

Empirical Research on Semi-Strong Efficiency of Ho Chi Minh Stock Market in Vietnam

LE NGOC THAI¹, Jianglin Tu¹ and Jie Yu¹

¹Chongqing University of Posts and Telecommunications, China.

Abstract

As an important part of the capital market, the stock market has functions such as raising funds and allocating resources. Whether these functions can work effectively depends on whether the price mechanism is perfect. Another prerequisite for an effective price mechanism is that stock prices can quickly and correctly reflect new market information. Therefore, the theory of market effectiveness is a good tool to understand the laws of the stock market. This article uses the event research method to select the event published in the annual report of listed companies in Vietnam. Taking the Ho Chi Minh Market (HOSE) announcement of 239 listed company stocks from 2014 to 2018 as a sample, the market model is used to analyze of Ho Chi Minh City in Vietnam. The empirical research on strong form effectiveness has drawn the conclusion that the Ho Chi Minh stock market in Vietnam still has not reached the semi-strong form effective market, and puts forward relevant suggestions based on the current situation.

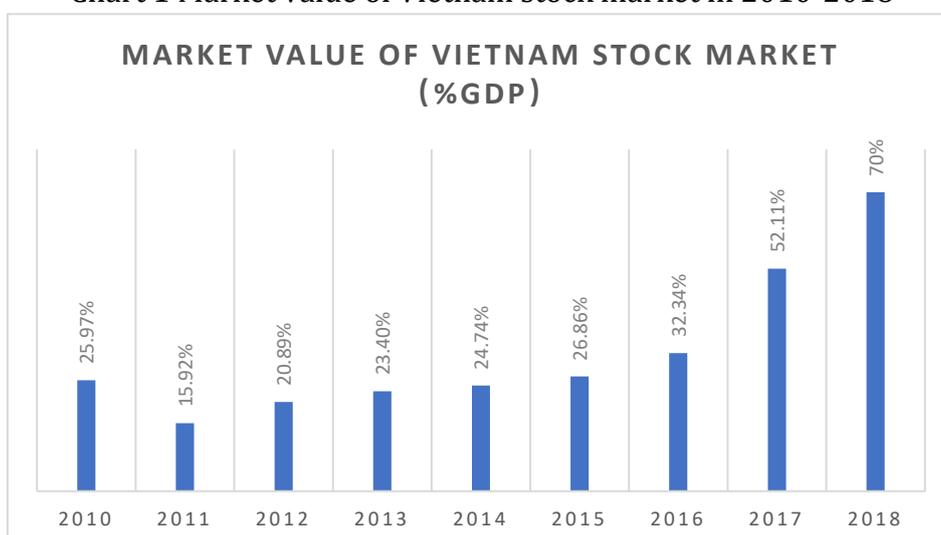
Keywords

Market efficiency, stock price, stock market, event study, Vietnam stock market, HOSE stock market.

1. Introduction

1. Ho Chi Minh City Securities Trading Center - HoSE (Vietnam main board Market) was established on July 11, 1998. After nearly 20 years of development, according to statistics, at of the end of 2018, the market value of Vietnam's stock market was about 39 billion VND (approximately 167.7 billion US dollars). The size of the stock market in 2018 has grown significantly, with a market value of 75% of GDP, exceeding the target of 70% of GDP set in the "2011-2020 Vietnam Securities Market Development Strategy."

Chart 1 Market value of Vietnam stock market in 2010-2018



Vietnam's stock market performed well in 2018, while in the first quarter, VN index easily conquered the historical peak of 1000 points or even 1200 points.

Chart 2 VN-index volatility chart in 2018



2. Efficient market hypothesis (EMH)

Efficient market theory is one of the foundations of the financial industry. With the development of the stock market, this theory has become more important and a guide for many scholars to analyze securities. In 1970, Fama Research reviewed and summarized all theoretical, empirical research, formed today's efficient market theory. If prices fully reflect all the information and provide three conditions for an efficient market to exist, Fama considers the market to be effective:

- No transaction costs
- No information fee
- The current price of the stock fully reflects the current information.

These conditions are designed to ensure that all investors with the same information have the same profit. Violations of these conditions will invalidate the market.

Since its establishment and development in 1998, the Vietnamese stock market has experienced rapid development and maturity after 20 years of exploration, reform, and innovation. However, there are currently many problems in the Vietnamese stock market due to asymmetric information. The regulatory system is unreasonable and is caused by the irrational behavior of market participants. The efficiency of the stock market is a standard for measuring and maturity. Therefore, studying and analyzing whether the Vietnamese stock market is semi-strong and effective has important theoretical and practical significance for promoting the stable development of the Vietnamese stock market.

