IMPROVING THE EFFICIENCY OF THE VIETNAM STOCK MARKET

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Abstract

The article makes an assessment about the efficiency of Vietnamese stock market in the period 2015-2018. The analysis showed that the Vietnam's stock market did not achieve the weak form of efficiency, indicating the low level of information transparency there. A main reason is that the enterprises had not performed their obligation of information disclosure properly and fully and the quality of published information is inaccurate. Therefore, the government should take appropriate measures to improve the efficiency of the stock market in future.

Key Words

Vietnamese stock market; market of weak form of efficiency; time chain of random walk.

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INTRODUCTION

The market efficiency hypothesis was first introduced by Eugene Fama in 1970. In the article "Efficient capital market: a review of theory and practical work he wrote: "The market is called effective if its prices directly reflect the available information" (Fama, 1970). There are three forms of effectiveness: The market with a weak form of efficiency, the market with an average form of efficiency, the market with a strong form of efficiency. It is significant for both the economy and the investors to test the efficiency of the market.

At present, economic growth depends mainly on the development of the capital market (Ananzeh, 2015). Officially, the Vietnamese stock market was created in 2000 as a channel for attracting medium-term and long-term capital to the economy. After almost 20 years of development, this has achieved notable results. According to the Chairman of the State Securities Committee of Vietnam, Chan Van Dung, at the end of 2018, the market capitalization level was 3.96 trillion Vietnamese dongs, which corresponds to 79% of GDP in 2017 and 72% in 2018. And although the Vietnamese stock market has shown rapid growth in recent years, its scale has remained low compared with regional and global indicators, if considered in terms of absolute value and share in GDP. Notably, market capitalization in Thailand reached 548 billion US dollars, in Malaysia 456 billion US dollars, and in Singapore 787 billion US dollars, which accounted for more than 100% of GDP. As for the bond market, its announced volumes reached the size of 1.122.000 billion VNĐ. At the same time, government bonds amounted to 98%, and bonds of enterprises to 2% of the declared value. But the scale of this market is quite modest compared with some countries in the region and elsewhere in the world. The debts on bonds amounted to 35.2% of GDP in 2018, while the debts on government bonds amounted to 27.2%, and on corporate bonds 8.0%, while the Malaysian bond market volumes amounted to 97.7% of GDP, in Singapore 86%, in South Korea 125.7%, and in Japan 211.4% (Dat, 2019).

In September 2018, the Vietnamese State Securities Committee was listed by the FTSE Russel organization as among the list of candidates for a possible rating upgrade, transitioning from the secondary market category of a border frontier market ("Notification of the 10 most notable events related to securities in 2018," 2018).

Thus, the stock market in Vietnam is developing, but still relatively small in scale. The characteristics of a developing stock market are low liquidity, significant price fluctuations, a large number of non-professional investors, weak trust in information, and strong instability (Angelovska, 2018). So, it becomes necessary to assess the effectiveness of the Vietnamese securities market. The article will focus on evaluating the performance of a weak market relative to the Vietnamese stock market.

LITERATURE REVIEW

In Vietnam, many authors have evaluated the degree of efficiency of the domestic stock market in different time periods. Le Trung Thanh, in his doctoral dissertation "Monitoring Securities Transactions in the Vietnamese Stock Market" (2010), investigated the VN Index chain in the period 2000–2008 and concluded that the market did not reach the weak form of efficiency.

The same conclusions were reached by Nguyen Thi Bao Khuyen (Hoai & Khuyen, 2010), who studied the Vietnamese stock market in the period 2000–2009 and found that a weak form of efficiency was not achieved.

Unlike the first two authors, Phan Khoa Cuong (Phan, Zhou, 2014), who studied the Vietnamese stock market from 2000–2013, concluded that a weak form of efficiency was not initially achieved, but was if taking 2009–2013 as the period. Le Chung Thanh Thao (Thanh, 2013) adheres to the same point of view, studying the Vietnamese stock market in the period 2009–2012 and concluding that a weak form of effectiveness had been achieved.

Moving forward, Pham Dinh Long and Nguyen Thanh Huyen (Long, Huyen, 2017), assessing the effectiveness of the Vietnamese stock market from its inception in 2000–2016, concluded that the market had not achieved a weak form of efficiency.

