions and longer investment periods (Oberlechner & Osler, 2004).

According to behavioral finance studies, people typically overestimate their odds of success and underestimate their risks (Hirshleifer et al., 2012). Additionally, overconfidence causes an overestimation of a person's abilities or future possibilities. Hirshleifer et al. (2012) examined investor overconfidence in an experimental setting and comes to the conclusion that it is positively correlated with judging difficult and less-than-ideal choices, and negatively correlated with making uncertain decisions and getting older.

According to Barber and Odean's (2001) analysis of the trading behaviors of different genders, male investors usually trade more than female investors, which leads to a dramatically reduced investment return as a result of excessive trading. Male and female investors who are single can more clearly see this variation in behavior. According to Gilles & Lior (2006), when analysts are successful in accurately forecasting, they often become overconfident and fail when making future predictions. They found evidence that some asset managers view REITs as an asset class, and that the amount of irrational trading can vary depending on the size of the REIT. In a newer experimental research, Pikulina et al. (2017) contend that excessive investment is induced by investors' significant overconfidence in their own investing expertise, whereas underinvestment is induced by lack of confidence, and accurate investment is induced by moderate confidence.

A theoretical framework for analyzing the financial market with overconfident investors is provided by Odean (1998). For overconfident traders, he forecasts higher than expected trading, and lower than expected utility. He demonstrates in his multi-period market model how traders tend to exaggerate their own performance at the beginning of their careers. Such overestimation results in trading overconfidence, which subsides as the trader gains expertise. Based on an analysis of investor returns on the Taiwan Exchange over the period of time from January 1996 through April 2000, Lin & Shiu (2003) found that frequent bidders anticipate lower returns and overestimate the quality of new offerings.

Overreaction and underreaction

One of the most hotly contested topics in the trading literature for decades has been investors' overreactions and underreactions. Investors routinely overreact to unexpected news, as shown in De Bondt and Thaler's landmark study from 1985, which then violates market efficiency. They come to the conclusion that investors give little consideration to the tendency of prior performance to mean-revert. According to Josef et al. (1994), companies with high E/P ratio (earnings to price), cash flow to price ratios, and BM ratio (book to market equity) typically have slow prior profits growth. These results imply that the market overreacts to previous growth, and the ensuing mean reversion demonstrates that stocks with negative past performance have high future returns, and vice versa.

According to DeBondt and Thaler (1995), investors' behavioral finance inspired actions can have an impact on financial markets. Behavioral finance theories show that investors may overreact or underreact to price movements or news, extrapolate previous trends into the future, pay little attention to a stock's underlying fundamentals, and concentrate on popular stocks and seasonal price cycles. These market variables then affect stock market investors' choices. Recent studies also show overreaction in developing markets. For instance, Lin & Swanson (2003) find the evidence of short-term

overreaction in the Vietnamese Stock Exchange. Meanwhile, Boubaker et al. (2015) investigate the short-term overreaction to specific events such as terrorist attacks; tensions in the Middle East region; privatization of SOEs; and the formation of a new government. They discovered that "losers" do better over the short term than "winners". Boubaker et al. (2015) also indicate that the price reversed on day four, and there was a negative stock return three days following the terrorist incidents. Similarly, Piccoli et al. (2017) find evidence of short-term overreaction in the Brazilian market index. In particular, the stocks tend to overreact to both good and bad information, and when volatility is low, the evidence of such overreaction is stronger.

Herd behavior

The term "herding effect" refers to the tendency of investor behavior to mimic that of other investors in the financial market. Practitioners typically give herding serious thought since it can cause the prices of stocks to deviate from their intrinsic value when investors depend more heavily on collective knowledge than on private information. As a result, there may be fewer current opportunities for profitable investments. Academic scholars also focus on herding because it affects stock price movements, which affect the characteristics of risk and return models, which in turn affect the perspectives of asset pricing theories (Tan et al., 2008).

A theoretical framework put out by Boubaker (2015) contends that investment managers replicate other people's strategies despite having access to proprietary information. To reduce the danger of damaging their reputation, many managers choose to accept the advice of the organization with which they are connected. Additionally, investors frequently engage in significant herding in their trading behavior, as shown by Bikhchandani & Sharma's (2000) model of information cascade. This is primarily due to the uncertainty around the caliber of the public and private information that investors have access to. As a result of people feeling more at ease following those around them, Bikhchandani & Sharma (2000) ascribed herding behavior to the conformity bias. Additionally, he presented actual data demonstrating that managers of mutual funds typically purchase equities based upon historical performance, but will simultaneously sell those same stocks in a consistent practice that suggests herd mentality.