2. Literature Review

1. In terms of quantitative analysis, almost all research are concentrated in the framework of a master's thesis (Vietnam-Netherlands graduate project). In 2004, Thai Long's research, the author used relatively little data because the Vietnamese stock market only operates 4 years, and only the Ho Chi Minh City Stock Exchange (HOSE) and no Hanoi Stock Exchange (HaSTC). The author's research method is quite simple, using only the ARIMA model, and concluded that the Vietnamese stock market is weakly valid.

In 2006, the author Ho Viet Tien used the autocorrelation coefficient test method to test a part of the stock market in Vietnam, and concluded that the Vietnamese stock market is invalid in information.

In 2007, the author Le Dat Chi-Ho Chi Minh City University of Economics tested some stocks on the Ho Chi Minh Stock Exchange (based on the bivariate regression method) and concluded that the Vietnamese stock market was not weakly valid.

In 2007, the author Truong Dong Loc also evaluated the Vietnamese stock market in the Hanoi trading market by examining the autocorrelation coefficient and the serial correlation test, and concluded that the HOSE market is invalid.

In 2009, a study by Dang Anh Tuan used the information disclosure of listed companies from August 18, 2008 to December 21, 2009 to test that the Vietnamese stock market was semi-strongly effective. If the entire capital market is taken into account, the trading level of some companies is very low, even if there is no transaction (all listed companies with low market capitalization are traded in Hanoi Securities). The reason why the Vietnamese capital market is weak-form efficiency is because it does not meet the semi-strong Conditions for efficient market theory.

In 2010, Ho Viet Tien's research in "2007 and 2010 Ho Chi Minh Stock Market Increasing Stocks Incidents" research uses event research as the main test method. The research results show that in 2007 and 2010, the semi-strong form of the HoSE stock market was not effective.

In 2014, a study by the author Do Thanh Nhan used the daily and weekly rate of return of the market index from January 2007 to June 2013 to test the weak-form validity of the Vietnamese stock market. The model proposed by Miller and colleagues in 1994 eliminates the "Thin Trading" problem that may affect the results of empirical research in efficient markets, especially in emerging stock markets. The result of the study is a weak-form efficient market. Although the test results are inconsistent on daily and weekly returns and different tests, the results show that the Vietnamese stock market performs weak-form efficiency, especially the weekly yield. At the same time, let investors know how to fluctuate the rate of return and risk premium before the information is released before the market has reached semi-strong efficiency, so that investors can make investment decisions in the market

2. In summary, the author finds that the effectiveness of the stock market plays an extremely important role for investors and market management institutions. Capturing the level of market efficiency will help investors make investment analysis and decisions more appropriately and correctly. For market management organizations, understanding the level of market efficiency will help these organizations make reasonable decisions and policies on market management, thereby improving the level of market management. Valid to the information published on the market. Based on the above analysis and research on the importance of studying the effectiveness of stock markets in various countries around the world, the following author will examine the level of market effectiveness. The Vietnamese stock market is based on empirical research articles from around the world. The author will conduct a semi-strong effective market test on the Vietnamese stock market from 2014 to 2018 after the 2010 global financial crisis.

3. Empirical Study on the Semi-Strong Efficiency of Ho Chi Minh Stock Market

3.1. Sample Data Selection

Because this study uses the event study method to investigate the interaction between the information disclosure and stock prices of Vietnamese listed companies, the study mainly observes 10 days and 10 trading days each before and after the disclosure date of the annual report information of listed companies from 2014 to 2018. Published observation windows

totaled 21 trading days. The length of the estimated window for studies using daily stock price data is generally -60 to -200 days (starting period T_1 , ending period T_2) as the event window. If the time range of -60 to -200 days is used to overlap with the quarterly report, this study chose -69 to -11 days as the estimation window and -10 to +10 days as the observation window, as shown in chart 3.