As reviewing the results of the analysis of the Vietnamese stock market showed, during the research, the authors came to different conclusions related to different time periods. However, it is obvious that during the period of strong fluctuations in the stock market – for example, the stock bubble of 2007–2008 – the weak form of efficiency was not reached. But at the same time, during a period of relative stability, as in 2010–2013, the market easily reached the weak form of efficiency. These provisions will be used by the authors to analyze the 'latest period of development of the Vietnamese stock market.

EMPIRICAL ANALYSIS

The authors tested the weak form levels of Vietnamese stock market efficiency based on the VN-index readings from January 5, 2015 to April 27, 2018 (fixation at the end of the day). The data was obtained from the webpage of JSC "VNDIRECT Securities" (www.vndirect.com.vn/). A chain of VN-Index indicators will be transformed into a natural logarithmic chain of market profit (Hussain, Nath, Bhuiyan, 2017; Strong, 1992). Profit on the market is defined as follows:

$$Y_t = \ln\left(\frac{PI_t}{PI_{t-1}}\right),$$

where Y_t – is the market profit during the observation period;
              PI_t – VN-index index in period t;

PI_{t-1} – VN-index index in period *t-1*.

The market is considered effective if the dynamics of stock prices follow the random walk model (RW), i.e. the change in the price of securities cannot be foreseen in advance, and their future change is independent without any definite trend of change (according to Fama, 1970).

The time chain of random walk follows the pattern of a standard distribution. In order to test whether a chain of data follows the standard distribution pattern, the following methods can be used:

- The diagram of the guide curve (histograms with a normal curve) is bell-shaped, symmetrical to the highest frequency immediately in the middle and with decreasing frequency on the sides.
- Standard probability diagram (normal Q-Q plot). The standard distribution of this probability diagram has a linear relationship.
- Application of the Kolmogorov–Smirnov test (K–S test) when the sample size is greater than 50. The distribution is considered standard if the value (sig.) is greater than 0.05.
- Root modular test (unit root test) (Dickey, Fuller, 1979; Dong, Minh, 2012).

The unit root test is used to test the stationarity of the data chain. The least-squares model (OLS) has the following form:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta \cdot Y_{t-1} + \sum_{t=1}^{q} \propto_i \Delta Y_{t-1} + \varepsilon_t ,$$
where: Y_t – price on time *t*;
ΔY_t – price change;
$\beta_1, \beta_2, \delta, \alpha$ – regression coefficient;
ε – random disturbance;
hypothesis pair check: $H_0 : \delta = 0$, $H_1: \delta < 0$.

Application of statistical standards т:

$$\text{т}_{qs} = \hat{\delta} / Se(\hat{\delta}),$$

where Se – standard deviation (standard error);
$\hat{\delta}$ – regression coefficient estimate δ.

If the estimated observation $\left| \text{т}_{qs} \right| > \left| \text{т}_{1\%} \right|$, then we conclude that the data chain is stationary, i.e., it does not follow the random walk model. The analysis is based on software SPSS.
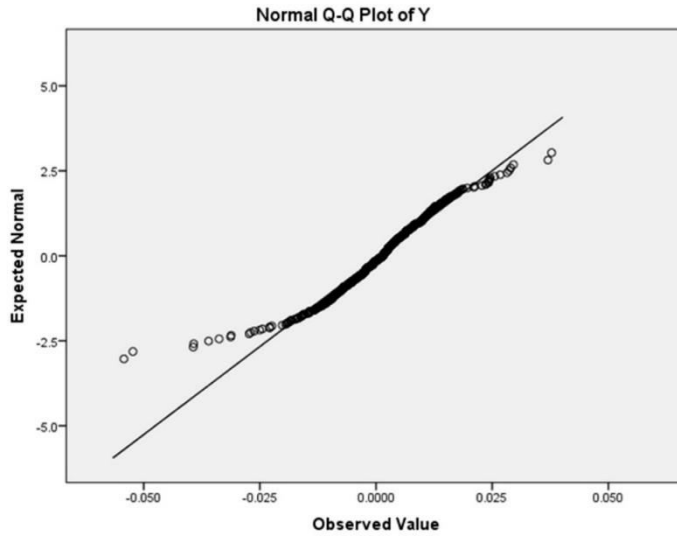
RESULTS

In order to establish whether the data chain follows the pattern of a standard distribution or not, results can be based on the standard probability diagram

(Normal Q-Q plot). Distribution is standard if this diagram has a linear relationship (direct).

