Journal of Economics, Finance and Accounting Studies
ISSN: 2709-0809
DOI: 10.32996/jefas
Journal Homepage: www.al-kindipublisher.com/index.php/jefas

JEFAS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

A Study of Herding Behavior on Vietnam Stock Market

Thi-Thu-Thuy Nguyen
Dong Nai Technology University, Faculty of Accounting – Finance, Bien Hoa City, Vietnam; National Kaoshiung University of Science and Technology, Department of Industrial Engineering and Management, Kaoshiung City, Taiwan
Corresponding Author: Thi-Thu-Thuy Nguyen, **E-mail**: nguyenthithuthuy02@dntu.eu.vn

| ABSTRACT
Herding behavior is a term used to describe how a group of investors will imitate one another in order to make judgments and take action. The CSAD model developed by Chang et al. (2000) is used in this study to investigate herding behavior in the Vietnamese stock market. The empirical findings demonstrate the presence of a herding tendency in this market. The market return is further separated into subgroups to show that herd behavior manifests under various market situations. The findings show that when markets start to fluctuate, investors have a larger tendency to follow the crowd (the market is going up or going down, or the market has an extremely high return or extremely low return). The impact of the Singapore stock market on the Vietnam stock market is then evaluated. This empirical finding may be used by investors to develop investment plans and broaden their prospects for profit.

| KEYWORDS

Vietnam stock market, herding behavior, CSAD model, Cross-sectional standard deviation of return

| ARTICLE INFORMATION

ACCEPTED: 01 November 2022 **PUBLISHED:** 17 November 2022 **DOI:** 10.32996/jefas.2022.4.4.12

1. Introduction

Herd behavior is defined as the impact of collective behavior on an individual's decision. This notion was established from studying how animals behave in colonies; when a herd travels in one way, the other members of the herd will follow. In the stock market, herding behavior is a term used to describe how a group of investors imitates one another and acts and makes choices as a group. Each investor in the crowd is affected and guided by the actions of the other investors. This attitude also shows itself in the decision to follow the crowd despite the knowledge at hand. In recent years, psychological factors have had a very complicated effect on the market, leading to negative outcomes, posing a threat of macroeconomic instability, and making financial security uncertain. Herding, according to Waweru et al. (2008), may increase the momentum of stock trading. Global stock markets are said to have a vulnerability due to herd mentality.

The consequences of herding behavior are frequently bad. Investment choices are skewed and unresponsive to available market knowledge. It causes the market to vary abruptly, occasionally rising up for a brief period before dropping down for an extended period of time for unclear reasons. The financial market always has a very high potential for volatility due to the complex evolution of psychology. Herding conduct is mostly brought on by investors' low resources, lack of expertise, and incomplete market knowledge. Many investors decide to buy stocks based on rumors or recommendations from others rather than by evaluating the company first. The psychology of buying in response to stock news rumors also heavily influences the buying, selling, and trading choices made by individual investors. Manipulation by one or more groups of individuals adds to the general attitude of individual investors who chase unfounded rumors, erroneous information, or securities with almost no purchasing demand. According to Tan et al. (2008), herding behavior is more obvious when the stock market is increasing and extremely volatile.
The Vietnamese economy has expanded quickly. The economy of Vietnam will rank 23 globally in terms of purchasing power parity and 37 globally in terms of nominal gross domestic product (GDP) in 2020. By 2050, Vietnam's economy, which is currently the

tenth largest in the world, may have the fastest growth rate in the entire world, with an estimated annual GDP growth rate of 5.1%. PricewaterhouseCoopers made this forecast in February 2017 (Wikipedia). Vietnam's market capitalization has increased significantly since 2000 when it was only $42.7 billion or 0.28% of GDP. The stock market capitalization as of 2019 is $149.8 trillion, a rise of 3,508 times during the previous 20 years. In 2019, the average daily return was $165 million (SET, 2019).

