

IMPACT OF FOREIGN INVESTORS ON THE VIETNAMESE STOCK MARKET IN NEW CONTEXT

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Abstract: *The empirical research aims to examine the relationships between the net purchase of foreign investors and the performance of the Vietnamese stock market and the market liquidity. Based on data listed in the Ho Chi Minh Stock Exchange for the period 2020-2022, the main findings of this study are: first, the transaction of foreign investors has a positive impact on the market; second, market liquidity is not affected by the net purchase of foreign investors. Research results are significant for the domestic investors to have more effective trading decisions; for the market management agencies to promulgate regulations to make the stock market more balanced and transparent in a new context, Vietnam is moving towards sustainable economic development.*

• Keywords: foreign investor, market liquidity, vn-index.

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1. Introduction

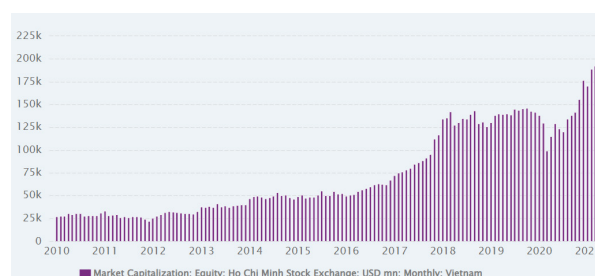
The stock market serves various essential functions for the economy. It allows enterprises to raise capital through various means, such as IPOs, issuing additional shares or bonds. Furthermore, it provides individuals or funds with an attractive investment opportunity beyond traditional options such as saving money in a bank or investing in real estate. In this way, the stock market plays a crucial role in stimulating economic growth and promoting investment diversification. The health and the quality of the economy can be reflected clearly through the stock market if there are any fluctuations in the country or over the world. Moreover, the stock market is a place where the government enacts and applies policies.

Vietnam stock market is 25 years old. On July 11 1998, Vietnam Securities Market was officially born with the establishment of Ho Chi Minh City Securities Trading Center (HOSTC) but two years later, on July 28 2000, the first trading was made with two issued companies. On May 11, 2007, the Prime Minister signed Decision No. 599/QD to transfer HOSTC to the Ho Chi Minh City Stock Exchange (HOSE), operating under the model of one limited member company (100% owned by the Ministry of Finance). The transformation of the model has helped HOSE take a position compatible with other exchanges in the world in terms of relationship and international cooperation, thereby raising the position and influence of the stock market in Vietnam. This study focuses to the VN-index, which presents for all stocks in HOSE.

After the economic crisis in 2010-2011, the market capitalization in Vietnam grew steadily. Especially

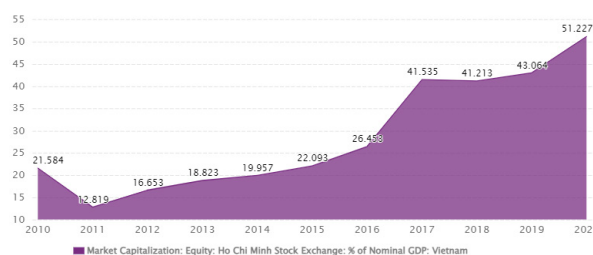
from 2018 to 2021, it increased dramatically and was more than two and a half than before (figure 1).

Figure 1: Market capitalization of Vietnam



Source: <https://www.ceicdata.com>

Figure 2: Stock market capitalization over GDP

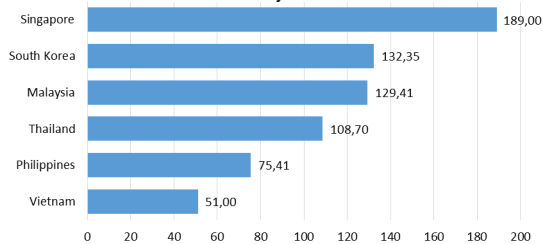


Source: <https://www.ceicdata.com>

In figure 3, the ratio of market capitalization over the GDP of Vietnam was about 12.8% in 2011, but in 2020, it took more than half of the GDP (51.227%). In 2020, this ratio in Thailand was 108.24%; in Philippines was 75.46%; in Singapore is 191.95%. Compared to other countries in Asian, the capitalization of Vietnam's stock market is significantly smaller, but it had steady growth through the years.

