



Signaling Prospect of New Issues by Stock Split: Evidence from the Stock Exchange of Thailand

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An Independent Study

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Abstract

This paper extends Leemakdej (2007) study on the use of stock split as a positive signal for subsequent new issues. Leemakdej (2007) argued that stock split might be used as a signal by firms with good investment prospect. However, other financing channels of the firm reach the point where it needs to issue new stocks to raise fund. The pecking order theory suggests that raising fund through new issuance might confuse the market of the prospect, the stock split is then used to signal the market and lessen the potential negative impact from new issuance. This study employs an event study to investigate 33 stocks listed on the Stock Exchange of Thailand that split their stocks 200 days before the issuance dates. The result clearly shows significant positive abnormal return for these stocks around the new issues date. On the contrary, non-split firms do not show any significant abnormal returns. Further test by cross-section regression provides strong support on the use of stock split as a signal before issuance. The signal is so reliable that firms with sufficient alternative financing sources such as retained earnings or debt cannot pretend to have good prospect by splitting their stocks.

1. Introduction

There are many sources of fund that can be used to finance investment. Internal fund, issuing debt or equity are possible options. Former study suggests that stock price tends to fall after stock issuing. The reason for this is from asymmetric information. However, investors believe that disclosure of firms' credible information can reduce asymmetric information.

Firms can disclose the credible information to investors by releasing positive signal. One of the signals is "stock split". Many studies suggest that stock price after split announcement may increase compare to the original price. This means that stock split signals investors that firm may have a good performance, hence reduces the price drop at the announcement.

This paper examines whether stock split is a positive signal before equity issuance. Furthermore, the scope also extends to examine whether managements' incentive for using financing sources of investment is related to stock split as a signal. This study focuses on all firms listed on the Stock Exchange of Thailand during 2002-2006. Companies under rehabilitation are excluded from the sample because they are not normally traded.

Some previous studies investigate stock splits in Thailand. Kositsakul (2003) studied what do stock splits really signal. Gorkittisunthorn (2006) examined insider ownership, bid-ask spread, and stock splits. Noiboonturm (2005) considered insider ownership and signals, Leemakdej (2007) investigated abnormal return during uncertain events. Leemakdej (2007) has found that stock split can be a signal before issuance and can lessen negative impact during issuance dates. He suggested that it is possible for further study to differentiate the sample of split-firms and non-split firms that issue new stocks. This study extends Leemakdej (2007) finding by focusing on the event around the issuance dates rather than the split dates.

In traditional event study, Fama et al (1969) used the important criteria with specific event date for testing. Normally, event date is the date that information about the

event leak into the market. In this study, the event date is the date that firm announces new stocks issuance. Fama et al (1969) claimed that stock split is the positive signal from managers to investors to provide good information, increasing of profit or dividend announcement, in the case that investors do not have sufficient information. However, the previous studies did not mention that stock split can be a signal to alleviate bad news such as new issuance. This study then focus on this point by extending the findings of Leemakdej (2007) which examines whether stock split can lessen negative impact during new issuance announcement. In addition, this study investigates the relation between stock split as a signal and variables related to financing investment.

The rest of the chapters of this paper deals with the following topic: Section 2 presents literature review of the previous researches. Section 3 describes theoretical framework of the study. Data and Methodology are presented in Section 4. Section 5 reveals the empirical results of the testing. The final section concludes the paper.

2. Literature Review

Theoretically, stock splits do not affect cash flow of the firm. Therefore, there is no effect neither on the shareholders nor total value of the firm. Former researches explained why companies split their stocks, which can be classified as below:

2.1 Stock split as a signal to stock returns

Fama et al (1969) suggested that managers use stock split as a signal to investors in the case that investors do not have sufficient information. Asquith, Healy and Palepu (1989) have found that companies split their stocks after an increasing in earnings, and expectations of investors increase because of the split announcement. Huang, Liano and Pan (2002) examined the stock split signals to future profitability. Their results showed that the highest earnings change occurs at the year of stock split announcement and earnings change declines over the subsequent five years, and there is a positive relation between stock split and future profitability. Brennan and Copeland (2002) investigated the relation of stock splits, stock prices, and transaction costs. They presented empirical evidences to confirm the relation between stock trading costs and stock prices and showed that stock split is a signal of manager's private information.

