ABNORMAL RETURNS AFTER LARGE STOCK PRICE CHANGES: EVIDENCE FROM THE VIETNAMESE STOCK MARKET*

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JEL classification: G12, G14

Keywords: Event Studies; Information and Market Efficiency; Overreaction Hypothesis; Price Reversals; Vietnamese Stock Market;

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Abnormal Returns after Large Stock Price Changes: Evidence from the Vietnamese Stock Market

ABSTRACT

A substantial number of empirical studies have investigated the overreaction hypothesis to ascertain whether overreaction has led to subsequent price reversals in the short-term period. While those studies focus on the world's largest markets i.e. U.S. and Japan, other emerging and developing markets are largely unexplored. This motivates us to further investigate the issue in Vietnamese stock market. Applying Generalized Method of Moments approach on a sample size of 33 firms listed on the Ho Chi Minh City Securities Trading Center over the five-year period from 2001 to 2005, this study finds that Vietnamese stock market appears to have overreacted to both bad and good news arrival on the day of large or extreme price changes. These extreme price changes are followed by short-term price reversals. The short-term price reversals are attributable to three main factors: overreaction, bid-ask spreads, and low market liquidity. Stocks that exhibited large price changes tend to have positive performance over longer term, i.e. days 6 through 20 after the day of initial large price changes. While the existence of statistically significant abnormal returns following large price decreases is economically significant from the standpoint of practical finance, it may challenge validity of the weak form of efficient market hypothesis. This challenge needs to be considered further in future research.

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1. INTRODUCTION

Fama (1969) proposed three forms of efficient market hypothesis (EMH): strong form, semi-strong form, and weak form. Stock prices at any time fully reflect (a) all available information in the strong form, (b) all public available information in the semi-strong form, and (c) historical information in the weak form of EMH. EMH has two important implications: (i) future stock prices are unpredictable, and (ii) expected stock returns can only be determined by rational asset pricing models such as the capital asset pricing model (CAPM), Arbitrage Pricing Theory (APT), the Fama-French three-factor model; or by the statistical market model. These models utilize different approaches to explain the same issue: the relationship between expected stock returns and their associated risks. The well-known CAPM of Sharpe (1964), Lintner (1965), and Black (1972), based on Markowitz's mean-variance efficient approach, shows that expected stock returns at equilibrium are explained by only one risk factor i.e. the market factor. The market factor appeared in Markowitz (1959)'s market model to explain expected stock returns. In different from the CAPM, the market model is unrestricted to specific equilibrium condition. In 1976, Ross proposed APT which shows that expected stock returns in the market following the law of one price with no arbitrage opportunities are explained by not only one, but a number of unspecified economic factors. Fama and French (1993) link the CAPM and APT by developing the three-factor model including market factor, size or market equity (ME) factor, and book-to-market (BM) factor.

Empirical studies have suggested that stock prices do not always accurately reflect available information. In particularly, financial markets under-react to information in some cases i.e. market price does not move upward far enough in reaction to good news, or does not move downward far enough in reaction to bad news, while overreact in others i.e. market price moves upward too far in reaction to good news, or moves downward too far in reaction to bad news (Bloomfield *et al.* 2000). The evidence of either market under-reaction or market overreaction has therefore challenged the EMH. Research in experimental psychology has suggested that "*most people overreact to unexpected and*

dramatic news" (Debondt and Thaler 1985). Motivated by this, Debondt and Thaler (1985) develop the overreaction hypothesis which suggests: (i) *"Extreme movements in stock prices will be followed by subsequent price movements in the opposite direction"*, and (ii) *"The more extreme the initial price movement, the greater will be the subsequent adjustment"*. The overreaction hypothesis implies a violation of weak form of EMH i.e. future stock prices cannot be predicted from past stock prices. A substantial number of empirical studies have investigated the overreaction hypothesis to ascertain whether overreaction has led to subsequent price movements in the opposite direction or price reversals in the long-term period (see De Bondt and Thaler 1985, 1987, Chan 1988, Ball and Kothari 1989, Zarowin 1989, 1990, and Chan and Chen 1991), intermediate period (see Jegadeesh 1990, and Lo and MacKinlay 1990), and short-term period (see Howe 1986, Atkins and Dyl 1990, Lemann 1990, Bremer and Sweeney 1991, 1996, Brown, Harlow, and Tinic 1988, 1993, Cox and Peterson 1994, Park 1995, and Bremer *et al.* 1997). While those studies focus on the world's largest markets i.e. U.S. and Japan, other emerging and developing markets are largely unexplored. Vietnamese market is one case in point.