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Figure 3: Stock market capitalization as percent of GDP, 2020



Source: <https://www.ceicdata.com>

Financial liberalization is important to economic growth, especially for emerging countries like Vietnam. However, the impact of this phenomenon is significantly different across countries and surveyed periods. Nguyen Minh Tri (2017) gives strong evidence to prove that net purchasing of foreign investors has a positive relationship with market performance but a negative one with liquidity of the Vietnamese stock market in 2011-2015. Le Trang Nhung & Le Hai Dang (2019) chose the next period (2016-2018) - the markup or bull market period to examine the impact of foreign investors' net purchases on the Vietnamese stock market. In this period, the market makers had gathered enough stock, which was the time to push the price and sell their stock. This paper used the similar source of data, a similar model, but the period was chosen from 2020 to 2022 to re-examine the impact of net trading of foreign investors on the stock market. The aims of this scientific study are threefold. Firstly, the study seeks to use the Wyckoff theory to explain the variations in the results across the different study periods. Secondly, the research will evaluate the influence of foreign investors' net trading volume on the Vietnamese stock market's price index (VN-Index) and its liquidity over the 2020-2022 period. Finally, the study aims to offer recommendations that can enable individual investors to make informed trading decisions based on the empirical findings. By accomplishing these objectives, the research aims to contribute to a better understanding of the impact of foreign investors on the Vietnamese stock market and provide useful insights for policymakers and investors.

The structure of this research is as follows. Section 1 is the introduction. Section 2 reviews empirical research related to this study. Section 3 contains the theories related to the idea of this topic. Data, variables and methodology will be presented in section 4, while section 5 shows the results and explanations.

2. Literature review

In recent years, the capital flow has tended to invest in emerging markets or inferior markets with

many potential developments. These countries are in the transformation phase, so foreign investments are very important for their growth, while local capital still doesn't adapt to the development. Much literature research provided evidence for an opening market's benefits and potential risks.

Arcabic et al. (2012) tested the correlation between FDI and the stock market in Croatia in both the short and long term. The FDI in the long run, through the channel of economic growth, can specify the trend of the stock market but in the bull market in short run, the stock market trend can positively impact FDI stocks. On the contrary, NJane (2017) concluded that FDI inflows don't significantly affect the development of Kenya's stock market. FDI flows and other factors like economic growth, inflation rate, interest rates, and exchange rates are required to develop Kenya's stock market. Shahbaz et al. (2013) also supported the role of foreign direct investment to Pakistan stock market besides other macroeconomic factors like income, inflation, and domestic saving.

Wang (2000) proved that foreign transaction has a significant effect on market volatility, but it also increases the local market depth and liquidity in the Indonesian market. Even though foreign buyers are more numerous than sellers, the market still suffers from the impact of these foreign sellers. In other words, the market is very sensitive when foreigners sell to local investors, not among them. Avci (2015) agreed with the important role of foreigners trading in emerging stock markets and explained the relationship between the percentages of foreign investors' participation and the market volatility.

Haider et al. (2017) confirmed that in China, foreign portfolio investment has a significant positive effect on stock market return but has a negative relation with the consumer price index. Linh Nguyen and Nhung Le (2013) demonstrated that past foreign portfolio flows strongly impact Vietnamese stock market volatility daily, while they found a few pieces of evidence weekly. Besides, they realized that past foreign flows have more significant impacts in the bull market than in the bear market because the local investors are now more prudent and react to changes prudentially.