We outline the three primary reasons why we are motivated to investigate the herding behavior of the Vietnamese market. The psychological traits of stock investors serve as the initial source of incentive. Price fluctuations are significantly influenced by fear, greed, and the trend of investment. The economic boom in this market is the second reason that motivates us. Last but not least, our research will contribute to the latest information and research findings regarding the herd in the Vietnam market.

This study is divided into five sections. The second section discusses past research literature, and the first section makes a few introductions. The methods utilized to determine the goals of the research are described in the third part. The empirical results will then be shown in section 4. Section 5 of the research report contains findings.

2. Literature Review

Herding behavior indicates investor psychology. Numerous research has looked at the elements that affect herding behavior. An extensively used model for studying herding behavior is provided by Chang et al. (2000) (abbreviated as CCH). CCH put out a methodology and examined how investors behaved in global markets to see how effective it was. The US, South Korea, Japan, Hong Kong, and Taiwan were among the nations evaluated. Overall findings indicate that herding behavior is nonexistent in the US and Hong Kong markets, whereas it is considered present in South Korea, Taiwan, and a tiny section of the Japanese market. Christie and Hwang's (1995) (abbreviated to CH) approach served as an inspiration for the CCH model. The cross-sectional standard deviation of returns (CSSD), as defined by CH, is a measure of how closely individual stock returns mirror the performance of the market. According to the CH findings, there is no evidence of herding behavior in the US market. As a result, CCH has adopted and promoted the CH model. CCH suggests using CSAD to evaluate return dispersion. In this case, the link between cross-sectional absolute deviation (CSAD) and the market return is used to estimate the herding behavior.

Vo and Phan (2016) used a sample of listed firms on the Ho Chi Minh City Stock Exchange between 2005 and 2015 to investigate herding behavior in the Vietnamese stock market. The author uses standard least squares estimates to discover evidence of herding in both rising and declining markets. Quantile regression was used in further studies to support the findings of herding during the whole time period. When they divided the data into two sub-periods, the conclusions were robust.

In 2017, Vo and Phan used 299 firms listed on the Ho Chi Minh City Stock Exchange from the years 2005 to 2015 as a sample to explore the occurrence of herd behavior in the Vietnamese stock market. Using daily, weekly, and monthly frequency, they offer a thorough study. The findings show that there was evidence of herding during the whole study period. Furthermore, the findings hold up when the data is divided into three sub-periods: pre-crisis, during the crisis, and post-crisis. Asymmetric effects are also seen across a range of market settings and trade volumes.

Bui et al. (2018) examine how investors behave in the Vietnamese stock market and test the herd mentality across 16 industry sectors and two market portfolios, HOSE and HNX. The concerns with multicollinearity and autocorrelation in estimating regression models were then addressed by using modified models. The study's findings show that herding occurs in every sector of the Vietnamese stock market. The research also indicates that Vietnam investors constantly monitor the market activity in the United States and Hong Kong. However, it is likely that they will base their investment choices on American market activity.

Luu and Luong (2016) calculated CSAD in return dispersion model and State Space Model in order to investigate whether herding behavior exists in the stock markets of Vietnam and Taiwan, especially during the pandemic (H1N1 and COVID-19). They examine the differences in herding behavior between the frontier and developing countries by examining several enterprises in Vietnam and Taiwan stock markets. According to the data, investor herd structures are strongly supported across a variety of Vietnamese and Taiwanese sectors. Herding's effects will be more obvious in the industries than they would be in the whole market. The various businesses react to the influenza pandemic panics in different ways through up-trend and down-turn demonstrations. Only 5 out of 17 sectors in Taiwan were categorized, compared to up to 12 separate industries in Vietnam. From there, we can see that the disease is a factor that causes psychological instability in investors who are making market investments in addition to raising health-related concerns.