Accordingly, the motivation of this paper is to investigate whether there is overreaction in Vietnamese stock market, subsequently, whether the overreaction will lead to price reversals in the short-term period i.e. five days, and eventually, whether these predictable patterns of price reversals are inconsistent with the weak form of EMH. In particularly, this paper examines returns following one-day price decreases /increases of five percent or more for all 33 firms listed on the Ho Chi Minh City Securities Trading Center (HCMC STC) over the five-year period from January 2001 to December 2005. Vietnamese market is appropriate one to choose for the reasons: (a) Vietnamese stock market is a new market but with high potential for growth, and (b) to this author's knowledge, no other Vietnamese work on overreaction has been published.

Our approach distinguishes itself from exiting ones in a major way. This study applies the Generalized Method of Moments (GMM) methodology developed by MacKinlay and Richardson (1991) to estimate the expected stock returns as described by the CAPM. Our choice of GMM over common ordinary least squares (OLS) test is reasonable since (a)

GMM modeling has the advantage of providing a general estimator which encompasses many standard econometric estimators including OLS, instrumental variables (IVs), and maximum likelihood; (b) GMM is valid under weaker assumptions about the normality of data distribution; (c) GMM could potentially improve the estimation since it allows serially correlated residuals and conditional dependency of residuals on the explanatory variable, i.e. market factor.

Our results indicate that (i) Vietnamese stock market appears to have overreacted to both bad and good news, especially in the case of price decreases, (ii) three factors: overreaction, bid-ask spreads, and low market liquidity play important roles in explaining the short-term price reversals following large price changes, (iii) in the case of price declines, investors may earn marginal abnormal returns from exploiting the phenomena of price reversals, a result may challenge the validity of weak form of EMH, and (iv) large price changes are followed by positive performance over longer term, i.e. over days 6 through 20 after the day of initial large price changes.

The remainder of this paper is organized as follows. Section 2 reviews the methodology for analyzing abnormal returns. Section 3 describes the dataset of variables. In Section 4, the empirical findings are presented. Section 5 provides economic significance referred from the empirical findings, and Section 6 concludes the paper.

2. METHODOLOGY

2.1 Event definition

There are many ways to investigate the overreaction hypothesis. Our approach is simple and similar to that of Atkins and Dyl (1990), Cox and Peterson (1994), and Bremer *et al.* (1997). Consider all daily rates of returns for stocks listed on the HCMC STC that were less (greater) than or equal to -5 (+5) percent over the period from January 2001 to December 2005; define these rates of returns as large or *"extreme"* price change events. As noted by Atkins and Dyl (1990), and Bremer *et al.* (1997), such events are largely caused by unexpected, new information pertinent to the value of the stock i.e.

unexpected operating results, or unanticipated government decisions. These events provide good opportunity to ascertain whether stock prices accurately reflect unexpected, new information or overreact to such information A trigger value of -5 (+5) percent is appropriate for the reason that the HCMC STC applies quite a narrow range of daily price fluctuation to prevent any short-term wild price fluctuations i.e. from January 2003, the daily price limit which allows the maximum range of price fluctuation within a single trading day is (+/-) 5 percent.

As in Bremer and Sweeney (1991) and Cox and Peterson (1994), only one event per day is allowed in order to minimize correlation across sample. The event observations are sorted first by date and then alphabetically by stock name. For the date with more than one event, only the observation appearing first in the ordering sort for that date is retained.

2.2 Measuring abnormal returns

Fig.1 illustrates the timeline for analyzing abnormal returns, i.e. returns that are not explained by rational asset pricing models, around one-day *"extreme"* price change event, with $\tau = 0$ the event date.

