Influences of Seasoned Equity Offerings on Stock Return of Ho Chi Minh Market

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Influences of Seasoned Equity Offerings on Stock Return of Ho Chi Minh Market

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This paper investigated the impact of seasoned equity offerings (SEO) on stock return of listed companies in Ho Chi Minh City market using the method "event study" which has been basically formed by Campbell, Lo, and MacKinlay (1997). The sample includes 332 SEOs from 2007 to 2010. The main findings show evidence that the Ho Chi Minh City market was not efficient in terms of the semi-strong form because the price has increased significantly on the ex-right date, day 0. In an opposite way, the market also reacted significantly negatively from T_{-4} to T_{-2}. There are some significant impacts of timing on issue methods – equity right issues were in priority for favorable time and issues as "dividend by stocks" were chosen during unfavorable time.

Keywords: *Efficient Market Hypothesis, event study, Seasoned Equity Offerings*

Introduction

Seasoned equity offering (SEO) has been studied in recent literatures on Vietnamese stock market. Many of these articles use event study as an approach to investigate SEO. Previous studies show that the market was not efficient during SEO in separate years, 2007 and 2010. Thus, in this research, we try to investigate whether the timing factors and the market condition can influence significantly stock price fluctuations during SEO. The favorable period included the years when the main index, VN Index, had positive growths (2007 and 2009) while the unfavorable period was the years with negative VN Index returns (2008 and 2010). The data sample covers 322 seasoned equity offerings of companies listed on the Ho Chi Minh Stock Exchange (HOSE). This paper is organized as followed: 1) literature review; 2) research method and data; 3) result and discussion; and 4) conclusion.

Literature Review

Research on (SEO) originates from two theories: Capital Asset Pricing Model (CAPM) and Efficient Market Hypothesis. CAPM focuses on abnormal return compared to expected return of market. Efficient Market Hypothesis, on the other hand, requires a study on how announced information transfers into prices, in this case, how the seasoned equity offering information conveys to price. A market is considered as an efficient market in semi-strong form when the abnormal returns on event date, such as announcement date or ex-right (XR) date, are likely to be zero.

SEO is every secondary equity issue after the company's initial public offering. The issuers could be listed or non-listed. In this article, the issuers are listed companies on HOSE. There are two important dates in SEO: announcement date and XR date. A majority of recent study focuses on announcement date. There are still

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some research studies which place the emphasis on the XR date (Tsangarakis, 1993). XR date is the day from which current shareholders do not have any right concerning the issue. For example, a shareholder who own stocks before XR date can buy the new stocks at a fixed price lower than market price. Investors buy the stock on the XR date or after have not any right concerning the issue.

There are many methods of issues but we classify them into two groups:
1) "Equity right issues" (or equity issue by right distribution) are the issues where current investors should pay for having new stocks;
2) "Equity bonuses" or "dividends by stock" are issues where current shareholders do not pay anything for having new stocks. That can be dividend distributions by stock or splits of current stock (called "bonus" stock in Vietnamese).

The HOSE has been established and started its transaction on July 28th 2000. It is the most important stock market in Vietnam, four times as large as the Ha Noi Stock Exchange in terms of market capitalization. The number of listed companies of HOSE has been increased from two in the beginning in 2000 to 304 in the end of 2012. Its main index, VN Index is a composite index which is including capitalization of all stock listed on the exchange. The HOSE still has typical characteristics of a thin market: high fluctuation (average volatility – annualized standard deviation of monthly returns is about 36%/year), low liquidity, and 5% of companies represent more than 70% of the whole market capitalization. The HOSE applies a system of transaction T_{+3}, which means the investors can receive money only three days after the stock selling.

During the past 30 years, there have been over 565 studies of SEO appeared on famous economic and finance journals (Khotari et al., 2006). These research studies discuss various aspects of SEO such as: different issue methods, different underwriting methods, and types of issued securities. Many research concentrates on determinant factors that have effect on abnormal return. Those factors can be macro-

economic conditions, security market scenario, financial health of company, different industries, and many more.

