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Herding Behavior: Do Domestic Investors Herd Toward Foreign Investors in Vietnam Stock Market?*

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Abstract

With a view to attracting foreign investment and growing the economy, the Vietnamese government has hastened financial reforms, including the lifting of limitations on foreign investment, which has resulted in rapidly rising foreign ownership in recent years. To study the relationship between transactions of foreign investors and transactions of domestic investors on two stock exchanges in Vietnam Ho Chi Minh City Stock Exchange (HSX) and Hanoi Stock Exchange (HNX). This study applies a secondary dataset comprising daily market trading information of 912 stocks from 18 industries listed on 2 Vietnam stock exchanges, including HSX and HNX, which includes executed price, executed volume, daily Buy Orders, and Sell Orders categorized into domestic investors' orders and foreign investors orders from 01.04.2010 to 10.04.2018. The regression results show a significantly positive relationship between foreign investors' trading and domestic investors' transaction in all trading activities in both up and down markets. Therefore, these results indicate that domestic investors in Vietnam are concerned with foreign investors' trading as an important sign, and domestic investors tend to follow their counterparties without appropriate fundamental information. From there, there are signs of herding behavior of domestic investors following foreign investors in transactions on the stock market in Vietnam.

Keywords: Herding Behavior, Domestic Investors, Foreign Investors, Stock Market

JEL Classification Code: A13, G40, M10

1. Introduction

According to the latest statistics from the Vietnam Foreign Investment Agency (Ministry of Planning and Investment, 2018), most foreign investors in Vietnam's stock market come from more developed markets such as Korea, Hong Kong, Taiwan, Indonesia, China, and Japan (Tuyen, 2018; Rahayu et al., 2021). Therefore, foreign investors in Vietnam have been considered well-capitalized investors with a long experience of successful investment in other stock markets.

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The buying and selling of foreign investors have influenced the psychology of domestic investors, and this trend has been getting stronger in recent years (Tai, 2016; Lam, 2018). Trading data of foreign investors appeared in almost all of the daily trading statistics reports, as well as market analysis reports in Vietnam. Because foreign investors have an influence on share prices, the Ministry of Finance of Vietnam has stipulated in Clause 2.7c Article 32 Circular 52/2012/TT-BTC dated April 5, 2012, that Hanoi and Hochiminh stock exchanges must disclose the real-time transaction data of foreign investors on the electricity board. This continuous updating of foreign investors' transactions directly on the electricity board helps domestic investors observe easily and respond to the trading behavior of foreign investors.

Statistics from the beginning of 2018 on the Ho Chi Minh Stock Exchange, the trading of foreign investors, accounted for 15–21% of the market value (Hochiminh Stock Exchange, 2018a). According to Bloomberg data, within the first half of 2018, more than \$ 19 billion of foreign capital has been siphoned out of six major Asian emerging equity markets, including India, Indonesia, the Philippines, South Korea,

Taiwan, and Thailand (Teso et al., 2018). After the Federal Reserve raised interest rates, Bloomberg said that investment standards of foreign investors in risky markets such as securities will be raised. Furthermore, trade tensions between the US and China are also potential risks for foreign investors. Although the international situation is complicated and the trend of withdrawing capital in emerging markets increases, the Vietnam stock market in 2018 still maintains growth and is still an attractive destination for foreign investment flows. As reported by The National Financial Supervisory Committee of Vietnam (The National Financial Supervisory Commission of Vietnam, 2018), net foreign capital flow into Vietnam's stock market in 2018 was about USD 1.9 billion. The total portfolio value of foreign investors is about USD 35.3 billion, increasing by 8.9% compared to the end of 2017. The Vietnamese market has hardly followed the general trend of other emerging markets around the world, increasing even when trade tension between the US and China takes place, while most other markets decreased. For some international investors, this seems to be out of sync, and they have decided to take profits. The movements of foreign capital flows are a worrying concern for domestic investors in emerging markets such as Vietnam. This is reflected by the gloomy nature of the stock market. In the first five months of 2018, the trading value was down continuously at the averaging rate of 15% per month (excluding February irregularities and Lunar New Year holidays) (Hochiminh Stock Exchange, 2018b). The movement of foreign investors is considered by investors as one of the “guides” to identifying the market. In an interview last May, Nguyen Duy Hung, Chairman of the Board of Directors of Saigon Securities Inc (SSI), said that foreign investors had been the backbone of Vietnam's stock market for many years.

In social and economic life, there are many situations in which human decision-making is influenced by the decisions of others or what others are doing. For example, people often choose clothes, restaurants, and shops based on their popularity. Keynes (1936) (1936) found that this was also the behavior of investors in financial markets. Especially in the frontier and emerging markets, people often prefer to follow a leader. In stock markets, the leader is someone who has a proven transaction history with a mark of success. Kamesaka et al. (2003) figured out investment performance of foreign investors is likely the most effective compared to other investors. From the perspective of investment transactions, especially in emerging markets such as Vietnam, the transactions of foreign investors are always concerned with the market. Besides, most daily market summary reports or investment analysis reports in Vietnam usually update the information on foreign investors' trading. In addition, accounting for 15–20% of the total trading value of the market, the influence of foreign investors is not controversial (Hochiminh Stock Exchange, 2018b). Therefore, foreign

investors play an extremely important role in Vietnam's stock market. At some point, foreign investors buying and selling were considered a “guideline” for market action. The trading movement of foreign investors not only directly affects the movements of Vietnam's stock market but also affects the psychology of domestic investors.

However, until now, there has not been any research study on the impact of foreign investor transactions on transactions of domestic investors in Vietnam. Although, some recent studies have also mentioned the role of foreign investors in the Vietnamese market. The studies of Vo (2015, 2016) and Batten and Vo (2015) investigated the impacts of foreign ownership on stock return volatility, market liquidity, and corporate dividend policies in the Vietnam stock market. There are also a few papers studying the trading impacts of foreign investors on a stock return, such as the study of Vo (2017). For that reason, this paper provides several contributions to the literature. Firstly, this study approaches the direct impact of foreign investors' transactions on the investment decisions of domestic investors. Thereby, the paper provides a new approach to explaining the impact of foreign investors' transactions on securities demand and supply channel of domestic investors in emerging markets. Secondly, for a young stock market like Vietnam, the impact of foreign investor transactions on domestic investors' investment decisions may distort the market, causing market failures and leading to inefficient market operations. According to the statistics of The State Securities Commission of Vietnam (State Audit Office of Vietnam, 2019), in the 2010–2016 period, the Commission sanctioned administrative violations in more than 1000 cases on the stock market. In 2017 and 2018, this number was 214 and 397, respectively. The discovered violations in the Vietnam stock market have partly reflected market inefficiency. Therefore, through their influence on domestic investors' investment decisions, foreign investors' transactions can cause an overreaction to manipulate prices on the stock market. Last but not least, the results of this study will help Vietnamese policymakers to assess and review the roadmap for financial liberalization and policy adjustment to minimize market risks.