[Insert Fig.1 about here]

The abnormal return $AR_{i,\tau}$ is obtained by subtracting realized rate of return from expected return,

$$AR_{i,\tau} = \tilde{R}_{i,\tau} - E\left(\tilde{R}_{i,\tau}\right) \tag{1}$$

where $\tilde{R}_{i,\tau}$ denotes realized rate of return for stock i on day τ : $\tilde{R}_{\tau,t} = \tilde{P}_{i,\tau} - \tilde{P}_{i,\tau-1} \big/ \tilde{P}_{i,\tau-1}$, with $\tilde{P}_{i,\tau}$ the closing price of stock i at day τ , and $\tilde{P}_{i,\tau-1}$ the closing price of stock i on

day $\tau - 1$. $E\left(\tilde{R}_{i,\tau}\right)$ denotes the expected return for stock i on day τ. This study adopts restricted CAPM model to estimate the expected return,

$$E\left(\tilde{R}_{i,\tau}\right) - R_f = \bar{b}_i\left[E\left(\tilde{R}_{M,\tau}\right) - R_f\right] \tag{2}$$

where $E\left(\tilde{R}_{i,\tau}\right) - R_f$, $E\left(\tilde{R}_{M,\tau}\right) - R_f$ represent the expected excess return on stock i, the expected excess return on market portfolio for day τ, respectively.

The beta or factor sensitivity or factor loading $\bar{b}_i$ is obtained as the simple average of GMM estimations of slopes from the following restricted time series regression over two periods: 120 to 21 days before the event day $\tau = 0$ (pre-event), and 21 to 120 day after the event day $\tau = 0$ (post-event).[1] GMM approach is relatively similar to that of MacKinlay and Richardson (1991).

$$\tilde{R}_{i,t} - R_f = b_i\left(\tilde{R}_{M,t} - R_f\right) + \tilde{\varepsilon}_{i,t} \quad i = 1,2,...,N \quad t = 1,2,...,T \tag{3}$$

There are one sample moment $1/T\sum_{t=1}^{T}\tilde{\varepsilon}_{i,t}(\tilde{R}_{M,t} - R_f)$, and one parameter b_i to be estimated for each stock.[2] Therefore, the moment condition in equation (3) is exactly identified, and the associated Hansen's (1982) J statistic is zero.

Denote $\overline{AR}_\tau$ as the sample mean abnormal return across event observations on day τ, then $\overline{AR}_\tau$ is calculated as,

[1] If less than 100 days of returns are available during the pre and post-event estimation periods, b_i is estimated using however many days of returns are available, provided there are at least ten.

[2] The GMM estimation is performed using Stata 8.2. When the constant term (intercept) is suppressed, Stata excludes the constant term from list of instrumental variables. Estimation of beta in this way is relevant for the purpose of this paper which assumes that the CAPM is appropriate model of determining expected stock returns. It is different from that of MacKinlay and Richardson (1991), which the intercept is included in the list of the instrumental variables for the purpose of testing the CAPM, i.e. whether the intercept is statistically indifferent from zero.

$$\overline{AR}_{\tau} = \frac{1}{N}\sum_{i=1}^{N} AR_{i,\tau} \tag{4}$$

where N is the number of events.

Denote $CAR_i(\tau_1,\tau_2)$ as the cumulative abnormal return for stock i from day τ_1 to day τ_2, then $CAR_i(\tau_1,\tau_2)$ is calculated as,

$$CAR_i(\tau_1,\tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{i,\tau} \tag{5}$$

Denote $\overline{CAR}(\tau_1,\tau_2)$ as the sample average cumulative abnormal return across event observations, then $\overline{CAR}(\tau_1,\tau_2)$ is calculated as,

$$\overline{CAR}(\tau_1,\tau_2) = \sum_{\tau=\tau_1}^{\tau_2} \overline{AR}_t = \frac{1}{N}\sum_{i=1}^{N} CAR_i(\tau_1,\tau_2) \tag{6}$$

Denote $\theta_1(\theta_2)$ as the test statistic i.e. t-statistic on the basic of the null hypothesis that the mean abnormal return across event observations is zero (the average cumulative abnormal return is zero). Then the value of $\theta_1(\theta_2)$ is calculated as,

$$\theta_1 = \frac{\overline{AR}_{\tau}}{var(\overline{AR}_{\tau})^{1/2}} \sim N(0,1) \tag{7}$$

$$\theta_2 = \frac{\overline{CAR}(\tau_1,\tau_2)}{var(\overline{CAR}(\tau_1,\tau_2))^{1/2}} \sim N(0,1) \tag{8}$$

where $var(\overline{AR}_{\tau})$ is the cross-sectional variance of abnormal returns on day τ, $var\,\overline{CAR}(\tau_1,\tau_2)$ is the cross-sectional variance of cumulative abnormal returns from day τ_1 to day τ_2.