3. Methodology

We will discuss the research methods employed in this part. Four models are present in this. In order to explore herding behavior in general markets, we first apply a primary model. The market is then divided into smaller segments to examine any asymmetries. We classify the market into two divisions and five groups based on market return. Finally, using an additional model, we look at how the Singapore market has impacted the Vietnamese market.

3.1 Basis model

Let $R_{i,t}$ and $R_{M,t}$ represent, respectively, the stock return and the market return of firm i at time t. Assume the stock market has N firms listed on it. The formula for CSAD is $CSAD_t = \frac{1}{N}\sum_{i=1}^{N} | R_{i,t} - R_{M,t}|$, where $R_{i,t} = \log P_t - \log P_{t-1}$. The CSAD at time t meets the following criteria, according to Chang et al. (2000):

$$CSAD_t = \alpha + \beta_1|R_{M,t}| + \beta_2 R_{M,t}^2 + \varepsilon_t \qquad (1)$$

As a result, a positive and statistically significant β_1 means that the absolute value of market return has a favorable impact on the CSAD of firms.

Normally, the dispersion in return rises with the absolute value of the market return since each individual investor trades based on his or her knowledge. Herd behavior occurs when the market moves significantly, and investors react in an abnormally large way. With an increasing market return, this behavioral factor will cause the return dispersion to decline. Accordingly, a non-linear curve is produced by the model that incorporates the components $R_{M,t}^2$, and in the experimental investigation, a negative coefficient β_2 denotes the presence of herd behavior on the stock market. Investors in this situation behave consistently with market trends and make poor decisions anytime there is significant market volatility.

3.2 Model for two groups of market return

As previously mentioned, we are interested in finding out if herd behavior occurs and whether it has shown up in various market circumstances in the Vietnamese stock market. We conducted further tests using the Chang et al. (2000) model to determine the answer. Testing on herding behavior in the general market, tests under different market circumstances, and tests on the impact of the Singapore market on the Vietnam market were all part of the experiments. These tests' findings will add to our extensive understanding of herd behavior.

In the first instance, we categorize the market into two categories, which we refer to as an up-trending market and a down-trending market. The median market return is used as the basis for division. Here is the regression equation

$$CSAD = \alpha + \beta_1(1-D)\left|R_{M,t}\right| + \beta_2 D|R_{M,t}| + \beta_3(1-D)R_{M,t}^2 + \beta_4 D R_{M,t}^2 + \varepsilon_t \qquad (2)$$

Where D = 1 if the market return at time t is larger than the medium of market returns in the sample period; D = 0 otherwise.

The coefficients β_3 and β_4 show the CSAD's nonlinear response to market returns. In other words, herding behavior will be manifested by these two factors. If β_4 is bigger than β_3, it means that herding behavior in an up-trending market will be more influential than in a down-trending market.

3.3 Model for five groups market return

As previously mentioned, we are interested in finding out if herd behavior occurs and whether it has shown up in various market circumstances in the Vietnamese stock market. We conducted further tests using the Chang et al. (2000) model to determine the answer. Testing on herding behavior in the general market, tests under different market circumstances, and tests on the impact of the Singapore market on the Vietnam market were all part of the experiments. These tests' findings will add to our extensive understanding of herd behavior.

In the first instance, we categorize the market into two categories, which we refer to as an up-trending market and a down-trending market. The median market return is used as the basis for division. Here is the regression equation

$$CSAD = \alpha + \beta_1(1-D)\left|R_{M,t}\right| + \beta_2 D|R_{M,t}| + \beta_3(1-D)R_{M,t}^2 + \beta_4 D R_{M,t}^2 + \varepsilon_t \qquad (3)$$

Where D = 1 if the market return at time t is larger than the medium of market returns in the sample period ; D = 0 otherwise.

The coefficients β_3 and β_4 show the CSAD's nonlinear response to market returns. In other words, herding behavior will be manifested by these two factors. If β_4 is bigger than β_3, it means that herding behavior in an up-trending market will be more influential than in a down-trending market.