The structure of this study consists of 5 parts, part 2 reviews the literature and provides background information on the trading activities of foreign investors and domestic investors in the stock market, part 3 will describe the research data and methodology employed in this study, and part 4 discusses empirical results, and part 5 concludes the study.

2. Literature Review

The Vietnam stock market is considered the market of small investors acting in crowd psychology. According to the State Securities Commission of Vietnam, the total

trading value of domestic individual investors currently accounts for nearly 75% of the total trading value on the Hochiminh Stock Exchange, 2018a, 2018b, 2019; Bao Viet Security Company, 2019). Truong et al. (2007) reported a lack of information transparency about businesses and transactions of major shareholders in the Vietnam stock market, in which many individual investors trade stocks based on rumours and market trends. In contrast, foreign investors come from more developed countries and have both professional and experience in financial investment. Kang et al. (1976) claimed that foreign investors have the advantage of information over domestic investors, especially in emerging markets. Other studies by Brennan and Cao (1997), Brennan et al. (2005), Luu and Luong (2020), and Jalal et al. (2020) showed a positive relationship between foreign investors' flows and stock returns in emerging stock markets. Vo (2017) investigated the relationship between foreign investors' trading activities and stock returns in Vietnam during the period from 01.01.2006 to 31.12.2016. This study points out some interesting results, which are (i) the transaction of foreign investors plays a positive feedback role in the Vietnam stock market, (ii) excellent timing ability of buy and sell activities foreign investors, which is a unique characteristic of foreign investors in Vietnam stock market. In the market slumps as in the period 2009–2010 and almost no signs of reversal, the atmosphere is outmatched by domestic investors; foreign investors still accounted for the volume of transactions at about 20% of the market trading volume (Wall Street Securities Joint Stock Company, 2011).

The buying and selling of foreign investors have influenced the psychology of domestic investors, and this trend is getting stronger in recent years. The reason may be that most of the foreign investors in the Vietnam stock market come from more developed countries with strong investment experience and management skills. Foreign investors in the Vietnam stock market are usually considered institutional investors due to their strong financial capacity, seasoned investment experience, and successful investment history in other stock markets. Therefore, foreign investors have been recognized as momentum investors over all horizons in the Vietnam market. In addition, foreign investors are divided into two groups with different investment horizons. The first group focuses on a clear strategic portfolio based on medium- and long-term investment strategies, and the second one focuses on a short-term investment. The concern is that the current increase in the number of second groups will increase the risk of market instability. Previous studies argue that short-term speculative foreign investors are the primary root of the financial instability and financial crisis in emerging markets.

Vietnam stock market presents an interesting case study given that in recent years, the government has expedited the progress of financial reforms along with loosening foreign

investment restrictions. The unique nature of the Vietnam economy and the distinctive role of foreign investors in this market motivates the research idea for this paper. Academically, several recent studies have also mentioned the role of foreign investors in the Vietnamese market. Batten and Vo (2015) document the impacts of foreign ownership on improving the information transparency of listed companies. The other studies from Vo (2014) and Li et al. (2011), and Cao et al. (2021) confirm the influence of foreign investors on the business performance of listed companies, stock price, and the developments in Vietnam's capital market.

I briefly summarize some regulations for foreign investors in the Vietnam stock market as follows. Before September 1, 2015, foreign investors in Vietnam were subject to a maximum of 49% ownership in Vietnam's listed companies. To restructure the stock market, on June 26, 2015, the Government of Vietnam issued Decree No. 60/2015/ND-CP to raise the level of foreign ownership of public listed companies. Accordingly, Decree 60/2015/ND-CP does not specify the percentage of foreign investors' ownership limit for public companies. However, companies operating in some special sectors are still limited to foreign investors' ownership percentage of 49%. This new decree creates an important turning point in the Vietnamese stock market because foreign investors can own most or fully own public companies. Moreover, this change of law is expected to create a series of new investment opportunities for foreign investors in Vietnam and increase the attractiveness of Vietnam's stock market. However, in fact, as of the beginning of September 2018, out of more than 740 listed companies, only less than 30 businesses completed the procedures to raise the foreign ownership limit (Industry and Trade - The Agent of the Ministry of Industry and Trade of Vietnam, 2018).

In a stock market, where nobody knows perfectly about the fundamental value of a stock, investors' reputation does matter. For example, George Soros has an impressive track record, especially when it comes to macroeconomic considerations. Therefore, when he rang the warning bell, the market would have to pay attention. The warning of the great investor at the end of 2015 was that the current economic context reminded him of the 2008 crisis, one of the darkest periods in the history of the world economy. The stock market immediately responded in the way Soros was right. The sell-offs covered Asia, Europe, and finally, US stocks. The reputation matters more in emerging markets like Vietnam, where local investors are not deemed sufficiently sophisticated, while foreign traders come from developed economies and have gained a good reputation because of their ability to outperform the market. Thousands of news on the amazing profits of foreign investment funds flooded the newspapers, highlighting the successful image

of foreign investors. According to the report of the Ministry of Finance of Vietnam on August 30, 2017 (Electronic portal of the Ministry of Finance of Vietnam, 2017), a series of foreign investment funds have achieved growth rates of 20% or more compared to the beginning of the year. Their investment profits were mostly based on advantages in market experience, expertise in analyzing stocks, an understanding of macro and international economics and exchange rate dynamics, etc. This reputation created further success as local traders adopted their strategies and trading choices, creating a self-fulfilling situation in which stocks bought cheap were traded by local investors and able to be sold at a higher price (Tai, 2016; Nguyen & Nguyen, 2020; Nguyen et al., 2020).