Obtained values of test statistics provide evidence on the level of statistic significance of abnormal returns and cumulative abnormal returns.

3. DATA

The basic data comprise of daily returns on (a) all 33 stocks listed on the HCMC STC, as of the end of December 2005, (b) a proxy for market index i.e. VN-INDEX, which is calculated base on weighed value of all stock trading on the HCMC STC. These data are sourced from the Bank for Investment and Development of Vietnam (BIDV) Securities Co., Limited. The daily returns are computed based on the closing price of each trading day. If two successive closing prices are not available, the daily returns are also not recorded. The proxy for risk free rate is equivalent daily rate of return on one-year Treasury-Bill obtained from the International Financial Statistics (IFS) database provided by the International Monetary Fund (IMF).The sample period extends from January 2001 to December 2005. Over this five year period, initial event sample includes 153 extreme price increases and 177 extreme price decreases. Deleting the observations not meeting (a) requirement of only one event per day resulted in event sample of 57 extreme price increases and 71 extreme price decreases, and (b) measurement of abnormal return (see above in section 2) resulted in the final event sample of 48 observations of extreme price increases and 66 observations of extreme price decreases.

The structure of the HCMC STC's trading mechanism is briefly explained as follows. The HCMC STC implements two trading methods: method of matching orders, and method of reaching agreement (put-though method). Method of matching orders, i.e. limit orders and market orders, is implemented via matching buying orders with selling orders based on priority in term of price, i.e. the buying (bid) order with the higher price level will be given priority to be implemented first, and the selling (ask) order with the lower price level will be given priority to be implemented first; and priority in term of time, i.e. if the orders have the same price level, the order placed earlier will be given priority to be implemented first. Method of reaching agreement is implemented since 20th May, 2003. This method allows investors to reach agreement among themselves on the

transaction conditions. During the period prior to 20th May, 2003, the trading time was from 9.am to 10a.m, on Monday, Wednesday and Friday, except Holidays, with one time of matching orders. Since 29th May 2003, the trading time has been extended, i.e. from 9.am to 10.30.am for trading based on two times of matching orders, and from 10.30a.m to 11a.m for trading based on the method of reaching agreement, on Monday to Friday. [3]

4. EMPIRICAL FINDINGS

As shown in Panel A of Table I, the mean abnormal return, computed using Equation (4), is -3.953 percent on the day of the initial price drop (i.e. day 0). The mean abnormal return positive for four of the five trading days following the day of initial price drop, and is significantly different from zero on the second and third days, as indicated by two-tailed test. The total abnormal return i.e. average cumulative abnormal return for these five days is 1.344 percent, measured using the restricted CAPM model. We interpret these results as strong evidence in support of the overreaction hypothesis that the initial price change was, in part, an overreaction to whatever information caused such change. That is, the initial price change was excessive; thus, a reversal in price happened to "correct" the price. The magnitude of price reversal over five days is equivalent to 34 percent of initial price drop (i.e. 1.344/3.953). Therefore, it appears that a substantial proportion of initial price change represented an overreaction to bad news. Also, the average cumulative abnormal return over days 6 through 20, which is reported to examine whether the price reversal persists for a longer term, is 1.637 percent and statistically significant.

[Insert table I about here]

[3] This description is based on the information published on the website of HCMC STC (http://www.vse.org.vn/).

Fig.2 shows average cumulative abnormal returns, computed using Equation (6), for the period from 20 days before to 20 days after the day of initial price decline. The figure shows price keeps falling on the first day following the initial price decline. The price reversal occurred from the second day and continued to rise during the next days.

[Insert Fig.2 about here]

Panel B of Table I shows that the mean abnormal return is 3.683 percent on the day of initial price advance. The mean abnormal return is negative for three of the five trading days following the day of initial price advance, and is significantly different from zero on the third and forth days, as indicated by two-tailed test. The total abnormal return i.e. average cumulative abnormal return for these five days is -0.910 percent. These results are again supportive of the overreaction hypothesis. The magnitude of price reversal over five days is equivalent to 25 percent of initial price drop (i.e. 0.910/3.683). This indicates the extent to which investors overreact to good news is rather less pronounced than is their overreaction to bad news. The average cumulative abnormal return over days 6 through 20 is 3.417 percent and statistically significant. This indicates stock exhibited large one-day price advance tends to be associated with positive performance over longer term following the day of price increase.