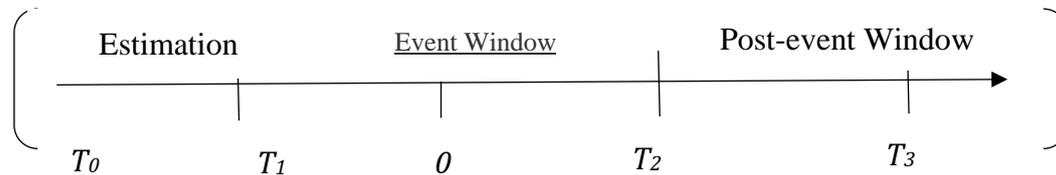


Chart 3 Time window of event study method

3.2. Estimated Model Parameters

First, the daily return data before and after the occurrence of 302 stocks is selected as a sample of stock estimates, and then the Vn-index market index corresponding to the daily return of 302 stocks is selected (collecting 86 transactions per stock from 2014 to 2018 day). Use Excel for data processing and selection. Manually, 239 companies were selected from 302, and 63 companies were excluded. We talk about CAPM (Capital Asset Pricing Model) and the form of a single index

Model construction : $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$

Among them, R_{it} represents the prospective earnings of stock i in period t , R_{mt} represents the return of the market weighted index stock in period t , and α_i and β_i are parameters of the market model (α_i represents the regression intercept, ε_{it} regression residual, β_i is linear regression slope).

Within the estimated window (the closing prices of a total of 86 trading days, 65 days to 10 days before the announcement date and 10 days after the announcement date). STATA 15.0 and market model are used to calculate the expected return and the return on market weighted index stocks. Then perform regression on each stock separately. Column: The equation obtained from the 2014-AAA online regression is as follows:

$$R_i = -0.00520101 + 0.798163R_m$$

According to the above regression steps, the Sharp models of all selected stock samples and their respective α coefficients and β coefficients are obtained.

3.3. Determination of Excess Returns and Structural Statistics

In order to evaluate the impact of time, the excess return rate, average excess return rate, and cumulative excess return rate need to be measured. Assuming that the selected event does not occur, it is called the normal rate of return and it is called the actual rate of return. The specific formula is as follows:

$$ER_{it} = R_{it} - \hat{R}_{it}$$

Cumulative abnormal return

$$\text{Average abnormal return } \overline{AR}_t = \frac{1}{N} \sum_{i=1}^N ER_{it} \quad (\text{AAR})$$

$$\text{Cumulative average abnormal return } \overline{CAAR}(t_1, t_2) = \sum_{t=t_1}^{t_2} \overline{AR}_t \quad (\text{CAAR})$$

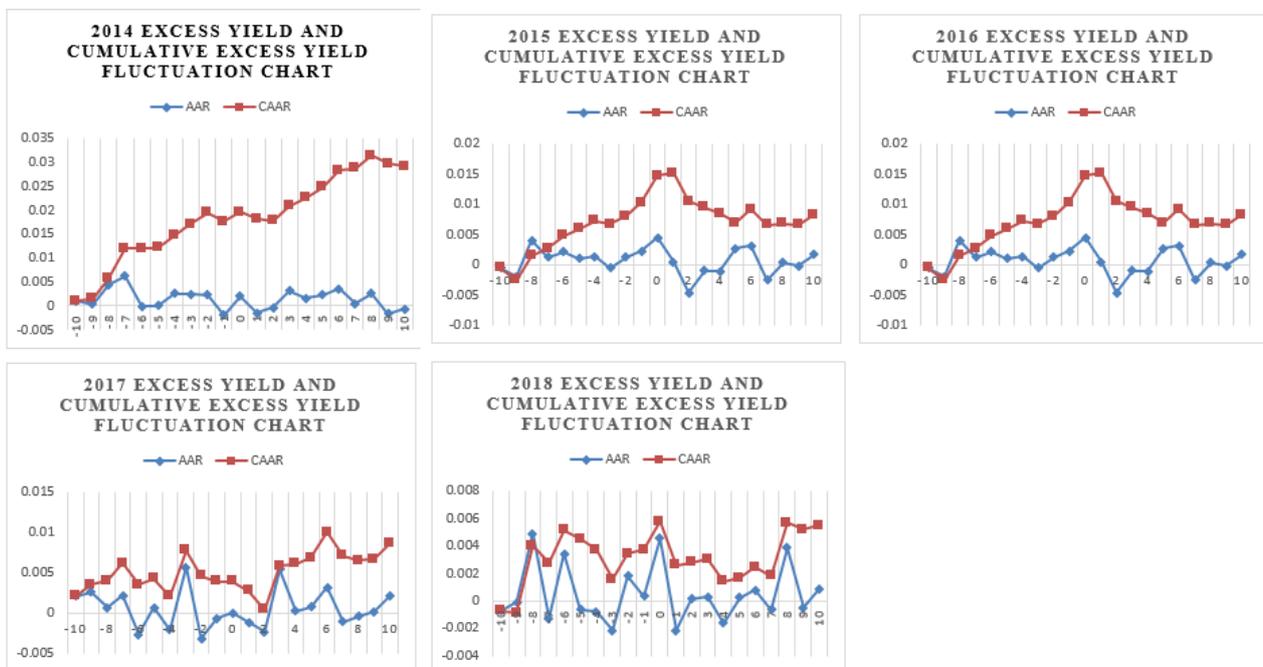
If the stock price is not affected by the event, it can be seen from the model that both the average excess return and the cumulative average excess return should follow a normal distribution with a mean of 0