The trend of stock market liberalization in developing economies has attracted much attention from scholars and policymakers worldwide. Foreign ownership in the Vietnam stock market has increased rapidly in recent years. According to a report by the State Security Commission of Vietnam (State Security Commission of Vietnam, 2015), in 2017, the market liquidity increased 66% from over 3,000 billion VND in 2016 to nearly 5,000 billion VND in 2017. The VN Index and HNX-Index increased by 48% and 46%, respectively, reaching the highest level in 10 years. Market capitalization reached VND 3.5 trillion, up 80.5% year over year and 70.2% of GDP in 2017, respectively. However, foreign capital inflows into Vietnam fell sharply in late 2007 and early 2008 due to the global financial crisis. This capital flow grew again in the following years, especially in recent times, when the government of Vietnam decided to loosen room for foreign investors in credit institutions and listed companies. More and more foreign investment institutions are entering the Vietnamese stock market, indirectly managing the enterprises through the ownership of equity. This increase in foreign capital flows is expected not only to bring a large amount of capital at a reduced cost of capital but also to bring technological and human resources, improve management and increase the transparency of information in Vietnam. As the position of foreign investors in Vietnam's stock market increases, it is indispensable that both the characteristics of the investment behavior and the impact of foreign investors on stock prices are subject to care.

The investor awareness hypothesis (IAH) was initiated by Mitton (2006). Investors only invest in stocks that they are aware of. In Vietnam, daily market reports always show the information on trading volume by foreign investors for every listed company during the day. Barber and Odean (2008) argued that investors face thousands of stocks in the market that they can choose to buy. Also supporting this view, Scharfstein and Stein (1990) suggested that in a market without perfect information, managers may follow and imitate each other's actions due to reputation concerns.

Strictly speaking, rational behavior results from concerns about managers' declining reputations (Rajan, 2006). Therefore, when the information about a particular stock is released, it will attract attention and increase investors' awareness of those stock codes. This helps them save time and information to filter and understand target stocks. The free rider effect motivates domestic investors to imitate foreign investors in buying or selling stocks. In economics, the Free rider effect describes a situation in which an individual or organization can benefit from someone else's actions while not being involved in the costs involved.

In financial markets, herding illustrates the phenomenon where market participants simultaneously trade in the same direction and/or their behavior converges to the consensus. There have been many studies on the herd behavior of institutional investors and individual investors for over 20 years. The reasons for herd behavior may be analysts' reputation protection, institutional investors' remuneration protection, and investors' reaction to the arrival of fundamental information. According to the studies of Sharfstein and Stein (1990), the performance of analysts is often evaluated based on the difference between forecast value and real value. Because the qualifications and professional reputation of analysts are heterogeneous, it is not difficult to see that less qualified/reputable managers tend to "mimic" the actions of peers with higher qualifications/prestige. Regarding the cause of asymmetric information, according to Bikhchandani et al. (1992), the uncertainty in market information has made investors evaluate information received by way of observing the actions of other investors.

Herd behavior can also be created from wise, reasonable considerations. Devenow and Welch (1996) showed that herd psychology might be the result of wise considerations based on information about the actions of other individuals. This consideration may occur in 4 cases: (i) the individual does not own any information, (ii) has personal information, but the information is uncertain because the quality of the information is low, and (iii) not confident in their ability to process information, (iv) assume that others own better information. Bikhchandani and Sharma (2000) distinguished between "spurious" herding investors who face a similar set of fundamental information and "intentional" herding investors who intentionally copy the behavior of others.

There have been many studies suggesting models measure and test the level of herd behavior in markets as well as the psychology of particular groups of investors. Kim and Wei (2002) proposed a model to measure the herding behavior of foreign investors in the Korean stock market based on the relationship between the trading behavior of investor groups and the fluctuations in the stock price in the previous month. Chang et al. (2000) approached the herd behavior indirectly through the use of dispersion in the return rate of

each security relative to the market rate of return. Christie and Huang (1995) and Hwang and Salmon (2004) developed a model measuring the level of herd behavior in the market based on the fluctuation of the actual beta index compared to the balanced beta (according to CAPM).

The above literature review in Vietnam shows that most of the previous studies in Vietnam have approached and considered the effects of foreign investors on the operational efficiency of listed companies, as well as on stock price fluctuations in the market. There is also a lack of research on the effects of foreign investors' transactions on domestic investors' transactions. This can be considered an important academic gap that needs to be studied.

3. Data and Research Methodology

3.1. Data

This research applies two secondary datasets collected from Vietstock's website which is a leading online portal for finance and securities in Vietnam. The first dataset comprises daily market trading information of 915 firms from 18 industries listed on the two Vietnam stock exchanges (HSX and HNX), which includes opening price, closing price, highest price, lowest price, average price, total executed volume, total executed value, market capitalization. The second dataset contains the daily order book of each stock, including the number and volume of all Buy Orders, and all Sell Orders which are categorized into domestic investors' orders and foreign investors' orders; price and volume of the best Buy order (the highest price of unexecuted buy orders) and the best Sell order (the lowest price of unexecuted sell orders). The period studied is from 01.04.2010 to 10.04.2018, equivalent to 2060 trading days.

In addition, to ensure that the data is accurate, we remove observations that do not meet some of the conditions specified in the Vietnamese stock market as follows:

- (i) Regulations on daily price fluctuation range of securities: To prevent excessive volatility of market prices and protect investors, the State Securities Commission of Vietnam (SSC) has applied price limits for both HSX and HNX. Price limit is the highest and lowest boundaries of daily price movements of a stock. The price limit is based on a certain percentage of the previous day's closing price. From 2010 to 2018, the price limits implemented in HSX and HNX, respectively, were ±5% and ±7% before 15.01.2013, ±7% and ±10% after that day.
- (ii) Regulations on foreign investors' ownership ratios: Before September 1, 2015, the maximum foreign

ownership in Vietnam's listed companies was 49%. After that day, there is no limit on the percentage of foreign investors' ownership, except for some special businesses.

3.2. Research Methodology

To examine the causal relationship between the trading behavior of foreign investors and domestic investors, this paper adopts the similar vector autoregressive (VAR) methods from Yang (2001) points out a significant herding behavior between institutional investors categorized into foreign institutional investors and domestic institutional investors in Taiwan stock market. Specifically, the net sale/purchase volume of domestic mutual funds would increase 3 days after an increase in the net sale/purchase volume of foreign institutional investors. This study examines the impact of foreign investors' transactions on domestic investors through three regression equations for the whole transaction (including buying and selling), for only selling and for only buying in terms of volume and value, which are as follows:

$$\begin{aligned}
 D_Vol_{i,t} = & \beta_{01} + \beta_{02} * F_Vol_{i,t} + \beta_{03} * F_Vol_{i,t-1} \\
 & + \beta_{04} * Price_change_percent_{i,t} \\
 & + \beta_{05} * Price_change_percent_{i,t-1} \\
 & + \beta_{06} * Market_Index_PerChange_{i,t} \\
 & + \beta_{07} * Market_Index_PerChange_{i,t-1} \\
 & + \beta_{08} * DailyVola_{i,t} + \beta_{09} * \\
 & OwnedRatio_{i,t} + \beta_{010} * Market_Cap_{i,t} \\
 & + \beta_{011} * RemainRoom_Ratio_{i,t} + \beta_{012} * \\
 & Correlation_change_{i,t} + \epsilon_{0i,t} \tag{1}
 \end{aligned}$$