A considerable positive link between yearly institutional ownership changes and herding behavior as seen in interval returns was discovered by Nofsinger & Sias (1999) in their analysis of monthly returns for the years 1977 to 1996. This implies that institutional investors are more likely than individual investors to participate in positive feedback trading, and that institutional investors' herd behavior affects returns more so than individual investors' does. This concept of institutional investors' herd behavior is expanded upon in Sias (2004), who demonstrates how lag quarter demand is closely associated with institutional investors' stock demand. The author comes to the additional conclusion that some of their herding behavior is a result of trading on momentum.

Education level, gender, age, and investing experience are key individual demographic traits that have an influence on investment decisions. Behavioral aspects operate as a mediating component in this relationship. Based on the literature review presented above, this paper introduces the following hypotheses:

Hypothesis 1. Using investor sentiment as a mediating factor, there is a strong positive influence of individual demographic traits (investing experience, gender age, and education level) on investment choice.

Hypothesis 2: Overconfidence acts as a mediating factor, and have the considerable influence on the individual demographic variables (investing experience, gender age, and education level) on investment choice.

Hypothesis 3: Individual demographic traits, such as age, gender, education level, and investing experience, have a considerable positive influence on investment decisions. Overreaction and underreaction operate as mediating factors.

Hypothesis 4. Herd behavior acts as a mediating factor and significantly enhances the favorable influence on individual demographic factors (investing experience, gender age, and education level) on investment choice.

DATA AND METHODOLOGY

Research objectives

The research focuses on achieving the following goals, which are stated more succinctly

as:

- Applying behavioral finance to discover potential behavioral factors impacting individual investors' investing decisions at the Ho Chi Minh City Stock Exchange (HOSE).
- Determining the extent to which behavioral factors influence individual investors' performance and investing choices at the HOSE.
- Making suggestions for how individual investors can modify their actions to get better investment results.
- Laying the foundation for future behavioral finance research in Vietnam.

Data and variable measurement

A systematic questionnaire was given to a group of Vietnamese institutional and individual investors in order to gather the data for this article. From January 2021 through December 2021, the authors collected data using a questionnaire survey. The 25 items in the questionnaire gauged respondents' perceptions of behavioral aspects (over/underreaction, overconfidence, investor sentiment, and herd behavior). A Likert type five point scale was applied, where "1" denotes strongly disagree and "5" denotes strongly agree. The respondents chose the response that best conveys their degree of agreement with each statement. There were 450 questionnaires distributed to different Vietnamese Stock Exchange investors, and 400 of them answered, representing a 89 percent response rate. According to Bell (2014), a well-conducted questionnaire survey may be a great way to quickly gather quantitative information on people's views, beliefs, experiences, and behaviors. The 89% response rate in this article was made feasible by the authors' persistent persuasion. Additionally, it ensured the reliability of the information acquired through the questionnaires. Metawa (2019) employed a similar strategy when looking at the behavioral aspects impacting investor choice in the Egyptian stock market.

Based on their demographic profile, the sample for this research consists of a variety of individual and institutional investors (both local and international). Fund managers from Vietnamese and international banks that do business in Vietnam are considered institutional investors. The Ho Chi Minh Stock Exchange and securities firms that have registered in the Vietnamese stock exchange provide listings of international investors. Investors are split 78.65% male to 21.35% female. A total of 32.03% of investors are between the ages of 45 and 55, and 31.77% are between the ages of 35 and 45. Only 9.38% of investors are younger than 35. The majority of investors (205, 51.2%) have a graduate degree, followed by 115 investors (28.7%) with a bachelor's degree, and the remainder investors with a high school diploma. A little more than 125 investors (31.25%) have between five and ten years of investing experience, 135 investors (33.7%) have between five and ten years' experience, 98 investors (24.5%) have between one and five years, and only 42 investors (10.5%) have less than a year of experience.