$$T = \frac{AAR}{S/\sqrt{N}} \sim T(N - 1) \quad T = \frac{CAAR}{S/\sqrt{N}} \sim T(N - 1)$$

This study calculates the average excess return and cumulative excess return based on the 21-day excess return of 239 stocks from 2014 to 2018 to determine whether the HOSE stock market has reached semi-strong form of validity. The T-test of the Average abnormal return (AAR) is used to determine whether it is significant, and the following table is obtained (only the data with a T value greater than 2 is listed):

Year	Time	AAR	T test	Whether significant	CAAR
2014	-8	0.0043534	2.975	significant	0.0057938
	-7	0.0062739	4.194	significant	0.0120677
	6	0.0035231	2.167	significant	0.0282894
2015	-8	0.0040359	2.597	significant	0.00147
	0	0.0044839	2.552	significant	0.0147566
	6	0.003165	2.273	significant	0.0090989
2016	-3	0.0022476	2.338	significant	-0.000938
	8	0.004331	2.224	significant	-0.007127
2017	-3	0.0056863	3.347	significant	0.007811
	3	0.0054251	2.981	significant	0.0058785
2018	-8	0.0048706	2.917	significant	0.0040048
	8	0.0038584	2.268	significant	0.0056736

4. The Results Analysis



Combined with the T test of the trademark AAR, the data from 2014 to 2018 show that the T test for 2 to 3 days per year is greater than 2, which indicates that the excess return rate is significantly present in the stock market, and according to the cumulative average excess return rate of CAAR On the line chart, we can see that the market has not reached semi-strong form of effectiveness. The reaction started before the incident in mid-2014, and overreaction, the

cumulative excess return has been rising. From 0 to 2 days, it showed a trend of warming up, and then continued to rise.

The cumulative average abnormal return in 2015 gradually increased to the level. After the annual report was published, it first slowly increased and then declined, and then continued to decline to a level. The trend began to warm up on the 7th and finally maintained. There is a slight fluctuation, so it can be judged that the Ho Chi Minh Stock Market did not reach semi-strong efficiency in 2015.

According to the 2016 AAR and CAAR line chart, it can be seen that the previous level of volatility development at 0 level, the cumulative average abnormal return rate began to decline in the first 6 days of the day, the cumulative abnormal return rate continued to be negative, and the larger the fluctuation range over time, it means that the influence of the incident has gradually increased. After the incident, it continued to fall from the second day. From the fourth day, it can be clearly seen that the cumulative abnormal return rate will gradually warm up. During the period before and after the event, the cumulative abnormal return continued to be negative, indicating that this event has hit the HOSE stock market hard. Therefore, it can be judged that Ho Chi Minh City in 2016 did not reach the semi-strong form of effectiveness.

From the 2017 and 2018 AAR and CAAR line charts, it can be seen that the announcement of the annual report event has a significant impact on stock returns, and the Ho Chi Minh Stock Market has not reached semi-strong form of effectiveness. As can be seen from the figure below, the cumulative abnormal return rate was greater than zero in the first ten days and showed a rising trend, especially on the 7th and 3rd days before the event in 2017, and on the 6th day after the event, and before the 2018 event. On the 6th, the day of the occurrence, and the 8th day after the occurrence, the upward trend of cumulative abnormal return is now increasing, but there is a trend of up and down fluctuations before and after the event. There is no adjustment trend in the two trading days after the event and it has been volatile. Therefore, the semi-strong effectiveness was not reached in 2017 and 2018.

According to analysis, the excess return and cumulative abnormal return of the 239 companies listed on HOSE between 2014 and 2018 experienced large and small fluctuations and continued to rise significantly, which reflects the market's inadequate disclosure of information, that is, information disclosure was not timely effectively forwarded to market participants.