$$\begin{aligned}
 D_Val_{i,t} = & \beta_{11} + \beta_{12} * F_Val_{i,t} + \beta_{13} * F_Val_{i,t-1} + \\
 & \beta_{14} * Price_change_percent_{i,t} + \beta_{15} * \\
 & Price_change_percent_{i,t-1} + \beta_{16} * Market_ \\
 & Index_PerChange_{i,t} + \beta_{17} * Market_ \\
 & Index_PerChange_{i,t-1} + \beta_{18} * DailyVola_{i,t} + \\
 & \beta_{19} * OwnedRatio_{i,t} + \beta_{110} * Market_Cap_{i,t} \\
 & + \beta_{111} * RemainRoom_Ratio_{i,t} + \beta_{112} * \\
 & Correlation_change_{i,t} + \epsilon_{1i,t} \tag{2}
 \end{aligned}$$

$$\begin{aligned}
 D_BuyVol_{i,t} = & \beta_{21} + \beta_{22} * F_BuyVol_{i,t} + \beta_{23} * \\
 & F_BuyVol_{i,t-1} + \beta_{24} * Price_change_ \\
 & percent_{i,t} + \beta_{25} * Price_change_ \\
 & percent_{i,t-1} + \beta_{26} * Market_Index_ \\
 & PerChange_{i,t} + \beta_{27} * Market_Index_ \\
 & PerChange_{i,t-1} + \beta_{28} * DailyVola_{i,t} + \beta_{29} \\
 & * OwnedRatio_{i,t} + \beta_{210} * Market_Cap_{i,t} \\
 & + \beta_{211} * RemainRoom_Ratio_{i,t} + \beta_{212} * \\
 & Correlation_change_{i,t} + \epsilon_{2i,t} \tag{3}
 \end{aligned}$$

$$\begin{aligned} D_BuyVal_{i,t} = & \beta_{31} + \beta_{32} * F_BuyVal_{i,t} + \beta_{33} * \\ & F_BuyVal_{i,t-1} + \beta_{34} * Price_change_ \\ & percent_{i,t} + \beta_{35} * Price_change_ \\ & percent_{i,t-1} + \beta_{36} * Market_Index_ \\ & PerChange_{i,t} + \beta_{37} * Market_Index_ \\ & PerChange_{i,t-1} + \beta_{38} * DailyVola_{i,t} + \beta_{39} \\ & * OwnedRatio_{i,t} + \beta_{310} * Market_Cap_{i,t} \\ & + \beta_{311} * RemainRoom_Ratio_{i,t} + \\ & \beta_{312} * Correlation_change_{i,t} + \varepsilon_{3i,t} \end{aligned} \quad (4)$$

$$\begin{aligned} D_SellVol_{i,t} = & \beta_{41} + \beta_{42} * F_SellVol_{i,t} + \beta_{43} * F_Sell \\ & Vol_{i,t-1} + \beta_{44} * Price_change_percent_{i,t} \\ & + \beta_{45} * Price_change_percent_{i,t-1} + \beta_{46} \\ & * Market_Index_PerChange_{i,t} + \beta_{47} * \\ & Market_Index_PerChange_{i,t-1} + \\ & \beta_{48} * DailyVola_{i,t} + \beta_{49} * OwnedRatio_{i,t} + \\ & \beta_{410} * Market_Cap_{i,t} + \beta_{411} * Remain \\ & Room_Ratio_{i,t} + \beta_{412} * Correlation_ \\ & change_{i,t} + \varepsilon_{4i,t} \end{aligned} \quad (5)$$

$$\begin{aligned} D_SellVal_{i,t} = & \beta_{51} + \beta_{52} * F_SellVal_{i,t} + \beta_{53} * F_Sell \\ & Val_{i,t-1} + \beta_{54} * F_SellVal_{i,t-2} + \beta_{55} * \\ & Price_change_percent_{i,t} + \beta_{56} * Price_ \\ & change_percent_{i,t-1} + \beta_{57} * Market_Index_ \\ & PerChange_{i,t} + \beta_{58} * Market_Index_ \\ & PerChange_{i,t-1} + \beta_{59} * DailyVola_{i,t} + \beta_{510} \\ & * OwnedRatio_{i,t} + \beta_{511} * Market_Cap_{i,t} \\ & + \beta_{512} * RemainRoom_Ratio_{i,t} + \\ & \beta_{513} * Correlation_change_{i,t} + \varepsilon_{5i,t} \end{aligned} \quad (6)$$

Where:

D_Vol_{i,t} is the total trading/sale/buy volume of stock *i* on day *t* by **Domestic** investors

F_Vol_{i,t} is the total trading/sale/buy volume of stock *i* on day *t* by **Foreign** Investors

F_Vol_{i,t-1} is the total trading/sale/buy volume of stock *i* on the day (*t*-1) by **Foreign** Investors

D_Val_{i,t} is the total trading/sale/buy value of stock *i* on day *t* by **Domestic** investors

F_Val_{i,t} is the total trading/sale/buy value of stock *i* on day *t* by **Foreign** Investors

F_Val_{i,t-1} is total trading/sale/buy value of stock *i* on day (*t*-1) by **Foreign** investors

Price_change_percent_{i,t} is the percentage change in the price of stock *i* at time *t* = 100% * (Price of stock *i* on the day(*t*-1) – Price of stock *i* on the day (*t*-2))/Price of stock *i* on the day (*t*-2), used as the proxy for stock *i*'s return.

In an attempt to better explain investors' decisions, empirical research has analyzed investor behavior on mutual funds (Ippolito, 1992; Patel et al., 1994). These papers demonstrate that investors make investment decisions based on past performance. These days equity traders can know immediately what others have traded just by watching their online trading systems. Therefore, in this research, both **Price_change_{i,t}** variable and **L1.Price_change_{i,t}** is expected to have a significant impact on domestic investors' trading activities.

Price_change_{i,t-1} is the percentage change in the price of stock *i* at time *t* - 1

Market_Index_PerChange_{i,t} is the percentage change of index of the stock exchange HSX/HNX where the stock *i* is listed at time *t*, a proxy for the direction (up or down) of the market = 100% * (Market index on day *t* – Market index on the day (*t*-1))/Market index on the day (*t*-1).