3.4 Added model with developed economy influence

Researchers and international investors are well aware of the significant role and massive effect the US stock market has on the global stock market. Previous research has supported this, as shown by Bui et al. (2018), who showed how the US market influences the Vietnam stock market. It is clear from the findings of earlier research that the US market has a major impact on many other markets. Since then, we have questioned whether Singapore plays such a significant role in Southeast Asian economies because the Singapore market is the region's largest developed market. Singapore is one of the world's main business hubs and has a significant financial investment in Vietnam. Singapore's amazing position because of its quick and steady development as a global power, particularly in the financial and commercial sectors, is really remarkable. These motivations drove us to examine Singapore's impact on Vietnam. To examine the influence of Singapore on the Vietnam market, we added the CSAD of Singapore ($CSAD_{SING,t}$) and the market return squared of Singapore ($R^2_{SING,M,t}$)

$$CSAD_{VIE,t} = \alpha + \beta_1|R_{M,t}| + \beta_2 R^2_{M,t} + \beta_3 CSAD_{SING,t} + \beta_4 R^2_{SING,M,t} + \varepsilon_t \qquad (4)$$

Significant $CSAD_{SING,t}$ Coefficients show that the Vietnam market's return dispersion is influenced by Singapore's return dispersion. $R^2_{SING,M,t}$ values that are negative and significant, indicating that the Singapore stock market has an impact on the Vietnam stock market**.**

4. Results and Discussion

4.1 Data collection

The daily stock price data is used in this study to examine additional herd behavior markers and compute returns from price fluctuations. We have been gathering stock pricing data and stock indexes for the Ho Chi Minh Stock Exchange, which represents the Vietnam Stock Exchange, for 20 years. Vietnam's Ho Chi Minh Stock Exchange was established later in July 2000, and as a result, there are 5,281 observations from 389 listed firms. The database Thomson Reuters DataStream, which provides stock prices and index values, is where this data was obtained.

4.2 Descriptive statistics

Table 1 presents descriptive statistics for Vietnam. It comprises the mean, median, maximum, minimum, and standard deviation indices of the overall market return and CSAD and the daily returns of small market groups.

Table 1: Descriptive statistic for market return and CSAD of Vietnam stock market

	Mean	**Median**	**Max**	**Min**	**Standard deviation**
Panel A: Descriptive statistic for overall market return and CSAD					
Market return	0.04	0	6.7	-7.7	1.4
CSAD	1.8	1.8	5.2	0	0.6
Panel B: Descriptive statistic for two groups' market return					
Up-trending Market	1	0.7	6.7	0.01	1
Down-trending Market	-1	-0.6	-0.002	-7.7	1.1
Panel C: Descriptive statistic for five groups market return					
EH	1.9	1.7	6.7	0.9	1
Hr	0.5	0.5	0.9	0.2	0.2
Me	0.03	0	0.2	-0.1	0.1
Lr	-0.4	-0.3	-0.1	-0.7	0.2
EL	-1.9	-1.5	-0.7	-7.7	1.2

In the overall market, the market return of the Vietnam stock exchange is from -7.7 to 6.7, with a mean of 0.04, a median is 0, and a standard deviation is 1.4. The CSAD runs from 0 to 5.2, with the mean equal to 1.8 and the standard deviation being 0.6. When we divide the market into two subgroups with the median as a center point, the return of the up-trending market is from 0.01 to 6.7. The return of the down-trending market is from -7.7 to -0.002.

4.3. Results of herding behavior

4.3.1 Regression result of basis model

Table 2: The main regression result of the herding behavior of the Vietnam stock market

α	β_1	β_2	Adj. R^2
0.0134***	0.7099***	-13.8983***	0.2215

***p < 0.001; **p < 0.01; *p < 0.05

Note: The estimated equation used in this table is

$$CSAD_t = \alpha + \beta_1|R_{M,t}| + \beta_2 R_{M,t}^2 + \varepsilon_t$$

We received the data presented in Table 2 after doing the regression of equation (1). According to the results, the coefficient β_2 is negative. This suggests that the stock market in Vietnam exhibits herding behavior.