When looking at the standard probability diagram and the probability density distribution, we see that the standard probability diagram does not have a linear relationship (Figure 1), and the probability density diagram has the form of a symmetric bell (Figure 2). Therefore, the profit chain does not follow the standard distribution pattern. However, for a more accurate conclusion, we resort to the Kolmogorov–Smirnov test.

Figure 1. Diagram of standard probability

Source: Own survey.

Figure 2. Graph of Probability Density Distribution
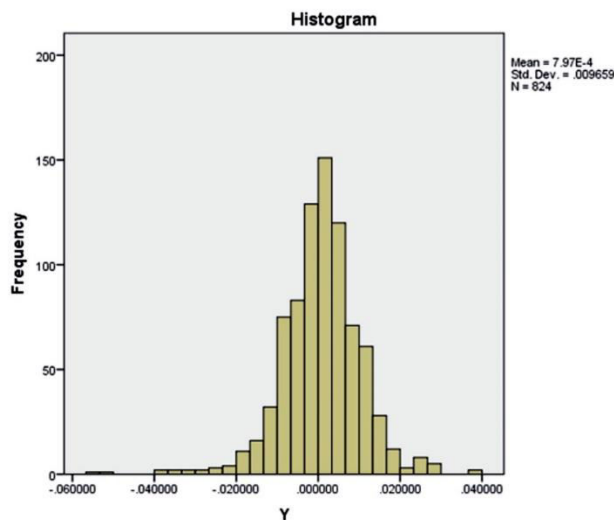
Source: Own survey.

The table of test results (Table 1) shows that the value of the profit chain is less than 0.05. This indicates that this distribution is not standard. Due to the fact that $|\tau_{qs}| = |-12{,}48027| > |\tau_1\%| = |-3{,}435108|$, it should be concluded that the VN-index of profit rate chain is stationary, therefore, does not follow the random walk model. Thus, the Vietnamese securities market did not achieve a weak form of efficiency. This means that moderate and strong forms of effectiveness were not achieved either. In this connection, the market is fraught with many dangers associated with the establishment of control over the prices of securities with insider transactions, which can have a negative impact on the sustainable development of the market. A similar test was conducted with the S & P 500 index of the US stock market (Figure 3).

Table 1. Kolmogorov–Smirnov test

Tests of Normality						
Kolmogorov–Smirnov[a]				**Shapiro–Wilk**		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Y	0.056	824	0	0.957	824	0
Stationarity Test						
				t-Statistic	**Probability**[b]	
Augmented Dickey–Fuller test statistics				-12.48207	0	
Test critical values:	1% level			-3.438110		
	5% level			-2.864855		
	10% level			-2.568589		
Augmented Dickey–Fuller Test Equation						
Dependent Variable: D(Y)						
Method: Least Squares						
Sample (adjusted): 6,824						
Included observations: 819 after adjustments						
Variable	**Coefficient**	**Std. Error**		**t-Statistic**	**Probability**	
Y(-1)	-0.896683	0.071838		-12.48207	0	
D(Y(-1))	-0.043197	0.064724		-0.667404	0.5047	
D(Y(-2))	-0.005731	0.057076		-0.100404	0.9200	
D(Y(-3))	0.025562	0.047854		0.534174	0.5934	
D(Y(-4))	0.024572	0.034486		0.712525	0.4763	
C	0.000763	0.000336		2.271869	0.0234	
R-squared	0.471363	**Mean dependent var**		-1.62E-05		
Adjusted R-squared	0.468112	**S.D. dependent var**		0.012989		
S.E. of regression	0.009473	**Akaike info criterion**		-6.473462		
Sum squared resid	0.072955	**Schwarz criterion**		-6.438971		
Log likelihood	2656.883	**Hannan–Quinn criter.**		-6.460227		
F-statistic	144.9835	**Durbin–Watson stat**		1.948497		
Probability (F-statistic)	0					

Note: [a.]Lilliefors Significance Correction; [b] MacKinnon (1996) one-sided p-values.
Source: Own survey.