Phan and Zhou (2014) claimed that during the operation of the Vietnam stock market from July 28, 2000, to July 28, 2013, stock transaction prices and market index usually fluctuated at the same rhythm, and there were rarely separate movements. The other academic studies conducted by Christie and Huang (1995) and Chang et al. (2000) suggested that herding would be tightly linked to market strain. To distinguish the impact of foreign investors' transactions from that of the market trend on domestic investors' trading behavior, we employ this variable in our research model.

Market_Index_PerChange_{i,t-1} is the percentage change of index of the stock exchange HSX/HNX where the stock *i* is listed at time *t* lag 1 period.

DailyVola_{i,t} is the daily volatility of stock *i*'s price on day *t* = (the highest price of stock *i* on day *t* – lowest price of stock *i* on day *t*)/((the highest price of stock *i* on day *t* + lowest price of stock *i* on day *t*)/2), as the proxy for stock *i*'s risk.

Tan et al. (2008) examined the asymmetries in herd behavior related to market returns, trading volume, and volatility on Chinese stock markets and found evidence of herding on daily data, while over weekly and monthly time intervals, the evidence is much feeble. Their results show that herding is present under bull market conditions, high trading volume, and volatility.

OwnedRatio_{i,t} is the percentage of shares owned by foreign investors of stock *i* on day *t*, as the proxy for foreign investors' preference for stock *i*.

On the one hand, foreign ownership may benefit companies. Sagi and Seasholes (2007) confirm a strong relationship between changes in foreign ownership and stock returns. For developing markets, Lim et al. (2016)

examined the relationship between foreign ownership and stock price efficiency for the Malaysian stock market over the 2002–2009 period. Using lagged stock price as an inverse measure of price efficiency, the authors consider the speed of adjustment to local and global common factor information. They conclude that foreign investors accelerate the incorporation of both types of common information into the prices because of their superior skills in processing systematic market-wide factors. On the other hand, if foreign ownership of a company is high, it signals that foreign investors who are investment experts are interested in this company.

RemainRoom_Ratio_{it} is the ratio of remain number of shares of stock *i* which foreign investors can buy on day *t* divided by the number of shares outstanding.

To limit the risk of Vietnamese enterprises being acquired by foreign investors, the State Securities Commission of Vietnam has stipulated the maximum ownership rate of foreign investors for listed stocks. When the foreign ownership limit was terminated in the Korean market in 1998, the relationship became even stronger. Limitation of foreign ownership has more or less reduced the attractiveness for foreign investors because many strategic partners not only want to stop owning but also want to be directly involved in business operations. However, Lim et al. (2016) found evidence of optimality in foreign shareholding, suggesting that the efficiency benefit disappears after foreign ownership exceeds a certain threshold level.

Market_Cap_{it} is the market capitalization of stock *i* at time *t*, used as the proxy for company size

Fama and French (1996) and Carhart (1997) argued that size, book-to-market, and momentum reflect changes in common risk factors relevant to stock valuation, thereby to stock price. Firm size is consistent with the notion that larger firms are more visible and, so, more attractive to foreign investors (Kang & Stulz, 1997; Dahlquist & Robertsson, 2001). Lin and Shiu (2003) on foreign investment in emerging markets with evidence in Taiwan also show that from the perspective of information asymmetry, foreign investors will invest in large-scale enterprises and book value ratios on low market values.

$$\text{Correlation_change}_{it} = \frac{\text{Price_change_percent}_{it}}{\text{Market_Index_PerChange}_{it}} *$$

which presents the correlation between the direction of stock *i* and the market.

$\epsilon_{0i,t}, \epsilon_{1i,t}, \epsilon_{2i,t}, \epsilon_{3i,t}, \epsilon_{4i,t}, \epsilon_{5i,t}$ are random error terms

Result of descriptive data statistic of variables used in the research model (Table 1):

3.3. Unit Root Test

To determine the integration order of time series data in this research, a stationarity (unit root) test named Augmented Dickey and Fuller test (ADF) was employed before implementing the Granger Causality test. Because if the variables are not stationary, the standard assumptions for asymptotic analysis in the Granger test will not be valid.

Since the research data is unbalanced panel data, the Fisher-type ADF test was applied to the following model:

$$y_{it} = \theta y_{i,t-1} + z'_{it} \gamma_i + \epsilon_{it} \tag{7}$$

Where:

y_{it} is the variable of observation *i* in time *t* being tested.
 z'_{it} is panel-specific means, panel-specific means, and a time trend, or nothing, depending on the options specified to xtunitroot. By default, $z'_{it} = 1$, hence the term $z'_{it} \gamma_i$ performs panel-specific means (fixed effects). the is specified, $z'_{it} = (1, t)$, thereby $z'_{it} \gamma_i$ expresses panel-specific means and linear time trends.

The null hypothesis is all panels contain a unit root. For a finite number of panels, the alternative is that at least one panel is stationary.

In this study, we test for a unit root in F/D_Vol, F/D_Val, F/D_SellVol, F/D_SellVal, F/D_BuyVol, F/D_BuyVal with two lags in the ADF regressions. The results of these tests are presented the

3.4. Granger Causality Test

The next preliminary step in this study is the Granger causality test. The purpose of this test is to investigate the direction of causality between trading activities of foreign investors and investment decisions of domestic investors by using the Granger Causality Test proposed by Granger (1969), which examines whether past values of a variable help to predict changes in another variable. In this study, we employed Granger causality statistics to examine whether lagged values of foreign investors' trading activities help predict domestic investors' investment decisions in Vietnam. For this case, a bi-variate model is formed by these two equations (1 and 2).

$$D_Vol_{i,t} = a_0 + \sum_1^j a_j D_Vol_{i,t-j} + \sum_1^j b_j F_Vol_{i,t-j} + \mu_t \tag{8}$$