4.3.2 Regression result of two market groups

Table 3: The regression result for herding behavior in two market groups

α	β_1	β_2	β_3	β_4	Adj. R^2
0.0132***	0.6774***	0.8218***	-11.8542***	-18.9359***	0.2346

F-test = 432.258, p-value = 0.000

***p < 0.001; **p < 0.01; *p < 0.05

Note: The estimated equation used in this table is

$$CSAD_t = \alpha + \beta_1(1-D)|R_{M,t}| + \beta_2 D|R_{M,t}| + \beta_3(1-D)R_{M,t}^2 + \beta_4 D R_{M,t}^2 + \varepsilon_t .$$

Table 3 provides an overview of the test's findings for both the up-trending and down-trending markets. Herding behavior is present, as indicated by the positive and statistically significant coefficients $\beta_1$and β_2 and the negative and statistically significant coefficients β_3 and β_4. As a result, there is evidence that herd behavior occurs in the Vietnam stock market, whether prices are rising or falling.

The F-test is designed to determine whether herding behavior has the same impaction level in markets that are going up or down. The findings revealed that all p-values for the F-test were below 0.05. It implies that the effects of moving up and down the market on crowd behavior are different. The fact that β_3 in the Vietnam market was more than β_4, shows that investors are a stronger herd when the market is going down. These results are similar to Vo's (2016)'s finding.

4.3.1 Regression result of five market groups

Table 4 reports the results of the regression for five market groups. The coefficient $\beta_1$to β_5 are all positive and significant. Additionally, the coefficient β_6 to β_{10} are all negative and significant. This is substantial proof that the market herd is present whether returns are high, medium, or low. According to the data, the coefficient of β_8, β_9, β_{10} have extremely small negative values, but the lowest one belongs to the median return market. This is also true because, in certain cases, the volatility is minimal. The herding phenomenon is minimal when there is minimal market fluctuation. The various levels of influence on herding between extremely high and low return markets, high and low return markets, and mean return markets are all implied by the F-test results.

Table 4: The regression result of herding behavior in five market groups

α	β_1	β_2	β_3	β_4	β_5	Adj. R^2
	1.258***	1.079***	4.555***	16.879***	3.501***	
0.008***	β_6	β_7	β_8	β_9	β_{10}	0.3320
	-26.754***	-18.265***	-487.233***	-699.073***	-288.594***	

F-test = 222.97, p-value = 0.000

***p < 0.001; **p < 0.01; *p < 0.05

Note: The estimated equation used in this table is

$$CSAD_t = \alpha + \beta_1(1-D_{EL})(1-D_{Lr})(1-D_{Me})(1-D_{Hr})|R_{M,t}| + \beta_2 D_{EL}|R_{M,t}| + \beta_3 D_{Lr}|R_{M,t}| + \beta_4 D_{Me}|R_{M,t}| + \beta_5 D_{Hr}|R_{M,t}| + \beta_6(1-D_{EL})(1-D_{Lr})(1-D_{Me})(1-D_{Hr})R_{M,t}^2 + \beta_7 D_{EL}R_{M,t}^2 + \beta_8 D_{Lr}R_{M,t}^2 + \beta_9 D_{Me}R_{M,t}^2 + \beta_{10} D_{Hr}R_{M,t}^2 + \varepsilon_t.$$

4.3.1 Regression result of five market groups

Table 5. The regression result of the herding behavior for Singapore's

α	β_1	β_2	β_3	β_4	Adj. R^2
0.0136***	0.7097***	-13.8757***	-0.0147	0.4347	0.2216

***p < 0.001; **p < 0.01; *p < 0.05.

Note: The estimated equation used in this table is

$$CSAD_t = \alpha + \beta_1|R_{M,t}| + \beta_2 R_{M,t}^2 + \beta_3 CSAD_{SING,t} + \beta_4 R_{SING,M,t}^2 + \varepsilon_t.$$

The coefficient β_3 will show that Singapore's return dispersion has an impact on Vietnam markets' return dispersion. Negative and significant β_4 indicate Singapore stock return influence on the Vietnam market. Table 5's results show that Vietnam has β_3 and β_4, which are not statistically significant. Therefore, there is no proof that Singapore herding and dispersion have an impact on this market.