This article examines four distinct demographic factors of investors in order to investigate their impact on investment decisions: age, level of education, investing experience, and gender . This article contains all types of investors – institutional, individual, domestic, and international – in order to ensure analysis is diverse. The dependent variable is investment decision. Purchase and sell decisions made by investors serve as a representation of this investment decision. The reaction of investors to purchase or sell shares based on fundamental research, technical analysis, and other information sources (such as newspaper articles, specialist publications, the internet, and rumors) is used to quantify the success of this investment choice. The mediator variables examined in this study are the behavioral characteristics. This study examines four behavioral aspects based on earlier literature: investor sentiment, overconfidence, overreaction and underreaction, and herd behavior. All these variables are collected from the distributed questionnaire (Appendix).

Econometric model

The Baron & Kenny (1986) method is an analysis strategy for testing mediation hypotheses. In this method for mediation, there are two paths to the dependent variable. The independent variable (grades) must predict the dependent variable (happiness), and the independent variable must predict the mediator (self-esteem). Mediation is tested through three

regressions:

- Independent variable predicting the dependent variable
- Independent variable predicting the mediator
- Independent variable and mediator predicting the dependent variable

Based on the mediation model of Baron and Kenny (1986), the following equation is formed:

$$Y = \beta_0 + \beta_1 X + \alpha_1 \quad (1)$$

The following stage is to ascertain the impact of X on M if M is a mediator variable that mediates the link between X and Y, meaning that the impact of X on Y also originates from another component M.

$$M = \beta_2 + \beta_3 X + \alpha_2 \quad (2)$$

Likewise, how both X and M have some influence on Y must also be investigated:

$$Y = \beta_4 + \beta_5 X + \beta_6 M + \alpha_3 \quad (3)$$

When equation (2) is plugged into equation (3):

$$Y = (\beta_4 + \beta_2\beta_6) + (\beta_5 + \beta_3\beta_6)X + (\beta\alpha_2 + \alpha_3) \quad (4)$$

The following is discovered by comparing the coefficients of X in equations (1) and (4):

$$\beta_1 = \beta_5 + \beta_3\beta_6, \text{ or} \quad (5)$$
$$\beta_1 - \beta_5 = \beta_3\beta_6$$

In this study, Y stands for the investment decisions implemented by the investors, X for their demographics (age, education, experience, and gender), and M for their behavioral aspects (overconfidence, investor sentiment, over/underreaction, and herd behavior).

Factor Analysis and Cronbach's Alpha are used to assess the 5-point Likert measurements' consistency and reliability, demonstrating that behavioral finance can be applied to the Vietnam stock market. This measurement method has also been approached by earlier researchers, such as Lin & Swanson (2003), Kim & Nofsinger (2003), and others, who reliably demonstrated that behavior finance applications at the Stock Exchange can be evaluated using 5-point Likert scales.

RESULTS AND DISCUSSION

The inclinations of the basic analysis can be seen in Table 1. Around 84% of those surveyed cited basic analysis as their main information source for making investment decisions. Given that 77.5% of respondents indicated that technical analysis was their primary source of information, it is no surprise that technical analysis is the investors' second choice for making investment choices. The findings unmistakably show that the vast majority of investors (78.2%) are motivated by overconfidence when making investing decisions. Similarly, the majority of investors (73.6%) exhibit signs of either overreaction or underreaction to fresh market information.

Table 1. Descriptive statistics.

Variable	Fundamental analysis	Technical analysis	Investor sentiment	Over confidence	Over/ underreaction	Herd behavior
Average	4.13	3.64	3.77	3.53	3.90	3.45
Standard deviation	1.250*	0.989**	0.876**	0.769**	0.791**	0.591***
Percentage	84	77.5	65.6	78.2	73.6	64.2

Source: calculated and investigated by the author

The influence of demographic factors on investment decisions is examined using partial multiple regression with four distinct behavioral elements as mediator variables. Table 2 indicates the findings of the first hypothesis test, which used investor sentiment as a mediator variable.

According to these findings, investor mood, educational attainment, and gender are the three key factors that have a substantial impact on

investors' decision-making about their investments. The findings show that gender and educational attainment have a favorable impact on investing choices. The standard regression coefficients show the corresponding variables' coefficients if they were used in the study as independent variables. The investors' experience and age do not appear to have a substantial impact on their decisions.