Table 1: Data Descriptive Statistic

Variables	Number of Observation	Mean	Std. Dev.	Min	Max
D_Vol (unit: shares) The trading volume of stock i on day t by domestic investors	1,046,430	209,021	932,921.8	0	75,900,000
D_Val (unit: 1,000,000 VND) The trading value of stock i on day t by domestic investors	1,046,430	3,213.084	16,020.39	0	1,545,525
D_SellVol (unit: shares) Sell volume of stock i on day t by domestic investors	1,046,430	216,185.1	960,077.9	0	128,000,000
D_SellVal (unit: 1,000,000 VND) Sell the value of stock i on day t by domestic investors	1,046,430	3,390.025	16,949.52	0	2,467,975
D_BuyVol (unit: shares) Buy volume of stock i on day t by domestic investors	1,046,430	215,276.2	951,585.9	0	75,900,000
D_BuyVal (unit: 1,000,000 VND) Buy the value of stock i on day t by domestic investors	1,046,430	302.5439	16,612.89	0	1,546,856
F_Vol (unit: shares) The trading volume of stock i on day t by foreign investors	1,046,430	19,904.87	196,903.8	0	56,400,000
F_Val (unit: 1,000,000 VND) The trading value of stock i on day t by foreign investors	1,046,430	577.7712	6,782.939	0	1,834,128
F_BuyVol (unit: shares) Buy volume of stock i on day t by foreign investors	1,046,430	10,409.78	132451.8	0	5.64e+07
F_BuyVal (unit: 1,000,000 VND) Buy the value of stock i on day t by foreign investors	1,046,430	302.6796	4,210.591	0	1,465,853
F_SellVol (unit: shares) Sell volume of stock i on day t by foreign investors	1,046,430	9,497.944	116,766.7	0	28,600,000
F_SellVal (unit: 1,000,000 VND) Sell the value of stock i on day t by foreign investors	1,046,430	275.2273	3,580.972	0	737,052
F_DiffBuyVol (unit: shares) Difference between buying & sell volume of stock i on day t by foreign investors	1,046,430	908.9851	153,518.9	-28,400,000	56,400,000
F_DiffBuyVal (unit: 1,000,000 VND) Difference between buying & sell value of stock i on day t by foreign investors	1,046,430	27.25605	3,882.813	-448,876.9	1,456,749
OwnedRatio (%) The ratio of the current number of shares owned by foreign investors of stock i on day t divided by the number of shares outstanding	1,046,430	10.313	13.658	0	99.75

Variables	Number of Observation	Mean	Std. Dev.	Min	Max
RemainRoom_Ratio The ratio of remain number of shares of stock <i>i</i> which foreign investors can buy on day <i>t</i> divided by the number of shares outstanding	1,007,692	0.361655	0.173514	0	1
Price_change_percent (%) Percentage change in stock <i>i</i> ' price on day <i>t</i>	1,046,430	0.0499	3.148	-10	10
Market_Index_PerChange (%) Percentage change of the stock exchange index where stock <i>i</i> listed, on day <i>t</i>	1,042,806	0.041	1.164	-8.456	8.288
DailyVolat The volatility of stock <i>i</i> 's price on day <i>t</i> = (highest price - lowest price)/((highest price + lowest price)/2)	1,046,430	0.028	0.032	0	1.99
Marketcap The market capitalization of stock <i>i</i> on day <i>t</i>	1,046,430	1,680,472	10,500,000	0	356,000,000
Correlation_change = Market_Index_PerChange * Price_change_percent	1,042,806	0.879	4.447	-59.733	62.745

Note unit: Volume (stock); Value (million VND); Market capitalization (million VND), Price (VND).

$$F_Vol_{i,t} = c_0 + \sum_1^j c_j F_Vol_{i,t-j} + \sum_1^j d_j D_Vol_{i,t-j} + \mu_t \quad (9)$$

Where $D_Vol_{i,t}$ is the stock i 's trading volume of domestic investors on day t , $F_Vol_{i,t}$ is the stock i 's trading volume of foreign investors on day t , and μ_t is the residuals.

The two similar equations were also applied in terms of value as follows:

$$D_Val_{i,t} = a_0 + \sum_1^j a_j D_Val_{i,t-j} + \sum_1^j b_j F_Val_{i,t-j} + \mu_t \quad (10)$$

$$F_Val_{i,t} = c_0 + \sum_1^j c_j F_Val_{i,t-j} + \sum_1^j d_j D_Val_{i,t-j} + \mu_t \quad (11)$$

The results of the Granger causality test are presented in Appendix 2. According to this test, the foreign investors' trading could yield important indications for irrational domestic investors in terms of both volume and value at a 99% significant level. In contrast, there is no impact of domestic investors' trading activities on the investment decision of foreign investors in the Vietnam stock market in terms of volume. Only foreign investors' trading value indicates a significant impact on domestic investors' trading value.

4. Results and Discussion

4.1. Unit Root Test

All twelve Fisher-type ADF tests reject the null hypothesis that all the panels contain unit roots at the 1% level of statistical significance (Table 2).

4.2. Granger Causality

This Granger causality test is also applied for domestic investors' buy/sell and foreign investors' buy/sell in terms of both value and volume. The following table summarizes the result of the Granger causality test (Table 3):

The results show that there is only a one-way effect from foreign investors' trading activities (including both buy and sell) and sell/buy volume to domestic investors' trading activities (including both buy and sell) and sell/purchase volume. However, the two-way interaction is detected for all foreign and domestic investors' trading activities in terms of value. According to the result of the Granger causality test, the significantly positive reverse causality between the dependent variables and the main independent variables in equations (2), (4), and (6) present an endogeneity problem. Therefore, only equations (1), (3), and (5) satisfy the condition. In other words, this paper will investigate the

Table 2: Unit-Root Test Result

Variables	Inverse Chi-Squared (1760) P	Inverse Normal Z	Inverse Logit t (4324) L*	Modified inv. Chi-Squared Pm	Stationary
F_Vol	5.75e+04***	-225.2274***	-539.3201***	939.9903***	Yes
D_Vol	4.98e+04***	-204.5237***	-462.6813***	809.6177***	Yes
F_Val	5.74e+04***	-224.8006***	-538.0543***	937.7731***	Yes
D_Val	4.78e+04***	-198.6089***	-443.9549***	775.8983***	Yes
F_BuyVol	5.76e+04***	-226.8734***	-545.1407***	941.7629***	Yes
D_BuyVol	4.99e+04***	-204.6860***	-463.8157***	811.7275***	Yes
F_SellVol	5.77e+04***	-225.8578***	-542.1998***	943.3428***	Yes
D_SellVol	4.99e+04***	-205.0065***	-463.8712***	811.7499***	Yes
F_BuyVal	5.76e+04***	-226.5121***	-544.4843***	-544.4843***	Yes
D_BuyVal	4.79e+04***	-198.7560***	-444.8115***	776.9637***	Yes
F_SellVal	5.77e+04***	-225.8431***	-542.3266***	942.9723***	Yes
D_SellVal	4.79e+04***	-199.1605***	-445.0470***	777.8106***	Yes

Note: Ho: All panels contain unit roots, Ha: At least one panel is stationary, Based on augmented Dickey-Fuller tests, ADF regressions: 2 lags.