Empirical studies in developed markets found that the reactions of market to SEO are likely to be negative and average abnormal returns on announcement date are about -2% to -3% (Eckbo and Masulis, 1995). Meanwhile research on emerging markets presented complex results: some markets reacted negatively while others have positive responses, which means that the average abnormal returns are significantly greater than zero. There are also some research studies focusing on abnormal returns of XR date (Marsh, 1979; Tsangarakis, 1993).

Although there are various approaches, the most common method used in SEO study is Event Study. In recent years, Event Study method has been changed significantly: *first*, daily abnormal returns have been used more frequently than monthly abnormal returns; *second*, the time frame of study has been extended to learn about the long-horizon effects of SEO.

Research Method

Event study is a method in examining the changes in asset prices due to an event. In particular, this method is studying the behavior of stock prices around the events of the companies.

According to Campbell, Lo, and MacKinlay (1997), the process of event study consists of steps as followed.

Event definition

It is a period over which the event occurs (event window). This window usually has one day which means an announcement date, however if the information is announced at the time of stock market closing (after 4:00 PM in HOSE for example), the event window will last for one more day (which could mean that the event window will be two days).

Selection criteria

This step is applied for selecting companies used as the sample of this research.

Normal and abnormal return measurement

According to Brown and Warner (1980), "*a security's price performance can only be considered 'abnormal' relative to a particular benchmark. Thus, it is necessary to specify a model generating 'normal' returns before abnormal return can be measured. The abnormal return for a given security in any time period is defined as the difference between its actual ex post return and that which is predicted under the assumed return-generating process*".

There are three commonly used models concerning event study:

- Mean adjusted return: the expected return is equal to the average ex-post returns of the security i and that return is constant. Mathematically, the abnormal return is defined as:

$$\varepsilon_{it}=AR_{it}=r_{it}-E(r_{it})=r_{it}-\mu_i \qquad 1)$$

- Market Adjusted Returns: the expected return is the return of market benchmark which is considered as the market portfolio representative.

$$\varepsilon_{it}=AR_{it}=r_{it}-E(r_{it})=r_{it}-r_m \qquad 2)$$

- Market model:
  a. Applying the CAPM where the market return is estimated from the market benchmark (for example: S&P 500 in US stock market, VN Index in Vietnam Stock market):

$$\varepsilon_{it}=AR_{it}=r_{it}-\alpha_i-\sum \beta_{ij} f_{jt} \qquad 3)$$

Although there are some differences among the three approaches, the results are equivalent. Dyckman et al. (1984) showed that the three models have similar ability to detect the presence of abnormal performance. Korajczyk et al. (1990) found that "*the basic pattern of abnormal returns around the announcement of equity issues is similar across all methods of calculating abnormal returns*" and "*the correlations are generally high (0.85 – 0.99)*" when comparing the results using different methods

(Korajczyk et al., 1990). Based on their results, we may use one of the three approaches when calculating the abnormal returns of stock. However, "*sometimes limited data availability may dictate the use of a restricted model such as the market-adjusted-return model*" (Campbell, Lo, and Mackinlay, 1997), and "*the market adjusted return model can be viewed as a restricted market model with α_i constrained to be 0 and β_i constrained to be 1. This model is often used to study the underpricing of initial public offering (Ritter,1990). A general recommendation is to use such restricted models only as a last resort, and to keep in mind that bias may arise if the restrictions are false*" (Campbell, Lo, and Mackinlay, 1997).

According to "Market Adjusted Return", the expected return of a security on a specific date is same for all the securities, but it is different for other dates. On the other hand, in "Mean Adjusted Return", the expected return of a security i equals to a constant, which can differ across securities.

To calculate the abnormal return in the market adjusted return method, the expected return of the stock i on day t equals the return of the market portfolio and measured by benchmark index (Chen and Chen, 2007). We use this method in our study, so the benchmark index should be VN Index.

The abnormal returns will be defined as:

$$AR_{it}=R_{it}-R_{mt} \qquad 5)$$

where, AR_{it} is abnormal return of stock i on day t; R_{it} is actual return of stock i on day t; R_{mt} is market return on day t which is represented by market benchmark (e.g. VN Index)

The Average abnormal return AAR at t is defined as:

$$AAR = \frac{1}{N}\sum_{i=1}^{N} AR_{it} \qquad 6)$$

where N refers to the number of issues in the sample.