Table 2. The effect of demographic factors on investment choices. Using the behavioral component (investor sentiment) of the investors as a mediator variable on the Vietnamese market, this table illustrates the impact of investors' characteristic traits (investment experience, gender, age, and education level) on their investment decisions. 400 representative Vietnamese stock market participants participated in a structured questionnaire survey that was used to collect the data; R^2 = 0.833.

Variable	Age	Edu Level	Gender	Experience	Investor sentiment
Partial regression coefficient	0.085	0.334	0.312	0.043	0.912
Standard error	0.045	0.054	0.091	0.078	0.052
T ratio	1.712	4.412	3.632	0.517	15.332
Standard regression coefficient	0.069	0.162	0.087	0.044	0.666
Significance	N	Y	Y	N	Y
Rank order	-	2	3	-	1

Source: calculated and investigated by the author

Using a behavioral element (investor sentiment) as a mediator variable, Table 3 illustrates the direct and indirect impacts of investors' demographic factors (investment experience, gender, age, and education level) on their investment decisions in the Vietnamese stock market. The route coefficients, which are shown in Table 3, are analyzed in this study to identify the indirect and direct effects of characteristic factors on investment decisions when investor sentiment is a mediator variable. According to the results, the analysis's inclusion of investor sentiment as a mediator boosts the indirect effects of age and education level from 0.075 to 0.312 and 0.082 to 0.381, respectively. When investor emotion serves as a mediator, it increases the indirect effect of age from 0.031 to 0.162, while lowering the indirect effect of experience from 0.023 to 0.027. Age and experience are therefore unimportant factors.

Table 3. Influences of investor sentiment and demographic factors directly and indirectly on investment decision

Dependent variables	Demographic characteristics	Direct_ impact	Direct impact Through intermediate variable	Indirect_ impact	Total_ impact
Investor sentiment	Age	0.182	-	0.024	0.213
	Education level	0.474	-	0.089	0.546
	Gender	0.345	-	0.143	0.477
	Experience	-0.004	-	0.013	-0.011
Investment decision	Age	0.031	0.162	0.046	0.047
	Education level	0.082	0.381	0.088	0.176
	Gender	0.075	0.312	0.021	0.089
	Experience	0.023	-0.027	0.011	0.034

Source: calculated and investigated by the author

The findings of the H2 test, which used investor overconfidence as a mediator variable, are shown in Table 4. Overconfidence, gender, and education level are the three factors that substantially influence investing decisions, according to the findings presented in Table 4. These findings show that education level and gender have a favorable influence on investing choices. Age and experience, once more, do not appear to be significant factors in investment decision-making, but experience still has a detrimental impact on the process. According to the path coefficients analysis results shown in Table 5, the indirect impact of education level is increased from 0.075 to 0.432 when overconfidence is included as a mediator. Similarly, the indirect effects of age and gender grow from 0.051 to 0.131 and 0.123 to 0.281, respectively. Experience has a greater indirect impact, increasing it from -0.023 to 0.059.

Table 4. Influence of demographic factors on investment choice (mediator variable: overconfidence). Using the behavioral component (investor overconfidence) of the investors as a mediator variable in the Vietnamese stock market, this table illustrates the impact of investors' demographic factors (investment experience, gender, age, and education level) on their investment decisions. R^2= 0.877

Variable	Age	Edu Level	Gender	Experience	Overconfidence
Partial regression coefficient	0.039	0.131	0.388	-0.029	0.815
Standard error	0.052	0.051	0.083	0.085	0.046
T ratio	1.519	2.217	4.512	-0.313	18.128
Standard regression coefficient	0.079	0.134	0.248	-0.010	0.772
Significance	N	Y	Y	N	Y
Rank order	-	3	2	-	1

Source: calculated and investigated by the author

Table 5. Direct and indirect influences of investor overconfidence and demographic factors on investment decision

Dependent variables	Demographic characteristics	Direct_ impact	Direct impact Through intermediate variable	Indirect_ impact	Total_ impact
Overconfidence	Age	0.175	-	0.015	0.183
	Education level	0.515	-	0.051	0.534
	Gender	0.268	-	0.072	0.409
	Experience	0.052	-	0.045	0.032
Investment decision	Age	0.051	0.131	0.037	0.077
	Education level	0.075	0.432	0.042	0.124
	Gender	0.123	0.281	0.167	0.252
	Experience	-0.023	0.059	-0.011	-0.034

Source: calculated and investigated by the author

The findings of the H3 test employing over/underreaction as the mediator variable are shown in Table 6. The findings in Table 6 show that education level, over/underreaction, gender, and age greatly influence investing decisions. The impact of all four factors on investment choice is favorable. Experience still doesn't seem to be a significant element influencing investors' choices.