Fig.3 shows average cumulative abnormal returns for the period from 20 days before to 20 days after the day of initial price increase. The figure shows price keeps rising slightly on the first day and second day following the initial price increase. The price reversal occurred from the third day through the fifth day.

[Insert Fig.3 about here]

Besides the overreaction hypothesis, Cox and Peterson (1994) discuss two other potential explanations for short-run price reversals, they are bid-ask spreads and market liquidity (see also Atkins and Dyl 1990, and Bremer and Sweeney 1991).

Bid-ask spreads may explain price reversals in Vietnamese stock market, i.e. HCMC STC. Investors tend to have substantial selling pressure, i.e. more investors want to sell the stock than to buy it in response to bad news arrival on the day of initial price decrease, increasing the probability of transaction at bid price, i.e. price at which someone is willing to buy. On the day that overreaction to bad news might be completed, i.e. on day 2 when investors might aware that initial price decrease was actually excessive, there should be more buyers than sellers, enhancing the probability of transaction at ask price, i.e. price at which someone is willing to sell. In this case, systematic shifts from trading at bid prices to ask prices may partially account for short-term price reversal.

Similarly explained, more investors want to buy the stock than to sell it in response to good news arrival on the day of initial price increase, increasing the probability of transaction at ask price. On the day that overreaction to good news might be completed, i.e. on day 3 when investors might aware that initial price increase was actually excessive, there should be more sellers than buyers, enhancing the probability of transaction at bid price. Thus, systematic shifts from trading at ask prices to bid prices may partially explain for short-term price reversal.

Market liquidity, i.e. the possibility of changing stocks into cash quickly without loss, may also explain price reversals in Vietnamese stock market. As suggested by Cox and Peterson (1994), if market liquidity plays a significant role in explaining price reversal, we should observe stronger reversals in less liquid market, and vice versa. Because we find significant price reversals in HCMC STC, a low liquid market, i.e. stocks are traded with only two official transaction prices per trading day resulted from two times of matching orders, these findings are consistent with Cox and Peterson (1994) in that market liquidity is an important factor in price reversal process.

Compared with previous literature, our study is consistent with Atkins and Dyl (1990), Bremer and Sweeney (1991), Cox and Peterson (1994), and Bremer *et al.* (1997), i.e. stock price is short-term reversed after large one-day price decreases. Our findings are different in that the reversals did not occur immediately, but on the second day after the day of initial price decreases. Also consistent with Atkins and Dyl (1990), the magnitude of reversal following large price increases is less than that following large price decreases. Our results are not in line with Bremer *et al.* (1997), whose results find little evidence of significant reversal following large stock price increase. Unlike previous literature, the evidence of price reversals in Vietnamese market is attributable to all three potential factors: overreaction bid-ask spread, and market liquidity. Our analysis on longer term following large price changes, i.e. over days 6 through 20, indicates positive performance following both large price increases and decreases.

5. ECONOMIC SIGNIFICANCE

The existence of statistically significant abnormal returns following large price changes, while economically significant from the standpoint of practical finance, may not be consistent with weak form of EMH. Because that short sale is prohibited in Vietnamese stock market, investors cannot earn profits from price reversals following large price increases.

Consider a naïve trading strategy for investors who invest their money in Vietnamese stock market over the five-year period from January 2001 to December 2005 in attempting to profit from price reversals following large price decreases as follows.

The strategy is investing the entire portfolio in any stock whose return equals to, or falls bellow the trigger, i.e. 5 percent, and selling all the same stocks next five days. By following this strategy over the five-year period, the appropriate rate of return is geometric mean, i.e. $r = \left[\prod_{i=1}^{66}(1+r_i)\right]^{1/66} - 1$, with r_i the cumulative abnormal return for five days following the initial price decrease. The return on every 1 Vietnamese Dong of

initial investment is $ROI_{66} = \left[\prod_{i=1}^{66}(1+r_i)-1\right]\times 100\%$. If every value of r_i equals to its average value, which is 1.344 percent for each transaction, the return on every 1 Vietnamese Dong after five year will be about 141 percent, before transaction costs.