5. Conclusion

The purpose of this study is to determine whether stock markets in Vietnam exhibit herding behavior, whether the degree of herding varies among markets, and whether the Singapore stock market has an impact on the Vietnamese stock market. The formula to use in order to determine the solution is the cross-sectional standard deviation approach proposed by Chang et al. (2000). The Ho Chi Minh Stock Exchange's daily stock return and stock index were included in the data set that was gathered for a period of 20 years. The findings showed that there is herding behavior in the Vietnamese market. One of the reasons for this phenomenon could be a lack of information transparency (Ly 2019). The results indicate that there is a difference in the level of herding between a going up market and a going down market after segmenting the market into many subgroups to evaluate the degree of herding. In particular, when we divide the market into five groups, the result is the same as when it is divided into two groups. No indication of Singapore market influence on the Vietnamese market has been found. These findings will be important contributions to the current literature.

Although herd behavior is a natural part of human psychology, it cannot be entirely eliminated. However, if suitable treatments are found, the unreasonable herd mentality can be restrained. Investors have a keen interest in the subject of herding behavior over time. Our research is limited to the Vietnamese stock market. In the future, the study can expand to neighboring markets such as Thailand, Laos, ... and compare the level of this type of mentality among different types of markets.

Funding: This research received no external funding

Conflicts of Interest: The authors declare no conflict of interest

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations or those of the publisher, the editors, and the reviewers.

References

[1] Bui, N. D., Nguyen, L. T. B., Nguyen, N. T. T., & Titman, G. F. (2018). Herding in frontier stock markets: Evidence from the Vietnamese stock market. *Accounting & Finance, 58*, 59-81.

[2] Chang, E. C., Cheng, J. W., & Khorana, A. (2000). An examination of herd behavior in equity markets: An international perspective. *Journal of Banking and Finance, 24*, 1651-1679.

[3] Christie, W.G., Huang, R.D., (1995). Following the pied piper: do individual returns herd around the market? *Financial Analysts Journal 51*, 31–37.

[4] Economy of Vietnam. In Wikipedia. https://en.wikipedia.org/wiki/Economy_of_Vietnam

[5] LUU, Q. T., & LUONG, H. T. T. (2020). Herding behavior in emerging and frontier stock markets during pandemic influenza panics. *The Journal of Asian Finance, Economics, and Business, 7*(9), 147-158.

[6] Lý, T. T. H. (2019). Herd Behavior in Vietnamese Stock Market: Causes and Some Solutions. *Journal of Economic Development*, 21-26.

[7] 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.

[8] The Stock Exchange of Thailand. (2019, June 10). SET market report for May 2019. https://www.set.or.th/dat/vdoArticle/attachFile/AttachFile_1560310726773.pdf

[9] Vo, X. V., & Phan, D. B. A. (2016). Herd behavior in emerging equity markets: Evidence from Vietnam. *Asian Journal of Law and Economics, 7*(3), 369-383

[10] Vo, X. V., & Phan, D. B. A. (2017). Further evidence of herd behavior in the Vietnam stock market. *Journal of Behavioral and Experimental Finance, 13*, 33-41.

[11] Waweru, N. M., Munyoki, E., & Uliana, E. (2008). The effects of behavioural factors in investment decision-making: a survey of institutional investors operating at the Nairobi Stock Exchange. *International Journal of Business and Emerging Markets, 1*(1), 24-41.