Figure 3. Diagram of Standard Probability relative to the S & P 500 Index
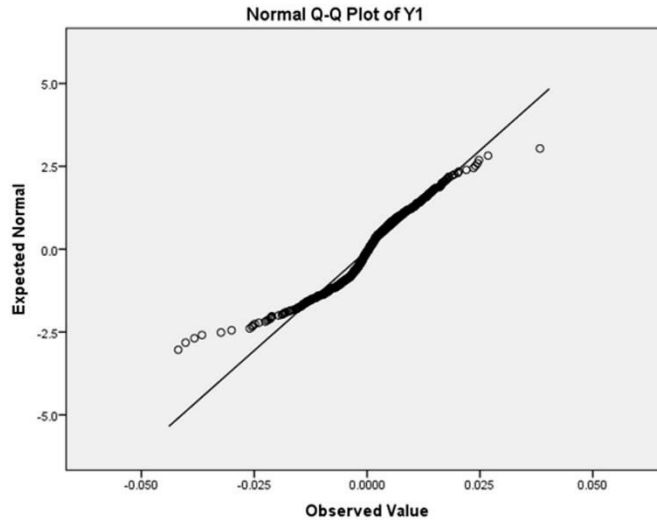
Source: Own survey.

The table of test results (Table 2) shows that the value of the profit chain is less than 0.05. This indicates that this distribution is not standard.

Due to the fact that $|\tau_{qs}| = |-14{,}05436| > |\tau_1\%| = |-3{,}438014|$, it should be concluded that the S & P 500 index profit rate chain is stationary, therefore, does not follow the random walk model.

It can be seen that the US stock market during this period experienced many fluctuations, especially under the influence of tense US-China trade relations, though without achieving a weak form of efficiency.

Table 2. Kolmogorov–Smirnov test relative to the S & P 500 Index

Tests of Normality						
Kolmogorov–Smirnov[a]				Shapiro–Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Y	0.109	834	0	0.94	834	0
Test for Stationarity Relative to the S & P 500 Index						
				t-Statistic	Probability[b]	
Augmented Dickey–Fuller test statistics				-14.05436	0	
Test critical values:	1% level			-3.438110		
	5% level			-2.864855		
	10% level			-2.568589		
Augmented Dickey–Fuller Test Equation						
Dependent Variable: $D(Y_1)$						
Method: Least Squares						
Sample (adjusted): 6,834						
Included observations: 829 after adjustments						
Variable	Coefficient	Std. Error		t-Statistic	Probability	
Y(-1)	-1.171031	0.083322		-14.05436	0	
D(Y(-1))	0.150766	0.073308		2.056612	0.0400	
D(Y(-2))	0.061388	0.063013		0.974217	0.3302	
D(Y(-3))	0.086177	0.049841		1.729061	0.0842	

D(Y(-4))	0.021207	0.034954	0.606715	0.5442
C	0.000392	0.000288	1.362216	0.1735
R-squared	0.516420	Mean dependent var		-1.08E-05
Adjusted R-squared	0.513482	S.D. dependent var		0.011829
S.E. of regression	0.008251	Akaike info criterion		-6.749828
Sum squared resid	0.056025	Schwarz criterion		-6.715665
Log likelihood	2803.804	Hannan–Quinn criter.		-6.736726
F-statistic	175.7783	Durbin–Watson stat		1.998233
Probability (F-statistic)	0			

Note: [a.]Lilliefors Significance Correction; [b.]MacKinnon (1996) one-sided p-values.
Source: Own survey.

DISCUSSION

Market efficiency theory plays an important role in the development of the securities market. If the market is efficient, then the value of the securities fully reflects information about their price, i.e. reflects the exact value of the securities. Then the sources of market funds will be used most efficiently. The securities market will correctly fulfill its role if it becomes a channel for attracting the capital of enterprises and efficient investments for investors, including the general public. In Vietnam, the stock market has not yet achieved efficiency for the following main reasons.

To begin with, the transparency of published information is low. According to the joint research of the Vietstock webpage and the Finance and Life newspaper (*www.Fili.vn)* – the press agency of the Vietnamese Financial Management Association (VAFE) (2017) focused on assessing the compliance of activities when publishing information on the Vietnamese stock market – the number of enterprises that accurately and fully comply with the obligation to publish information has increased annually (Figure 4). Especially in 2016, when growth was almost twice as high as in 2015.