Consider day $t = 0$ is the XR date.

The semi-strong form of market efficiency will be tested as:

$$H_0:AAR_t=0 \qquad H_0=AAR_t=0$$
$$H_1:AAR_t\neq0 \qquad H_1=AAR_t\neq0$$
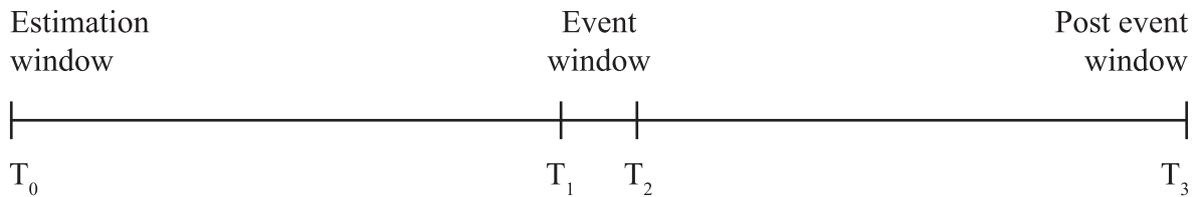
Figure 1. Timeline of event study

If market is efficient, the average of abnormal returns should significant be zero.

The cumulative average abnormal returns (*CAR*) are calculated by summing average abnormal returns in observed period (*T*):

$$CAR = \sum_{t=1}^{T} AAR_t \qquad 7)$$

Estimation procedure

The time line for a typical event study can be shown in Figure 1. T_0–T_1 is the estimation window used for estimating benchmark parameters, such as average return and benchmark standard deviation in case without event, for considering as benchmarks, this window is relatively far from the event. T_1–T_2 is the event window, the period over which event occurs, and T_2–T_3 is the post-event window used for analyzing the influence of the event. This window can be combined with event window to be T_1–T_3.

In the case of Vietnam, because the frequency of SEO is relatively high, the estimation window of 50 days will be selected from T_{-65} to T_{-16} in regard to XR date. The event window and post event window will be combined into 30 days, from T_{-15} to T_{+14} in which XR date is T0.

Testing procedure

Assume that stocks of separated companies are correlated, the standard deviation in estimation window will be calculated as:

$$S(AAR_0) = \sqrt{\dfrac{\displaystyle\sum_{t=-65}^{-16}\left(\dfrac{\displaystyle\sum_{i=1}^{N} AR_{it}}{N} - AAR\right)^2}{50-1}} \qquad 8)$$

Where:

$$AAR = \dfrac{\displaystyle\sum_{i=1}^{N}\left(\dfrac{\displaystyle\sum_{i=-65}^{-16} AR_{it}}{50}\right)}{N} \qquad 9)$$

The parametric test will be:

$$t = AAR_0 / S(AAR_0) \qquad 10)$$

With CAR, the formula used for testing is:

$$t = CAR_{(K,L)} / S(CAR_{(K,L)}) \qquad 11)$$

$$S(CAR_{(K,L)}) = \sqrt{(T \, var(AAR_t))} \qquad 12)$$

and (*K,L*) is the cumulative abnormal returns window.

H_0 will be rejected if *t* is big enough (according to student distribution). If H_0 is rejected, the market is not efficient in the case of SEO.

Data

The research covers only companies listed on the HOSE during 2007-2010. The years 2007 and 2009 are representing the period of a favorable market condition with 165 offerings, while 2008 and 2010 are considered as an unfavorable period of market with 167 offerings. Issuers are classified according to three criteria: market capitalization, issuance method, and industry.

Capitalization value of the company is divided into three groups: companies with big, middle, and small capitalizations based on standards suggested by Morning Star Corporation. Companies with big market capitalization are the biggest ones whose total stock values account for 70% of the market capitalization,

Table 1. SEOs at the HOSE 2007-2010

Classified criteria	2007	2008	2009	2010
Issue methods				
Right or Right + Dividend or Right + Bonus	65	17	15	44
Bonus-Dividend	37	46	48	60
Market Capitalization				
Big cap	8	11	7	18
Middle cap	16	13	13	29
Small cap	78	39	43	57
Industry				
Real estate and construction companies	13	9	10	25
Heavy industry	53	31	29	41
Services	30	21	21	27
Financial- banking sector	2	1	2	10
Agriculture, fishery and forestry	4	1	1	1
Total	102	63	63	104
Total 2007-2010	332			

Source: data from HOSE and SSC, and authors' calculations

middle companies account for the next 20%, and the small ones hold the remaining 10%. The specified results are shown in table 1.