Table 6. Influence of demographic factors on investment choice (mediator variable: Over/underreaction)

Variables	Age	Edu Level	Gender	Experience	Over/underreaction
Partial regression coefficient	0.122	0.231	0.581	0.121	0.540
Standard error	0.063	0.072	0.076	0.074	0.041
T ratio	1.789	3.845	6.133	1.326	12.046
Standard regression coefficient	0.112	0.223	0.342	0.056	0.634
Significance	Y	Y	Y	N	Y
Rank order	4	3	2	-	1

Source: calculated and investigated by the author

According to Table 7's path coefficient analysis findings, including over/underreaction as a mediator variable raises the indirect effects of age and education level from 0.065 to 0.122 and 0.186 to 0.321, respectively. The indirect effects of gender and experience, however, are decreased by the same, from 0.193 to 0.144 and from 0.064 to 0.134, respectively.

Table 7. Direct and indirect influences of investor over/underreaction and demographic factors on investment decision.

Dependent variables	Demographic characteristics	Direct_ impact	Direct impact Through intermediate variable	Indirect_ impact	Total_ impact
Over/underreaction	Age	0.214	-	-0.22	0.167
	Education level	0.514	-	-0.131	0.513
	Gender	0.276	-	0.058	0.334
	Experience	-0.106	-	0.054	-0.052
Investment decision	Age	0.065	0.122	0.024	0.128
	Education level	0.186	0.321	0.045	0.254
	Gender	0.193	0.144	0.152	0.341
	Experience	0.064	-0.134	-0.007	0.075

Source: calculated and investigated by the author

The findings of the H4 test, which used herd behavior as a mediator variable, are shown in Table 8. The findings again show that gender, herd behavior, educational attainment, and age all have a major impact on investing decisions. The impact of all four factors on investment choice is favorable. Once again, experience has little impact on investment decision-making.

Table 8. Influence of demographic factors on investment choice (mediator variable: Herd behavior).

Variables	Age	Edu Level	Gender	Experience	Herd behavior
Partial regression coefficient	0.143	0.431	0.715	0.012	0.491
Standard error	0.061	0.061	0.221	0.172	0.047
T ratio	2.733	6.121	6.354	0.075	7.457
Standard regression coefficient	0.167	0.434	0.451	0.011	0.317
Significance	Y	Y	Y	N	Y
Rank order	4	3	2	-	1

Source: calculated and investigated by the author

The findings of the path coefficients study, which are shown in Table 9, indicate that using herd behavior as a mediator reduced the indirect effects of 3 variables: age, education level, and gender (from 0.322 to 0.133 and from 0.135 to -0.006, respectively). Experience is the only factor for which the indirect impact grows (from 0.011 to 0.036).

Table 9. Influences of investor Herd behavior and demographic factors directly and indirectly on investment decision.

Dependent variables	Demographic characteristics	Direct_ impact	Direct impact Through intermediate variable	Indirect_ impact	Total_ impact
Herd behavior	Age	0.164	-	-0.017	0.167
	Education level	0.513	-	-0.061	0.483
	Gender	0.268	-	0.081	0.268
	Experience	0.064	-	-0.024	0.039
Investment decision	Age	0.135	-0.006	0.037	0.119
	Education level	0.322	0.133	0.042	0.374
	Gender	0.227	0.141	0.126	0.351
	Experience	0.011	0.036	0.001	0.011

Source: calculated and investigated by the author

The findings show that all behavioral elements, including herd behavior, investor emotion, overconfidence, overreaction, and underreaction all have a considerable favorable impact on investors' investing decisions. The findings demonstrate that when these behavioral parameters are utilized as mediator variables, 3 demographic factors – gender, education level, and age – have significant beneficial effects on investment decisions, but investors' stock market experience does not significantly affect investors' decision-making processes. Experience has a different role in the behavioral variables, according to evaluations of the indirect and direct effects of various demographic characteristics on investing decisions. Extrapolating from that data, investors learn to disregard emotional considerations while making investing decisions as they acquire expertise in the area. The outcomes of this study

support the results of Gervais & Odean (2001).