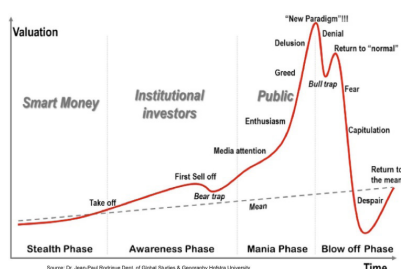
Tri Minh Nguyen (2017) uses ARCH model to examine the impact of the net purchase of foreign investors on the stock market and market liquidity. His results explained the behaviors of foreign investors in the accumulation phase, where they - one of the market makers- try to gather stocks at low

prices. In this period, buying stocks (net purchasing of foreign investors increases) will increase the stock price (positive relationship), but the market makers don't want to purchase high-priced stock. Therefore, they buy the stock when its price goes down. At this moment, the market's liquidity is low because no one wants to sell at low price and this is the time for market makers to buy stocks (negative relationship). Le Trang Nhung & Le Hai Dang (2019) chose the next period - the markup or bull market period to examine the impact of the net purchase of foreign investors on the Vietnamese stock market. In this period, the market makers had gathered enough stock, which was the time to push the price and sell their stock. Therefore, the increase in net purchasing of foreign investors will decrease the market index but increase the total volume trading of the market.

3. Theory

Richard Demille Wyckoff (November 2, 1873 - March 19th, 1934) was one of five legends of technical analysis: Charles Henry Dow, Ralph Nelson Elliott, William Delbert Gann and Arthur A. Merrill. Many of Wyckoff's theories became basic premises for technical analysis, such as theories about accumulation, distribution, and analysis of price and volume to determine the trends of stocks. Wyckoff was a professional trader, an educator, and a publisher. He was a stock market authority, founder, and one-time editor of the Wall Street Magazine and the Stock Market Technique. Wyckoff's research discovered the main characteristics of the winning stocks and the market makers of the time. He analyzed their traces and determined the ratios between risk and profit for trading.

Figure 4: Stock cycle according to Wyckoff



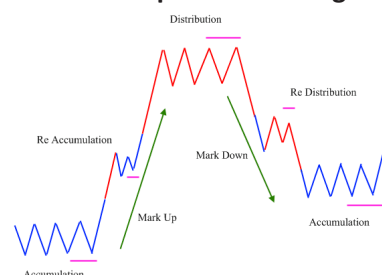
Source: Dr. Jean-Paul Rodrigue Dept.

His theories proposed that the market is inefficient and no random walk exists. One stage of strong fluctuation (up or down) results from one or more groups of market makers who hold lots of stock or have much money controlling the market. To do these things, they need some advantageous conditions from macroeconomic factors, policy changes, or positive news from the media. They are confident that the

crowd or individual investors are dumb, always ready to buy at a high price or sell at a low cost.

According to Wyckoff's theory, all stocks undergo a cyclical pattern consisting of four distinct phases: the stealth phase, awareness phase, mania phase, and blow-off phase (refer to Figure 4). When the stock price is low or under its real value, the smart money or the investors who follow the value analysis school will start to buy. Then, the institutional investors or funds will buy these stocks when they realize their potential value. After the market makers have cumulated enough stocks and the company has some achievements along with good conditions, the media and the public will pay attention. To pull the price to a new high in the mania phase, the market makers will create more good news and optimistic plans, attracting many individual investors. This phase is also a phase for market makers distributing stocks. When the price has reached the ridiculous top, the stock will turn into blow off phase where many lousy news and disadvantageous conditions appear. In this case, the market makers had sold most of their stocks before and will now try to push the price very fast. Individual investors, in panic, will try to sell stocks as fast as possible until the price is too low. And another cycle begins with the cumulating phase by the market makers.

Figure 5: Stock's phase according to Wyckoff



Source: Medium.com

To be simple, there are 4 phases for a stock: accumulation, markup, distribution, and markdown (Figure 5). Each phase has a different length of time depending on stock's characteristics or economic conditions.

4. Research model

There are stock exchanges in Vietnam: Ho Chi Minh Stock Exchange (HOSE), Ha Noi Stock Exchange (HNX), UPCOM, and the government bond market. However, the HOSE is much larger. As of August 2022, HOSE listed 385 stocks with a market capitalization of 23 trillion dong (accounting for 62% of the market capitalization rate). The database collected from HOSE, available on websites hose.com.vn, cafef.vn and vietstock.vn. The selected period

is from 1st April 2020 to 30st April 2022 (501 trading days), and it considers the performance of INDEX, the liquidity of the market as well as the purchase of foreign investors.