However, there are still few enterprises that fulfill the obligation to publish information accurately and in full. The highest rate for the year 2016 was only 18.5% of the total number of investigated declared enterprises. At the same time, the group of enterprises with a high level of capitalization on the market accounted for the bulk of the fulfillment of these obligations (114 enterprises that met the criteria for publishing information had a total capitalization value of 871.065 billion VNĐ, while in 558 companies this was only 803.065 billion VNĐ). In 2017, this figure fell to 16.96%.

The quality of the information published by Vietnamese enterprises remains at a low level, while the quality of financial reports submitted by public companies is also not up to par. Many enterprises do not also consider the preparation of annual reports important, and their practical content is very superficial.

According to the statistical reports, 540 of the 709 enterprises surveyed found errors in the published financial statements (which amounted to 76.2%). Moreover, 5 enterprises turned from profitable to unprofitable and there was not a single enterprise that would become profitable after an audit

from unprofitable. Many enterprises that had a profit after taxes, after an audit, have undergone changes that cost hundreds of billions VNĐ.

Figure 4. Declared Enterprises That Fulfilled the Criteria for Publishing Information in 2012–2017
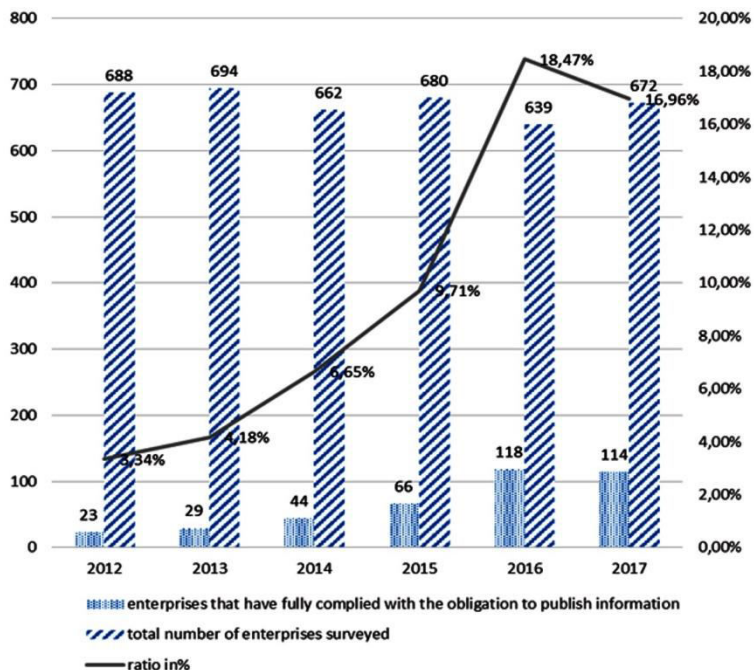
Source: www.fili.vn.

Enterprises stated many other reasons related to the difference in performance before and after the audit, for example, recording errors, or various approaches to auditors related to preliminary calculations in reserve, depreciation, distribution, warehousing, or the year of recording income or expenses. However, the reason for the intentional erroneous financial information on the part of the company's management for the purpose of short-term price increases on shares, especially in conditions of a complete change in the results of economic activity from profitable to loss-making and vice versa, was not excluded. After all, this situation was repeated not just once but continued on the same enterprise several times (Lan, 2017).

In the Vietnamese stock market, a low degree of information transparency remains. Therefore, investors and governments cannot receive timely, accurate and complete information. As this connection shows, the Vietnamese securities market has not achieved efficiency.

Furthermore, the professionalism of Vietnamese investors, who are mostly private investors, is still at a low level. According to statistics from the State Securities Committee on the Vietnamese securities market, up to 99% of investors are private individuals. However, many of them are not professionals and have a low education level. On the other hand, the stock market is a complex market form, which is difficult to master even for

investors with a higher education in economics. The presence in the market of a large number of investors who are not specialists leads to the fact that they often make decisions about investing based on emotions, as opposed to observing where the market is going. It is difficult for these investors to avoid the race for profit in a period when there is a rapid stock market growth.