Generally, other research studies choose announcement dates as event dates. However, in this paper, the event dates are XR dates (XR) because of following reasons: *first*, seasoned equity offerings which have been announced are sometimes not implemented as the initial announcement to shareholders; *second*, the event window extending to 15 days before the XR date includes the announcement date to the public (95% of announcement dates happen from T_{-8} to T_{-12} in comparison to the XR date, day 0).

Result and Discussion

Average abnormal return – *AAR* and cumulative abnormal return – *CAR*:

Table 2 shows the differences between favorable and unfavorable periods. In favorable years, *AAR* experienced consecutive increase from T_{-15} to T_{-5}. The total price increase in this period was up to +6.3%. The consecutive increase was confirmed by statistic test at the significant level of 1% and 5% (except for T_{-14} and T_{-13}). In the same period, in unfavorable years, prices gained remarkable increases only at T_{-9} (at a significant level of 10%).

Two to four days before the XR date were the time to make selling decision when prices experience significant decrease. During the favorable period, prices produced greater changes, falling by -1.4% in these 3 days compared to -0.6% in the unfavorable period. The ratio between the number of *AR* increased to the number of *AR* decreased produced the same results. To put it another way, in favorable years, investors are more likely to join the issuance process and speculate for short-term profits (buy from T_{-15} to T_{-5} and sell from T_{-4} to T_{-2}). In unfavorable years, the same signs cannot be seen.

On XR date and T_{+1}, stock prices increased in majority of cases, independently of market conditions. However, in favorable years, prices rose significantly by +3% only in these two days and were two times higher than the same period in unfavorable years which only gained +1.3%.

After offerings, in unfavorable period, prices fell on T_{+3} and T_{+4} while they only decrease remarkably on T_{+5} and T_{+6} in favorable years. In other words, positive reactions of investors in favorable years last longer than unfavorable ones.

Table 3 indicates *CAR* in different windows. The most significant difference was that in favorable years, *CAR* tended to be positive and gained significant levels in most of different windows, except for window $[T_{-3};T_{-1}]$ and window $[T_{+3};T_{+7}]$. Contrarily, in unfavorable years, prices only increased in windows that lasted to T_{+5}. Whatever the period was favorable or unfavorable, stock prices adjusted remarkably on

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Table 2. *AAR* during favorable and unfavorable periods