In previous research, Pool Ordinary Least Square Regression with time series data was used to determine the relationship between the trading of the market and the trading of foreigners and their liquidities. We have two simple models:

$$\text{Model 1: } VNI_t = a_0 + a_1 \times F_VOL_t + e_t$$

$$\text{Model 2: } V_VOL_t = a_0 + a_1 \times F_VOL_t + e_t$$

The first dependent variable is the VN-Index, which represents all the stocks available and the volatility of prices at the HOSE. The calculating formula is applied to all listed shares at the HOSE to reflect the trend of daily stock prices.

$$VNIndex = \frac{100 * \sum_{i=1}^N P1i * Q1i}{\sum_{i=1}^N P0i * Q0i}$$

Which is:

P1i: Current price of stock i

Q1i: Volume in circulation (volume of shares) of shares i

P0i: Price of stock i original period

Q0i: Volume of stock i at the base period

The second dependent variable is the liquidity of the market (Code: V_VOL), represented by the stock's total exchanged volume in one day. This study shows that the exchange of foreigners is one of the important impacts on the stock market's liquidity.

To estimate the trading of the market and the foreigners, net purchase is considered in volume, which means the total exchange of stock done by the foreign investors.

Table 1: Variables and their codes

Variables	Code
Stock market performance (End of Day)	VNI
Total trading volume of VN-Index	V_VOL
Net purchasing volume of Foreign	F_VOL
Percentage of volume of foreign over total volume of the market	F_V_VOL

This research collects Stock market performance data (end of day); Total trading volume of VN-Index data; Net purchasing volume of Foreign data; Percentage of volume of foreign over total volume of the market data in the period of 2020-2022. Table 2 shows the descriptions of the trading of the market and foreigners during the target period (2020-2022).

Table 2: Data description

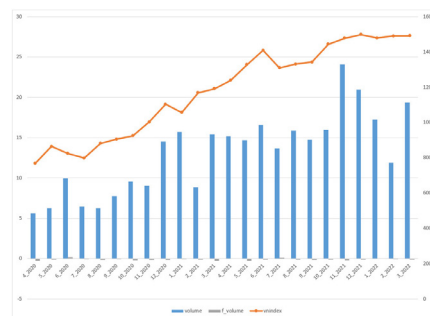
Variable	Observations	Mean	Std. Deviation	Minimum	Maximum
VNI	501	1170.9	246.1	680.2	1528.6

V_VOL	501	630 mils	247 mils	189 mils	1522 mils
F_VOL	501	4.8 mils	16 mils	- 61.1 mils	191 mils
F_V_VOL	501	-1.69 %	4.5 %	-17.78 %	26.76 %

Source: Results from STATA

As we can see, the VN-Index is spread in large wide range from 680.2 to 1528.6, leading to a high standard deviation. In addition, the proportion of foreigners in the whole market is small on average, but the standard deviation, minimum, and maximum are significant. This proves that foreign investments can affect the Vietnam stock market through shocks or special events.

Figure 6: Total volume trading of Foreigners and the market



Source: hose.com.vn

Figure 6 presents the total volume of foreigners and the total volume of VN-Index. It seems they have a positive relationship, especially at the end of the period.

Regression Analyses and Results

The research uses Pool Ordinary Least Square Regression with time series data to determine the relationship between the trading of the market and the trading of foreigners and their liquidities. Then, heteroskedasticity and autocorrelation is used for each model. We can see in Table 3 that there is no heteroskedasticity in model 1, but model 2 contains the heteroskedastic problem. For both models, there is autocorrelation.