Can investors really earn this profit? First, the profit is earned from abnormal returns measured by restricted CAPM, but CAPM modeling may not be 100 percent correct. Second, as stated above, this is the profit before transaction costs. Two basic types of transaction costs are the round-trip commission, and bid-ask spread. The round-trip commission that applies for the period examined here is 0.2 percent of the trading value.[4] The bid-ask spread represents another cost for investors attempting to profit from the price reversals, i.e., investors placing market orders buy at the ask price and sell at the bid price; the difference between bid and ask is another cost of the round-trip transaction. The average bid-ask spread for all 33 stocks as of the end of 2005 was computed to be around 1.06 percent. Thus an approximately total transaction cost of 1.26 percent (i.e. 0.2+1.06) is slightly less than average cumulative abnormal return of 1.34 percent. Therefore, on average, after transaction costs, investors may earn marginal abnormal returns from exploiting the phenomena of price reversals. This evidence may challenge the weak-form of EMH.

6. CONCLUSIONS

A substantial number of empirical studies have investigated overreaction hypothesis to ascertain whether overreaction has led to subsequent price movements in the opposite direction or price reversals in the short-term period (see Howe 1986, Atkins and Dyl 1990, Lemann 1990, Bremer and Sweeney 1991, 1996, Brown, Harlow, and Tinic 1988, 1993, Cox and Peterson 1994, Park 1995, and Bremer *et al.* 1997). While those studies focus on the world's largest markets i.e. U.S. and Japan, other emerging and developing markets are largely unexplored. Vietnamese market is one case in point. This motivates us to further investigate whether there is overreaction in Vietnamese stock

[4] This is based on the information published on the website of Vietnam News Daily (http://www.vnexpress.net/Vietnam/Kinh-doanh/Chung-khoan/2006/02/3B9E70D5/)

market, subsequently, whether the overreaction will lead to price reversals in the short-term period i.e. five days, and eventually, whether these predictable patterns of price reversals are inconsistent with the weak form of efficient market hypothesis (EMH).

Our results based on a sample of 33 firms listed on the Ho Chi Minh City Securities Trading Center (HCMC STC) over the five-year period from January 2001 to December 2005 indicate the followings. First, the Vietnamese stock market appears to have overreacted to both bad and good news, especially in the case of price decreases. Second, stock prices tend to be reversed after large price changes. Three factors including overreaction, bid-ask spreads, and low market liquidity play important roles in explaining the short-term price reversals. Third, in the case of large price declines, investors may earn marginal abnormal returns from exploiting the phenomena of price reversals; a result may challenge the weak-form of EMH. Forth, large price changes are followed by positive performance over longer term, i.e. over days 6 through 20 after the day of initial large price changes.

To conclude, the contributions of our study are using GMM methodology to investigate the issue of overreaction, price reversals, and market efficiency on a largely unexplored market, i.e. Vietnamese stock market. Our study confirms findings of Atkins and Dyl (1990), Bremer and Sweeney (1991), Cox and Peterson (1994), and Bremer *et al.* (1997) that stock prices are short-term reversed after large one-day price decreases. While the existence of statistically significant abnormal returns following large price decreases is economically significant, it may challenge the validity of weak form of EMH which needs further clarification in future research.

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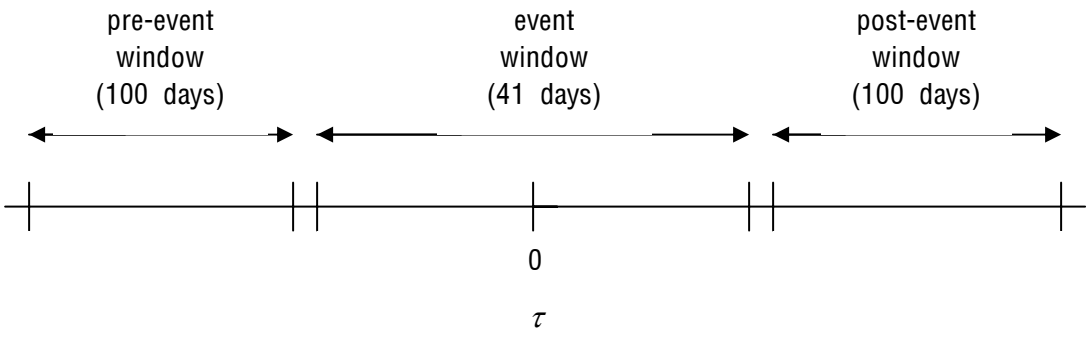