Generally speaking, the announcement of financial reports by listed companies is good news for investors. As a result, stock prices have risen sharply, and the cumulative abnormal return has been greater than 0 and has increased rapidly. It means that the market has reflected the information in advance, but according to related research, the effective time of information disclosure is generally from the date of information release to 1 to 2 days before, and the publication date of each company's financial report is basically in the same range every year, so investment. It can be said that the date of publication of the annual report is mastered in advance, so this is normal.

Therefore, in summary, the Vietnamese stock market, especially the Ho Chi Minh stock market, has not reached semi-strong efficiency.

5. Suggestions

5.1. For Regulators

5.1.1. Improve the Legal Framework

Continue to improve the legal documents and other legal documents that guide the implementation of the Securities Law

The efforts of national authorities have been translated into law, and the final legal document is only intended to establish a better regulatory mechanism for the stock market, especially to

enhance the transparency of market information. Only in this way can the Vietnamese stock market develop healthily and sustainably.

However, these are only the initial steps to strengthen management. Compared with other long-standing securities markets in the world, Vietnam's securities market has a young market, and there are still many shortcomings, especially in terms of information transparency and required legal framework, and information transparency.

Enact laws that prohibit the use of undisclosed information: The use of information that has not been publicly released for personal gain or to help others is the privilege of a small group of investors with rights and familiar relationships. This makes the market an unbalanced competitive environment. People who use unpublished information to buy (sell) profitable securities (or avoid losses) will actually commit fraud and harm investors' interests.

Establish sanctions appropriately to deal with violations of disclosure or use of illegal or illegal information.

Strengthen the supervision of information disclosure on the financial status of the stock market.

5.1.2. Improve Accounting and Auditing System

Investors' participation in the investment decision of the stock market is mainly based on information published by listed companies in accordance with regulations, including accounting, auditing and other related information. Such as financial statements, performance reports and so on. Therefore, in addition to the ability to obtain information, the accuracy and transparency of the report has a great impact on investors.

Reforming the accounting and auditing standards system will make it easier for people to understand the standards, avoid different interpretations, and improve transparency and accuracy in corporate financial statements.

In addition, to ensure that the disclosed information is highly reliable, the State Securities Commission of Vietnam (SSC) should promote and improve the audit quality of listed companies. Technical corrections and the use of accounting "technology" should be quickly identified to avoid harm to market participants.

5.1.3. Improve Technical Infrastructure and Information Transmission Systems

Develop a synchronous trading system to ensure that transactions proceed smoothly and avoid transaction overload on the trading venues as before. In addition, the stock exchange and the National Securities Commission need to find many tools and channels to quickly transfer information to market participants to ensure the efficient operation of the market. During the information explosion period through the Internet, upgrading information technology, regular updates of the official website of the National Securities Commission and the stock exchange, macroeconomic situation and information about monetary policy, etc., can indeed help market participants quickly access reliable information sources.

5.2. For Investors

In securities trading, investors' understanding of securities, listed companies, and the ability to analyze information play an extremely important role. The information given is the same, but the information processing capabilities of each investor are completely different, resulting in different actions and responses to market information. The success of investors depends largely on these views of the investors themselves. Therefore, investors need the skills needed to build their decision-making process through market reality and specialized courses.

Vietnamese stock market is not a perfect market, so information is not always available to investors. Investors need to identify the necessary information, at the same time, proactively obtain information, search for information, and build information selection skills.

References

- [1] Vietnamese scholars TO THI THANH TRUC and NGUYEN THI DIEM HIEN, The Role of Financing Channels in the Securities Market Economy of Vietnam, Journal of Science and Technology Development, Q3, 2015.
- [2] Solutions to Develop Vietnam's Capital Market, 2017.
- [3] Hu Jiajun: Stock Exchange Information Disclosure Supervision Issues and Suggestions (2017), 80-81.
- [4] Ta Xuan Tung: A Comparative Study of China and Vietnam Stock Markets (2012), 1-30.
- [5] Liang Jingjing: An Analysis of the Development of Vietnam's Capital Market (2014), 44-47.
- [6] Xie Shanshan: Empirical Analysis of the Efficiency of Shanghai Stock Market (2019), 45-48.
- [7] Fama E F. The Behavior of Stock-Market Prices [J]. Journal of Business (1965)-38, 34-105.