Table 3: Panel VAR-Granger Causality Wald Test

Cause	Effect	chi2 - χ^2	df	Prob > chi2	Conclusion
F_Vol	D_Vol	32.684	2	0.000	Equation (1) satisfies
D_Vol	F_Vol	0.010	2	0.995	
F_Val	D_Val	34.794	2	0.000	Equation (2) does not satisfy
D_Val	F_Val	22.740	2	0.000	
F_BuyVol	D_BuyVol	36.976	2	0.000	Equation (3) satisfies
D_BuyVol	F_BuyVol	1.318	2	0.517	
F_BuyVal	D_BuyVal	36.283	2	0.000	Equation (4) does not satisfy
D_BuyVal	F_BuyVal	25.579	2	0.000	
F_SellVol	D_SellVol	24.340	2	0.000	Equation (5) satisfies
D_SellVol	F_SellVol	2.707	2	0.258	
F_SellVal	D_SellVal	25.312	2	0.000	Equation (6) does not satisfy
D_SellVal	F_SellVal	17.041	2	0.001	

Note: Ho: Excluded variable does not Granger-cause Equation variable, Ha: Excluded variable Granger-causes Equation variable.

Table 4: Hausman Test Results

Equation/ Dependent Var	Prob > chi2	Preferred Model
(1)/D_Vol	0.0000	Fixed effects
(3)/D_BuyVol	0.0000	Fixed effects
(5)/D_SellVol	0.0000	Fixed effects

impact of foreign investors’ transactions on the investment decisions of domestic investors in terms of volume.

4.3. Vector Autoregressive Results

To decide between the fixed or random effects model, we run a Hausman test over the three equations (1), (3), and (5). The null hypothesis of the Hausman test is that the preferred model is random effects vs. the alternative the fixed effects. The following table briefs the Hausman test results from the detailed results (Table 4):

The above Hausman test results conclude that the fixed effect model should be applied for all three models (1), (3), and (5).

Table 5 demonstrates the empirical results regarding 3 cases: overall, upmarket, and down market.

At first glance, it can be seen that the total trading, buy and sell volume of domestic investors are positively influenced by the total trading, buy and sell volume of foreign investors, respectively, in all regressions at a 99% confidence level.

The regression results show a significantly positive relationship between foreign investors’ trading and domestic

investors’ transaction in all trading activities in both up and down markets. In detail, these results indicate that domestic investors in Vietnam are concerned with foreign investors’ trading as an important sign, and domestic investors tend to follow their counterparties. According to Banerjee (1992), following informed others’ decisions is a rational herding behavior because they may have information that we do not. Bannerjee also identifies this behavior as the “head externality” where fewer investors analyze their own information to make investment decisions. Instead, they will observe other investors and act accordingly. And this phenomenon has been confirmed in the Vietnam stock market. Vo (2017) claimed that foreign investors are positive feedback traders in the Vietnam stock market. Moreover, the author also points out the timing ability and sophisticated trading strategy of foreign investors in the Vietnam stock market. On the contrary, Booth et al. (2011) examined the trading behavior of foreign and domestic investors in the Finnish stock market during the earnings post-announcement periods. The authors conclude that Finnish domestic investors trade in the opposite direction from foreign investors. Although foreign investors, who are mainly institutions, process information more efficiently than domestic investors.

Foreign ownership (OwnedRatio) has a significantly negative impact on domestic investors’ buy volume in both up and down markets. There have been several potential explanations for the negative impact of foreign ownership. Many studies, such as Ali et al. (2004), Ke and Petroni (2004), and Bushee and Goodman (2007) argued that institutional trading is more likely information-driven. In the same vein, Rubin (2007) and Brockman and Yan (2009) showed that large

Table 5: Regression result for both up and down market

Equation/DV	Equation (1)/D_Vol	Equation (3)/D_BuyVol	Equation (5)/D_SellVol
Fixed-Effects (within) Regression Results for Both Up and Down Market			
Number of obs	1,001,282	1,001,282	1,001,282
<i>R</i> -sq:			
Within	0.0398	0.0350	0.0268
Between	0.1128	0.0874	0.0747
Overall	0.0713	0.0581	0.0470
<i>F</i>	18.53	20.62	12.47
Prob > <i>F</i>	0.0000	0.0000	0.0000
F_Vol _{<i>i,t</i>}	0.5185*** (0.0959)		
F_Vol _{<i>i,t-1</i>}	0.2395*** (0.0593)		
F_BuyVol _{<i>i,t</i>}		0.7102*** (0.1411)	
F_BuyVol _{<i>i,t-1</i>}		0.2458** (0.0902)	
F_SellVol _{<i>i,t</i>}			04990*** (0.0983)
F_SellVol _{<i>i,t-1</i>}			0.3024*** (0.0722)
Market_Index_PerChange _{<i>i,t</i>}	-4021.239*** (707.0215)	-4011.567*** (805.0248)	-4364.648*** (746.8901)
Market_Index_PerChange _{<i>i,t-1</i>}	5850.701*** (1087.902)	5720.917*** (1139.459)	5999.905*** (1114.483)
OwnedRatio _{<i>i,t</i>}	-784.3845 (1132.956)	-605.309 (1140.456)	-527.0743 (1000.925)
RemainRoom_Ratio _{<i>i,t</i>}	154957.6* (91746.18)	161557.1* (95557.36)	163166.4* (96320.17)
DailyVola _{<i>i,t</i>}	2036624*** (217722.6)	2116002*** (226436.7)	2118348*** (0.0057)
Market_Cap _{<i>i,t</i>}	0.0110** (0056)	0.0127** (0.0057)	0.0140** (0.0057)
Price_change_percent _{<i>i,t</i>}	5941.223*** (708.2868)	5881.373*** (696.9532)	6124.34*** (738.2688)
Price_change_percent _{<i>i,t-1</i>}	7051.425*** (757.9926)	6555.329*** (761.7245)	6742.564*** (789.5524)
Correlation_change _{<i>i,t</i>}	3780.145*** (811.652)	3736.059*** (813.228)	3921.168*** (833.0943)
Fixed-Effects (Within) Regression Results When Marketing Increases (Market Index Increases)			
Number of obs	550,163	550,163	550,163
<i>R</i> -sq:			
Within	0.0475	0.0739	0.1096
Between	0.1398	0.1714	0.1851
Overall	0.0781	0.1052	0.1316
<i>F</i>	16.72	18.83	19.85
Prob > <i>F</i>	0.0000	0.0000	0.0000
F_Vol _{<i>i,t</i>}	0.6349*** (0.1440)		
F_Vol _{<i>i,t-1</i>}	0.1894*** (0.0629)		
F_BuyVol _{<i>i,t</i>}		0.8054*** (0.0076)	
F_BuyVol _{<i>i,t-1</i>}		0.1786*** (0.0073)	
F_SellVol _{<i>i,t</i>}			0.5880*** (0.1387)
F_SellVol _{<i>i,t-1</i>}			0.2602*** (0.0576)
Market_Index_PerChange _{<i>i,t</i>}	-1711.336 (2736.191)	-1486.629 (1443.371)	-1312.697 (2710.5)
Market_Index_PerChange _{<i>i,t-1</i>}	9019.325*** (1373.68)	8807.155*** (890.1303)	9465.147*** (1453.272)