CONCLUSION

The study provides a comprehensive picture of the effects of behavioral elements on traders' performance and investment choices at the Ho Chi Minh Stock Exchange. The study's methodology is based on behavioral finance, in contrast to earlier research in Vietnam that was primarily based on traditional finance, such as Canh et al's (2008) investigation of the variables influencing the supply and demand of securities at the Ho Chi Minh Security Market. Analyzing the psychological and emotional elements that influence investing decisions is the goal of behavioral finance. This study looks into how investors' choices in the Vietnamese Stock Market are influenced by behavioral variables. Additionally, by using behavioral variables as mediating variables, this study assesses the direct and indirect links between investors' decisions and demographic features.

According to data gathered from a questionnaire survey from 400 typical investors in the Vietnamese market, age, gender, and level of education all appear to have a major beneficial impact on investors' choices when investing on the Vietnamese stock market. Investment decisions are significantly influenced by behavioral elements such investor emotion, over- and underreaction, overconfidence, and herd behavior. The findings also reveal that investor mood, overreaction and underreaction, and investor overconfidence are highly influenced by age, sex, and education level. The findings show that none of the behavioral characteristics or investing decisions are significantly impacted by prior investment experience. The emotional impacts of herd behavior, overconfidence, and over/underreaction, however, are often overlooked by investors as they gain expertise in the field of investing. The results of this study will be useful in understanding typical investor behavior patterns in the Vietnamese market. The results of this study also indicate a solid route for the development of the Vietnamese stock market.

For policymakers, this research has important ramifications. Herd mentality and overconfidence can tempt investors into unwarranted risks, which might lead to unwarranted market volatility. Investors always make better financial decisions when they have access to higher quality information. Investors should be informed of the market and unique risks associated with their investments. The Ho Chi Minh Securities and Stock Exchange may benefit from the full publication of qualitative and quantitative information on pertinent risks to which companies might be subject in this context. In the US market, Daniel et al. (2002) make a similar recommendation about risk disclosure.

A supportive atmosphere for adequare financial education leads to better utilization of information pertinent to investment decisions. As such, the improvement of the efficacy of financial education is one of the top priorities of policymakers. Enhancing financial education with the inclusion of investor psychology is a successful strategy. One of the main areas of focus for policymakers is the development of materials pertinent to the target investor group that consider different preferences and psychologies. Other areas include the development of analytical tools to identify investor needs and biases and the reinforcement of communication levels to link education methods to practical application. Additionally, authorities that want to stabilize investor sentiment and reduce market volatility should take note of this findings. Additionally, portfolio managers that consider their investors' moods while evaluating equities and hedging risks should be aware of this research.

Appendix

The relationship between behavioral factor and investment decision of investor

Study questionnaire

Part1.

1. **How much do you invest in Vietnam stock market in VND?**

a. Less than 100.000.000 VND
b. 100.000.000 to 500.000.000 VND
c. 500.000.000 to 1.000.000.000 VND
d. Greater than 1.000.000.000 VND

2. **The following are some of investors' goals in the stock market, please specify your degree of importance from your point of view:**
3.

Goal	Very important	Important	Neutral	Less important	Not important at all
High stock return in short run					
Profit maximizing in the long run					
Both high returns and profit maximizing					

Part 2. Investment decision

4. **Please specify the choice of each of the following data sources when making an investment decision (buy/sell) in Vietnamese stock market**

Data source	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
A. Fundamental analysis					
I depend on economic data (GDP, interest rate, inflation, exchange rate) when I make my investment decision					
I depend on industrial data (type of industry, competition level, technology, regulation) when I make my investment decision					
I depend on financial data (income statement, balance sheet, cash flow) when I make my investment decision					
B. Technical Analysis					
I depend on stock exchange index when I make my investment decision					
I depend on industrial indices when I make my investment decision					
Trading volume affect my investment decision					
Trading return affect my investment					