Table 3: Breusch - Pagan test

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity		
	Model 1	Model 2
Chi - square	0.16	4.47
Prob.> Chi-square	0.6896	0.0350
Breusch-Godfrey LM test for autocorrelation		
	Model 1	Model 2
Chi - square	389.949	292.447
Prob.> Chi-square	0.0000	0.0000

Source: Results from STATA

VN-Index is non-stationary, so the first difference between VN-Index and d is present. VNI is used. Table 4 shows the Dickey fuller unit root test that the null hypothesis of unit root is rejected, and all variables become stationary.

Table 4: Dickey Fuller test

	Test statistic	1% critical value	5% critical value	10% critical value
d.VNI	-19.673	-3.457	-2.878	-2.570
V_VOL	-5.507	-3.448	-2.287	2.570
F_VOL	-20.279	-3.448	-2.874	-2.570

MacKinnon approximate p-value for Z(t) = 0.0000

Source: Results from STATA

Lagged variables can affect its dependent variables in time series data, so the Vector Autoregressive model is run to determine the maximum lag order. The maximum lag orders are second for both d.VNI and V_VOL, and to solve the heteroskedasticity and autocorrelation problems, the ARCH model is used as follows:

$$\text{Model 3: } V_VOL_t = a_0 + a_1 \times F_VOL + a_2 \times V_VOL_{t-1} + a_3 \times V_VOL_{t-2} + e_t$$

$$\text{Model 4: } d.VNI_t = a_0 + a_1 \times F_VOL + a_2 \times d.VNI_{t-1} + a_3 \times d.VNI_{t-2} + e_t$$

Table 5: ARCH models

Results by using ARCH regression	
Model 3	
F_VOL	1.13e-07 *
d.VNI _{t-1}	0.394 *
d.VNI _{t-2}	0.061
Model 4	
F_VOL	-0.326
V_VOL _{t-1}	0.614 *
V_VOL _{t-2}	0.038

Source: Results from STATA

* denote significant level at 1%

As we can see from the results of model 3, each unit of the total volume of foreigners increases, making VN-Index increase by 1.13e-07. This is strong evidence of a positive relationship between the net purchase of foreigners and the VN-index, which is similar with Richard (2005) and Nguyen Minh Tri (2017). These results are suitable in the distribution market period of Wyckoff's theory. Foreign investors are classified as one of the market-maker groups. In the distribution phase, market-maker investors with high returns begin distributing their assets to retail investors to make more profits. Almost studied days, the net volume of foreign investors is negative. The net selling behavior of foreign investors reduces the stock price, leading to a decrease in the VN-Index. Another interesting finding of this paper is that the market performance of day t is positively associated with the market performance of day t-1. As an appropriate explanation, in the Vietnamese stock market, the government regulates the waiting time for receiving stocks after buying them as t+3.

Model 4 results show that foreign investors' variable net trading volume is not statistically significant. On August 10, 2017, Vietnam's derivatives market started official operations with the VN30-

Index futures contract set to launch first. In Vietnam, the current law allows three types of derivative products - futures contracts of shares indexes with the VN30-Index and HNX30-Index as underlying assets and five-year Government bond future contracts. The derivatives market also impacts the liquidity of the market. Therefore, the model of the effect of foreign investors' net trading volume on market liquidity is no longer meaningful. Future studies will examine the impact of derivatives trading on the market's liquidity.

Conclusion

This research supports the positive relationship between market performance and net purchasing of foreigners in the distribution period. In addition, lag factors can affect to market performance because of some features and regulations of Vietnam. According to the theory, market makers, typically large financial institutions, can influence the market by buying or selling large amounts of securities. In the distribution phase, market makers may sell their stocks in large volumes, which could decrease the index. This could occur if the market is oversupplied with securities and the market makers are looking to liquidate their positions. In such a scenario, the increased selling pressure could push down the prices of the securities, causing the index to fall.

The results of this study are empirical evidence that can be useful for both state management agencies and individual investors in Vietnam. The results of this study can help state management agencies better understand foreign investors' impact on the economy and stock market and potentially make regulatory changes to ensure a more balanced and transparent market. This research can also help individual investors make more informed trading decisions based on the study's findings.

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