Day	Favorable					Unfavorable				
	AAR	*t(AAR)*	*CAR*	*AR* increased/ AR decreased	*z(AR* increased/ AR decreased)	*AAR*	*t(AAR)*	*CAR*	*AR* increased/ AR decreased	*z(AR* increased/ AR decreased)
-15	0.006	2.653***	0.006	94/71	1.791	0.002	0.874	0.002	73/90	-1.332
-14	0.003	1.619	0.009	86/79	0.545	0.001	0.423	0.002	69/94	-1.958*
-13	0.002	0.600	0.010	83/82	0.078	-0.001	-0.451	0.001	72/91	-1.488
-12	0.005	2.474**	0.015	87/78	0.701	-0.003	-1.606	-0.001	67/97	-2.342**
-11	0.006	2.953***	0.022	98/67	2.413**	0.000	-0.219	-0.002	75/90	-1.168
-10	0.006	2.694***	0.027	91/74	1.323	0.002	1.178	0.000	81/85	-0.310
-9	0.008	4.002***	0.035	96/69	2.102**	0.003	1.841*	0.004	88/78	0.776
-8	0.007	3.300***	0.042	92/73	1.479	0.002	0.925	0.005	74/92	-1.397
-7	0.004	1.969*	0.046	88/77	0.856	0.002	1.335	0.008	87/79	0.621
-6	0.009	4.230***	0.055	96/69	2.102	0.002	0.892	0.009	70/96	-2.018**
-5	0.007	3.228***	0.063	94/71	1.791	0.002	1.178	0.011	80/86	-0.466
-4	-0.001	-0.665	0.062	82/83	-0.078	0.003	1.68*	0.014	80/86	-0.466
-3	-0.008	-3.749***	0.054	63/102	-3.036***	-0.002	-1.042	0.012	73/94	-1.625
-2	-0.005	-2.473**	0.049	64/101	-2.880***	-0.003	-1.685*	0.009	68/99	-2.399**
-1	0.000	0.024	0.049	77/88	-0.856	-0.001	-0.728	0.008	71/96	-1.935*
0	0.022	10.843***	0.071	123/42	6.306***	0.009	5.058***	0.017	95/72	1.779*
1	0.008	3.751***	0.079	97/68	2.258**	0.004	2.003**	0.020	88/79	0.696
2	0.002	0.763	0.081	87/78	0.701	0.001	0.545	0.021	78/89	-0.851
3	-0.002	-1.262	0.079	70/95	-1.946**	-0.002	-1.205	0.019	69/98	-2.244**
4	0.001	0.117	0.080	80/85	-0.389	-0.005	-2.655***	0.015	68/99	-2.398**
5	-0.002	-1.035	0.078	65/100	-2.725***	0.003	1.565	0.017	83/84	-0.077
6	-0.006	-2.796***	0.072	54/111	-4.437***	-0.002	-1.130	0.015	70/97	-2.089**
7	-0.002	-0.982	0.070	71/94	-1.791*	0.000	0.203	0.016	78/89	-0.851
8	0.004	1.613	0.074	86/79	0.545	0.001	0.595	0.017	79/88	-0.696
9	0.001	0.780	0.075	80/85	-0.389	-0.001	-0.554	0.016	72/95	-1.780*
10	-0.003	-1.285	0.072	68/97	-2.258**	0.000	-0.039	0.016	69/98	-2.244**
11	-0.002	-0.782	0.070	67/98	-2.413**	0.000	0.054	0.016	72/95	-1.780*
12	0.000	-0.066	0.070	74/91	-1.323	0.000	-0.163	0.016	79/88	-0.696
13	0.001	0.629	0.071	81/84	-0.234	-0.003	-1.619	0.013	75/92	-1.315
14	0.001	0.561	0.072	79/86	-0.545	0.000	0.157	0.013	74/93	-1.470

Source: data from HOSE and SSC, and authors' calculations
Notes: ***, **, * represent statistically significant levels of 1%, 5%, and 10% respectively.

days $[T_{-3};T_{-1}]$ and $[T_{+3};T_{+7}]$ which were the windows for investors to exit from the market.

Issuance method

Different methods have some significant effects on *AAR* during favorable time. Table 4 classifies *AAR* according to issuance method. In favorable period, investors attempted to buy shares which were issued as bonus or dividends so that prices rose nearly 7% during 11 days from XR date (T_{-15}) to T_{-5}. Effort to purchase equities issued by subscription rights only lasted in the first week (+3.6% from T_{-12} to T_{-8}).

The short-term speculation in favorable period was quite obvious with trading cycle just after the announcement. Investors tried their best to buy stocks in order to have the rights to buy from T_{-12} to T_{-8}, then sell at any price to avoid issuance procedures from T_{-3} to T_{-2}

(-1.8%) because the HOSE applies the system T_{+3}. Regarding to shares issued as bonuses and dividend distributions, because investors have no rights to transfer their rights, therefore short-term speculation is not so obvious. Tendency to sell stocks only happened with shares issued as bonuses and dividend distributions in favorable years (-1.3% from T_{+5} to T_{+7}) when issuance procedure were completed.

According to the two other classified criteria, capitalization and industry, there were no significant differences between AARs in favorable and unfavorable years.