Fig.1 Time line for the event study

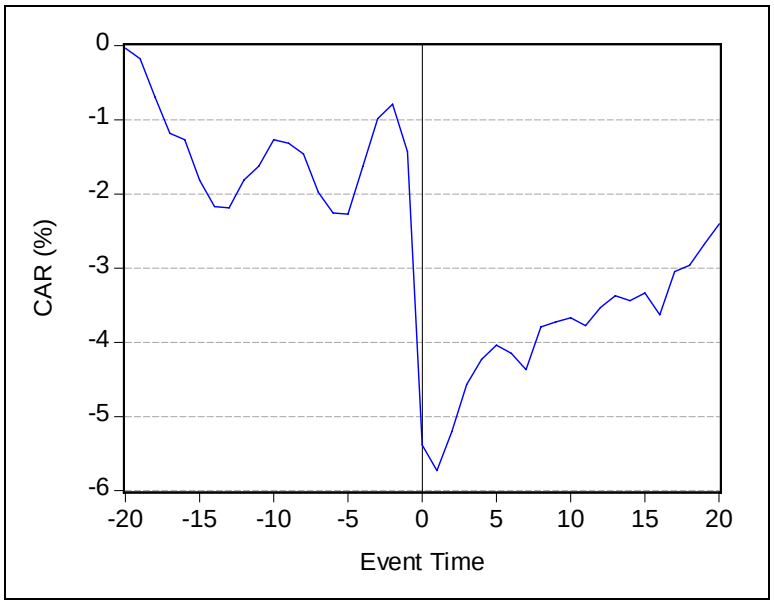

Fig.2 Average cumulative abnormal returns for HCMC STC stocks that exhibited a large decline in price at day 0. Abnormal returns are computed using the restricted CAPM model with VN-INDEX value weighted index.

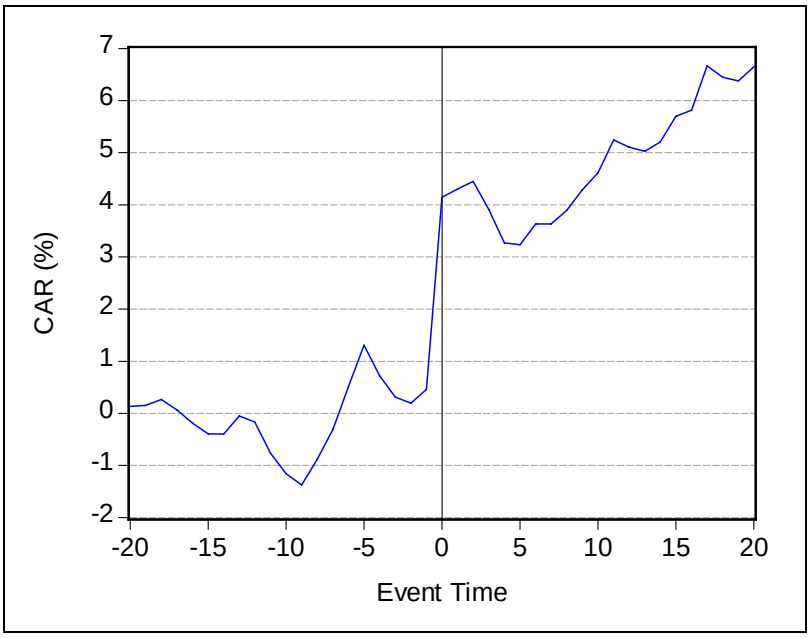

Fig.3 Average cumulative abnormal returns for HCMC STC stocks that exhibited a large advance in price at day 0. Abnormal returns are computed using the restricted CAPM model with VN-INDEX value weighted index.

Table I Abnormal returns of HCMC STC firms following one-day price changes of 5 percent or greater

Day	*Abnormal Return/Cumulative Abnormal Return (%)*	*t-statistic*
	Panel A. Large Price Declines (N=66)	
0	-3.953	-26.29***
1	-0.345	-1.44
2	0.523	2.18**
3	0.634	2.67***
4	0.341	1.51
5	0.191	0.85
Days 1-5	1.344	3.57***
Days 6-20	1.637	2.61***
	Panel B. Large Price Increases (N=48)	
0	3.683	17.34***
1	0.160	0.63
2	0.146	0.51
3	-0.538	-1.98*
4	-0.641	-2.56**
5	-0.037	-0.15
Days 1-5	-0.910	-2.05**
Days 6-20	3.417	5.42***

*** Significant at 0.01 level (two tailed test).
** Significant at 0.05 level (two tailed test).
*Significant at 0.1 level (two tailed test).