CONCLUSION

The concept of stock market efficiency is extremely important for investors and managers. In an efficient stock market, sources of funds are provided for projects that give the highest efficiency. Along with this, in the effective securities market, investors do not have the possibility of obtaining unexpected market profits (Angelovska, 2018). These studies were carried out by evaluating the weak form of Vietnamese stock market efficiency. The sample of data used is a chain of VN-index indicators from January 5, 2015 to April 27, 2017. The applied tests of Kolmogorov–Smirnov and the unit root test indicate that at the moment the Vietnamese stock market has not achieved a weak form of efficiency. This result is largely correlated with the lack of transparency of information on the Vietnamese securities market (Lan, 2017).

A socialist economy with the state economy playing a leading role is being developed in Vietnam. However, the state-owned enterprises have been operating ineffectively and inefficiently for a long time. Vietnam has around 3,000 state-owned enterprises, about 500 out of which have 100% equity ("General Statistics Office of Vietnam," 2007). In spite of equitizaton, many state-owned enterprises still hold a majority of stocks. It is a major barrier to information transparency.

For this reason, it is necessary for the government to promote equitization and divestment of the state-owned enterprises, improve the policies and enhance monitoring in order to improve the efficiency of stock market in future.

REFERENCES

Ananzeh, I., Eddien N. (2015). Weak form efficiency of the Amman stock exchange: An empirical analysis (2000-2013). International Journal of Business and Management, 11 (1), 173–180.

Angelovska, J. (2018). Testing weak form of stock market efficiency at the Macedonian stock exchange. UTMS Journal of Economics, 9 (2), 133–144. Retrieved from https://ideas.repec.org/a/ris/utmsje/0244.html

Dat, T. (2019). New opportunities of Vietnam stock market. Online Newspaper of the Government of the Socialist Republic of Viet Nam. Retrieved from http://baochinhphu.vn/Thi-truong/Co-hoi-moi-cua-thi-truong-chung-khoan-Viet-Nam/357967.vgp

Dickey, D. A., Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. Journal of the American Statistical Association, 74(366), 427–431.

Dong, N. Q., Minh, N. T. (2012). Econometric course. Hanoi: Publishing house "University of National Economy."

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. The Journal of Finance, 25(2), 383–417.

General Statistics Office of Vietnam. (2007). Retrieved April 2, 2020, from Statistical Documentation and Service Centre—General Statistics Office of Vietnam website: https://www.gso.gov.vn/Default_en.aspx?tabid=491

Hoai, N. T., Khuyen, N. T. B. (2010). Stock prices and macroeconomic variables in Vietnam: An empirical analysis. Journal of Economic Development, 190, 61–85.

Hussain, S., Nath, S. K. D., Bhuiyan, Md. Y. A. (2017). Weak form efficiency of the Chittagong stock exchange: An empirical analysis (2006-2016). International Journal of Business and Social Research, 6(11), 58.

Lan, L. T. H. (2017). On the issue of transparency of information of declared enterprises on the Vietnamese securities market. Collection of Materials of the Conference "Improving Financial Institutions for the Sustainable Development of the Securities Market and the Insurance Market in Vietnam." Hanoi: Publishing House of the University of National Economy, 127–142.

Long, P. D., Huyen, N. T. (2017). Assessment of the market efficiency hypothesis on the Vietnamese stock market. Banking Technology, 137, 50–61.

Notification of the 10 most notable events related to securities in 2018. (2018, December 27). The Financial Bulletin of Vietnam. Retrieved from http://thoibaotaichinhvietnam.vn/pages/chung-khoan/2018-12-27/cong-bo-10-su-kien-chung-khoan-noi-bat-nam-2018-65987.aspx

Phan, K. C., Zhou, J. (2014). Market efficiency in emerging stock markets: A case study of the Vietnamese stock market. IOSR Journal of Business and Management, 16(4), 61–73.

Strong, N. (1992). Modelling abnormal returns: A review article. Journal of Business Finance & Accounting, 19(4), 533–553.

Thanh, L. C. (2013). Efficient market and signaling hypothesis on Vietnam securities market 2009-2012 (Bachelor thesis, International University HCMC, Vietnam). Retrieved from http://keep.hcmiu.edu.vn/handle/123456789/941

Thanh, L. T. (2010). Supervision over operations with securities in the Vietnamese stock market (Doctoral thesis). University of National Economy, Hanoi, Vietnam.