Equation/DV	Equation (1)/D_Vol	Equation (3)/D_BuyVol	Equation (5)/D_SellVol
OwnedRatio _{i,t}	-965.472 (1136.626)	-755.5855*** (194.5598)	-709.4835 (1021.595)
RemainRoom_Ratio _{i,t}	143128.5* (87306.11)	149401.3*** (9038.191)	151929.9* (92118.53)
DailyVola _{i,t}	2029846*** (222407.5)	2106307*** (33989.89)	2131864*** (224070.3)
Market_Cap _{i,t}	0.0105* (0.0054)	0.0123*** (0.0002)	0.0136** (0.0055)
Price_change_percent _{i,t}	12292.47*** (1750.734)	12018.78*** (454.4391)	13952.84*** (1908.839)
Price_change_percent _{i,t-1}	6780.658*** (873.3928)	6459.247*** (318.0095)	7690.491*** (960.9925)
Correlation_change _{i,t}	-1525.081 (1006.3)	-1453.605*** (380.315)	-1795.185* (1042.288)
Regression Results When the Market Decreases (Market Index Decreases)			
Number of obs	451,119	451,119	451,119
R-sq:			
Within	0.0347	0.0745	0.0687
Between	0.1432	0.1757	0.1700
Overall	0.0716	0.1085	0.1012
F	20.20	16.99	32.84
Prob > F	0.0000	0.0000	0.0000
F_Vol	0.3785*** (0.0531)		
L1.F_Vol	0.3183*** (0.0577)		
F_BuyVol		0.5487*** (0.0096)	
L1.F_BuyVol		0.3772*** (0.0104)	
F_SellVol			0.4190*** (0.1230)
L1.F_SellVol			0.3642*** (0.1233)
Market_Index_PerChange	-2276.091 (2683.419)	-2073.991 (1419.53)	-3280.479 (2845.645)
L1. Market_Index_PerChange	3320.292*** (1233.795)	3286.802*** (922.2129)	3315.694*** (1269.352)
OwnedRatio	-602.3963 (1124.008)	-456.2069** (199.2752)	-358.7145 (199.2752)
RemainRoom_Ratio	165878.4* (95739.66)	172775.4*** (10567.77)	173559.5* (100112.3)
DailyVola	2037843 *** (215817.3)	2121474*** (36330.66)	2094188*** (221841.5)
Market_Cap	0.0117** (0.0058)	0.0134*** (0.0003)	0.0143** (0.0061)
Price_change_percent	7901.363*** (984.1482)	7410.83*** (478.1522)	9069.054*** (1061.971)
L1. Price_change_percent	5167.856 *** (640.4816)	4795.222*** (347.491)	5746.315*** (684.5391)
Correlation_change	5950.444*** (1022.105)	5901.791*** (338.8209)	6246.739*** (1076.477)

Note: *, **, *** indicates significance at the 10%, 5% and 1% respectively.

institutional ownership increases the degree of information asymmetry. In an emerging stock market like Vietnam, foreign investors are perceived as professional, experienced, and informed as institutional investors. If foreign ownership is a majority, information asymmetry may be amplified. The company becomes “foreign” to local investors. This result is also consistent with a study in developed markets by Heflin and Shaw (2000), who demonstrate that greater institutional ownership leads to larger spreads of information asymmetry.

Foreign ownership has attracted numerous researchers, especially in developing countries. Among papers investi-

gating foreign ownership in Vietnam, the study by Vo (2014) demonstrated that foreign investors have a preference to invest in firms that have large size, low leverage, and high book-to-market ratio. Foreign investors are also less likely to invest in firms with dominant shareholders. In other words, foreign investors prefer to invest in firms with low asymmetric information risk. Thereby, foreign investors can minimize their local disadvantage compared with domestic investors. Starting with a safe investment strategy to avoid asymmetric information problems, foreign investors in the Vietnam stock market are considered the market leaders

Table 6: Correlation_change

Correlation_Change	Market Increases	Market Decreases
Stock increases	+	-
Stock decreases	-	+
Coefficient of Correlation_change	-	+
Domestic investors' transaction	Stocks that are falling are more traded than stocks that have risen	Falling stocks are also traded more

with information advantages. Even daily trading activities of foreign investors have been reported in most daily investment analyses.

RemainRoom_Ratio, a complemented variable of OwnedRatio, has a significantly positive impact on buy and sell transactions of domestic investors in both up and down markets. RemainRoom_Ratio reflects the possibility of attracting an investment of foreign investors to the stock market is also possible.

The coefficients of Market_Cap are significant and positive. This result can be interpreted as follows: larger firms tend to have more publicly available information so the stock price tends to be less specific firm-specific information (Nguyen & Nguyen, 2020).

Interestingly, the Correlation_change interaction variable presents significantly reverse impacts on domestic investors' trading. This impact is negative when the market is increasing but switches to positive when the market goes down. The negative coefficient of Correlation_change interaction when the market increases indicates that the lower Correlation_change is, the more stocks i are bought and sold by domestic investors. That is to say, domestic investors prefer to buy and sell a stock with a negative Correlation_change over stock with a positive Correlation_change. More specifically, when the market rises, stocks that are falling are more traded by domestic investors than stocks that have risen. Not only that, when the market falls in price, falling stocks in the same direction as the market are also traded more and more by domestic investors. Those implications are summarized in Table 6.

Similar to the study of Hsu (2013) which confirms domestic investors' herding toward foreign investors' trading behavior only in a down market, the results are that falling stocks are falling are more traded by domestic investors.

5. Conclusion

Foreign investment in Vietnam is always an interesting topic. That is because the presence and trading of foreign investors in small emerging markets would reduce the informational asymmetry. On the other hand, foreign investors in the Vietnam stock market are well-capitalized investors with a long experience of successful investment, playing the role of leader in the Vietnam stock market.

At some point, foreign investors buying and selling were considered a “guideline” for domestic investors. By using a panel dataset on daily transactions of all listed stocks on HSX and HNX, the Author finds that there is a strong herding behavior of Vietnamese domestic investors toward foreign investors in both up and down markets.

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