Data source	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
decision					
I tend to sell the stock when its price goes up					
I tend to buy the stock when its price goes down					
I consider expert opinions when making investment decision					
I consider friends opinions when making investment decision					
I consider broker opinions when making investment decision					
I consider big investor opinions when making investment decision					
I consider researcher and mutual fund analysis when making investment decision					
I depend heavily on private information I have when making the investment decision					
I consider random information I have when making the investment decision					
I use internet as a main source of data when making the investment decision					

Part 3. Behavioral factors

5. **The following are some factors that may affect your investment decision, please specify your opinion on each of them:**

Data source	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
A. Investor sentiment					
I avoid investing in stocks that are not familiar to me					
I buy stocks I heard about from a friend					
I buy stocks of the company I am working for					
My current mood affect making my investment decision					
Feeling optimistic affect making my investment decision					
Feeling pessimistic affect making my investment decision					

Data source	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
B. Overconfidence					
I am aware of everything in the stock market					
I have the needed expertise and skills to invest in stock market					
I trust my data sources					
I have the ability to analyze the new information in the market					
I do trade by myself					
I am sufficiently aware of electronic trading					
I keep the best stocks in my portfolio					
My opinion comes first when making the decision					
C. Over/Under reaction					
I do react quickly to new information in the market					
I rethink before making an investment decision when there is random information					
I rethink before making an investment decision when the information source is unreliable					
My reaction depends on availability of many sources for the new data					
My reaction depends on my analysis of the data					
D. Heard behavior					
I make my decision based on the majority of other investors decisions					
I make my decision mainly based on the stock movement					
I confidently take a decision different from majority of investors in the market					
Quick movements in the market does not affect my decision					

Part 4. Demographic characteristics

6. Age:
   a. Less than 25 years
   b. 25 to 40 years
   c. 40 to 55 years
   d. Greater than 55 years
7. Gender
   a. Male
   b. Female
8. Year of experience
   a. Less than 1 year
   b. 1 to 10 years
   c. 10 to 25 years
   d. More than 25 years
9. Investor type
   a. Individual, Vietnamese
   b. Individual, foreigner
   c. Institutional, Vietnamese
   d. Institutional, foreigner

REFERENCES

Abuova, A., & Ra, W. (2018). Factors affecting the choice of equity-based mode by Foreign firms entering Kazakhstan. *Journal of Eastern European and Central Asian Research*, 5(2), 18. https://doi.org/10.15549/jeecar.v5i2.233

Barber, B. M., & Odean, T. (2001). Boys will be boys: gender, overconfidence, and common stock investment. *The Quarterly Journal of Economics*, 116 (1), 261-292.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51 (6), 1173-1182.

Baker, M., & Wurgler, J. (2006). Investor sentiment and the cross-section of stock returns. *The Journal of Finance*, 61 (4), 1645-1680.

Bell, J. (2014). Doing Your Research Project: A Guide for First-Time Researchers. McGraw-Hill Education, New York, NY.

Bikhchandani, S., & Sharma, S. (2000). Herd behavior in financial markets. *IMF Working Papers*, 48, 279-310

Boubaker, S., Farag, H., Nguyen, D. K. (2015). Short-term overreaction to specific events: evidence from an emerging market. *Research in International Business and Finance*, 35, 153-165

Canh, N. T. (2008). The factors impact the supply and demand of securities at the Ho Chi Minh City Security Market (Cac yeu to anh huong den cung-cau chung khoan tai thi truong chung khoan thanh pho Ho Chi Minh). Ho Chi Minh City Department of Stock Exchange

Chandrasekhar, K. (2009). Behavioral finance and investment strategy. in Vishwanath, S.R. and Krishnamurti, C. (Eds), Investment Management: A Modern Guide to Security Analysis and Stock Selection, Springer-Verlag Berlin, Heidelberg, pp. 627-634.

Charles, L., Shleifer, A., Thaler, R. H. (1991). Investor sentiment and the closed-end fund puzzle. *The Journal of Finance*, 46 (1), 75-109.

Daniel, K., Hirshleifer, D., & Teoh, S. H. (2002). Investor psychology in capital markets: Evidence and policy implications. *Journal of monetary economics*, 49(1), 139-209.