Conclusion

The HOSE market conditions have affected remarkably seasoned equity offerings. In favorable years, investors tend to speculate in a short term, "surfing on the stock price waves"

Table 3. *CAR* during favorable and unfavorable periods

Window	Favorable		Unfavorable	
	CAR	*t*(test)	*CAR*	*t*(test)
[-12;-2]	0.039	5.666***	0.008	1.353
[-5;0]	0.016	3.106***	0.008	1.825*
[-2;+2]	0.027	5.803***	0.009	2.323**
[-1;+1]	0.030	8.371***	0.011	3.657***
[0;+1]	0.030	10.268***	0.012	4.993***
[0;+2]	0.032	8.9249***	0.013	4.391***
[0;+5]	0.028	5.588***	0.009	2.168**
[0;+8]	0.025	3.968***	0.009	1.659
[0;+11]	0.021	2.949***	0.008	1.282
[-15;-4]	0.062	8.627***	0.014	2.327**
[+3;+13]	-0.010	-1.445	-0.009	-1.492
[-3;-1]	-0.013	-3.562***	-0.006	-1.995*
[+3;+7]	-0.011	-2.370***	-0.006	-1.441

Source: data from HOSE and SSC, and authors' calculations
Notes: ***, **, * represent statistically significant levels of 1%, 5%, and 10% respectively.

Table 4. *AAR* by method

Day	Subscription right		Bonus-dividend	
	Favorable	Unfavorable	Favorable	Unfavorable
-15	0.003	0.007***	0.007***	-0.001
-14	0.004*	0.003*	0.002	0.000
-13	0.004*	-0.004**	-0.001	0.001
-12	0.006***	-0.005***	0.005**	-0.001
-11	0.008***	-0.001	0.005**	0.000
-10	0.007***	-0.003	0.004*	0.005***
-9	0.010***	0.003*	0.006***	0.003*
-8	0.005**	0.003	0.008***	0.001
-7	0.002	-0.002	0.006***	0.005***
-6	0.003	0.000	0.015***	0.002
-5	0.003	0.001	0.011***	0.003
-4	0.001	0.000	-0.002	0.005**
-3	-0.010***	-0.006***	-0.006***	0.001
-2	-0.008***	-0.009***	-0.002	0.000
-1	0.001	-0.005***	-0.001	0.001
0	0.033***	0.014***	0.012***	0.006***
1	0.010***	0.008***	0.003	0.001
2	0.004*	0.008***	0.000	-0.003*
3	-0.003	-0.001	-0.001	-0.003
4	0.003	-0.004**	-0.002	-0.005***
5	0.000	0.005***	-0.004**	0.001
6	-0.005***	-0.002	-0.006***	-0.002
7	0.000	0.001	-0.003*	0.000
8	0.003	0.003	0.004**	0.000
9	0.002	-0.001	0.001	-0.001
10	-0.005**	0.000	-0.002	0.000
11	0.001	**0.001**	-0.004*	-0.001
12	0.003	**0.001**	-0.003	-0.001
13	0.003	-0.007***	0.000	0.000
14	0.003	-0.002	-0.001	0.001

Source: data from HOSE and SSC, and authors' calculations
Notes: ***, **, * represent statistically significant levels of 1%, 5%, and 10% respectively.

when companies issue shares, especially by subscription rights. They buy when the information of issuing has just been announced, making prices increase during the first week after announcements and then sell two to three days before the XR date, inducing prices to decrease remarkably four to two days before the XR date. Investors also tend to buy stocks which are issued as bonus or dividend distributions in the favorable period and just sell after

Table 5. *CAR* by method in favorable and unfavorable periods

Window	Subscription right		Bonus-dividend	
	Favorable	Unfavorable	Favorable	Unfavorable
[-15;-1]	0.039***	-0.017**	0.059***	0.022***
[-4;-2]	-0.017***	-0.014	-0.010***	0.005*
[0;+14]	0.051***	0.024	-0.006	-0.007

Source: data from HoSE and SSC, and authors' calculations
Notes: ***, **, * represent statistically significant levels of 1%, 5%, and 10% respectively.

all the procurements have been done (six to seven days after XR date).

The results of this study are supported by the research on Malaysia market by Salamudin et al. (1999). According to their research, during the window $[T_{-60};T_{+20}]$ prices increased significantly (+15%) if the stocks were issued in favorable years and decreased by -0.5% (not significant at any level) in the unfavorable period.

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