David, L. C., & Shull, D. M. (1996). Investor sentiment and the closed-end fund evidence: impact of the January effect. *The Quarterly Review of Economics and Finance*, 36 (1), 117-126.

De Bondt, W. F., & Thaler, R. (1985). Does the stock market overreact?. *The Journal of Finance*, 40 (3), 793-805.

Evans, D. A. (2006). Subject perceptions of confidence and predictive validity in financial Cues. *Journal of behavioral Finance*, 7 (1), 12–28.

Fama, E. F. (1965). The behavior of stock-market prices. *The Journal of Business*, 38 (1), 34-105.

Gervais, S., & Odean, T. (2001). Learning to be overconfident. *The review of financial studies*, 14(1), 1-27.

Gilles, H. & Lior, M. (2006). Does past success lead analysts to become overconfident?. *Management Science*, 52 (4), 489-500.

Hvide, H. K. (2002). Pragmatic beliefs and overconfidence. *Journal of Economic Behavior & Organization*, 48 (1), 15-28.

Hirshleifer, D., Low, A., Teoh, S. H. (2012). Are overconfident CEOs better innovators?. *The Journal of Finance*, 67 (4), 1457-1498.

Kim, K., & Nofsinger, J. (2008). Behavioral finance in Asia. *Pacific-Basin Finance Journal*, 16 (1-2), 1–7.

Lin, C. H. & Shiu, C. Y. (2003). Foreign ownership in the Taiwan stock market – an empirical analysis. *Journal of Multinational Financial Management*, 13 (1), 19-41.

Lin, A., & Swanson, P. (2003). The Behavior and Performance of Foreign Investors in merging Equity Markets: Evidence from Taiwan. *International Review of Finance*, 4 (3–4), 189–210.

Meir, S., Thorley, S., Vorkink, K. (2006), Investor overconfidence and trading volume. *Review of Financial Studies*, 19 (4), 1531-1565.

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

0333

Nofsinger, J. R., & Sias, R. W. (1999). Herding and feedback trading by institutional and individual investors. *The Journal of Finance*, 54 (6), 2263-2295.

Oberlechner, T., & Osler, C. L. (2004). Overconfidence in currency markets. *Available at SSRN 1108787*

Odean, T. (1998). Volume, volatility, price, and profit when all traders are above average. *The Journal of Finance*, 53 (6), 1887-1934.

Piccoli, P., Chaudhury, M., Souza, A. (2017). How do stocks react to extreme market events? Evidence from Brazil. *Research in International Business and Finance*, 42, 275-284

Pikulina, E., Renneboog, L., Tobler, P. N. (2017). Overconfidence and investment: an experimental approach. *Journal of Corporate Finance*, 43, 175-192.

Sias, R. W. (2004). Institutional herding. The Review of Financial Studies, 17(1), 165-206.

Tan, L., Chiang, T. C., Mason, J. R., Nelling, E. (2008). Herding behavior in Chinese stock markets: An examination of A and B shares. *Pacific-Basin Finance Journal*, 16 (1-2), 61–77.

Josef, L., Shleifer, A., Vishny, R. W. (1994). Contrarian investment, extrapolation, and risk. *The Journal of Finance*, 49 (5), 1541-1578.

ABOUT THE AUTHORS

Duong Dang Khoa, email: duongdangkhoa@tdtu.edu.vn

Luu Thu Quang obtained his Ph.D. doctoral degree at Fengchia University, Taiwan. He has researched and published over 20 articles and book chapters on ISI and Scopus list.

Nguyen Duy Linh, Faculty of Finance. Ho Chi Minh University of Banking, Vietnam. He obtained Ph.D. in Finance at RWTH Aachen University (Germany). His favorite research topic are quantitative finance and corporate finance.

Diep Van Nguyen is a lecturer at the Ho Chi Minh City Open University, Vietnam. His research topic is corporate finance and risk management. He is teaching corporate finance and financial investment courses.

Duong Dang Khoa (Corresponding author). Dr. Khoa Dang Duong is a senior lecturer at the Faculty of Finance and Banking at Ton Duc Thang University, Ho Chi Minh City, Vietnam. He obtained a Ph.D. degree in Finance from Fengchia University, Taiwan in 2019. His research topics are corporate governance, asset pricing, and commercial banks. He is teaching corporate finance and international finance courses.