Elfakhani and Lung (2003) studied the effect of split announcements on Canadian stocks during 1977-1993. Market behavior on stock split announcements is determined and positive abnormal return on announcement days and 11-day period of split are found. They indicated the positive correlation between abnormal return and changes in the total number of shareholders. They concluded that their findings support the signaling hypothesis. Charitou, Vafeas and Zachariades (2005) studied the responding of investors to stock splits in an emerging market. Their studies revealed the positive abnormal return around the announcement of stock split in Cyprus. They mentioned that educating investors in emerging markets process information correctly will make efficiency market improve. Reboredo (2003) investigated how the market reacts to stock splits by examined the effect of stock splits on the stock price, return, volatility and trading volume around the split ex-dates

of Spanish stock market during 1998-1999. Their result revealed a negative effect on price and stock splits' return. However, the positive effect on volatility and trading volume were found. Reboredo (2003) suggested that stock split persuades the optimistic valuation of future firm performance, rejecting the signaling hypothesis and mentioned that stock splits have reduced the wealth of shareholders.

2.2 Stock split as a signal to pre-issue information

Guo and Mech (2000) investigated conditional event studies, anticipation, and asymmetric information for the case of seasoned equity issues and pre-issue information releases. They examined the determinants of firm's decision to issue equity. Their results discovered that declaration of stock splits, dividends announcement and earnings releases are the factors that help investors to anticipate equity issues. Nonetheless, these factors do not reduce asymmetric information. They also found that cross-sectional differences in valuation uncertainty affect the issue announcement.

2.3 The pecking order theory

The pecking order theory explains how firms make a decision on financing more funds. The former study, Myers and Majluf (1984) studied the corporate financing and investment decisions when investors do not have firms' information. They discovered the explanations for corporate financing behavior which including the tendency to rely on internal sources of funds, and they suggested that firms prefer debt to equity if external financing is required.

For study in United States and Japan, Aggarwal and Zong (2003) studied the internal cash flows and investment decisions. They indicated that firms in both countries finance investment which follows the pecking order theory. Internal cash flow has significantly positive influence on investment. In European market, Gaud, Hoesli and Bender (2005) investigated the pecking order theory for the European firms and found that the limitation of European firms is the barrier to leverage. The available of internal financing is preferred than external financing. They commented that

European companies limit future excess of slack as it constitutes a potential source of conflict.

However, there are some researches which could not find the support of the pecking order theory. Frank and Goyal (2003) investigated the pecking order theory of capital structure during 1971 - 1998. The result of the testing was in contrast to the pecking order theory, net equity issues track the financing deficit more closely than do net debt issues. Chen (2003) studied the determinants of capital structure of Chinese-listed companies and showed that the pecking order theory could not explain the capital choices of financing investment in the Chinese firms. Chen (2003) argued that because the institutional differences and other financial constraints in China are different from Western, the fundamental institutional assumptions of Western models are not valid in China.

2.4 Literature review in Thailand

Khositsakul (2003) studied what do stock splits really signal. Khositsakul (2003) found that stocks become more liquid after stock split and there is no significant relation between abnormal returns and earnings performance. Noiboonturm (2005) investigated stock split announcement effect by the insider ownership and signal by the firm. The result showed that stock splits signal by a firm with higher insider ownership should be more credible and should have stronger effect. Gorkittisunthorn et al (2006) examined the moderating effect of insider ownership on bid-ask spread changes during stock splits in Thailand with economy highly concentrated ownership structures. They have found that bid-ask spread declines after stock splits, and significant relation between insider ownership and the change in bid-ask spread have found especially for firms with low level of insider ownership concentration. Leemakdej (2007) investigated evaluation of abnormal return during uncertain events window and found that stock splits decreased systematic risk but did not affect liquidity of stocks. Leemakdej (2007) suggested that stock split can be a signal before issuance and can reduce negative impact during issuance dates.

3. Theoretical Framework

In this section, the focus is paid on equity issuing after stock split event. The testable hypotheses will be based on whether stock split signals investors, and whether stock split lessens the negative impact during issuing announcement period. The following theories are used to support the study:

3.1 The signaling theory

The signaling theory suggests that insiders use financial decisions to convey information to outsiders. Managers try to signal investors by providing positive information of their firms. After signaling, firms may follow by announcing growth of sales, increasing of net income, better performance or dividends announcement.

Fama et al (1969) suggested that managers used stock splits as a signal to inform investors who did not possess sufficient information. Thus, good information could be provided to investors using signal as a classification of good or bad information.

3.2 The pecking order theory

The pecking order theory describes how managers make their financial decision. This suggests that firms prefer finance investment by using internal sources of fund rather than external sources of fund. To clarify this, in order to finance investment, firms tend to finance their investment from retained earnings first. If external source of fund is required, firms will issue the safest security by issuing debt. The issuing equity is considered as the last source of fund.

There are several explanations for the pecking order theory. Firstly, transaction costs for funding new investment are lower compared to debt or equity financing. Secondly, some firms have internal control of using external source of fund. In general, issuing new equity requires approval from Board of Directors while issuing debt does not require. Thirdly, firms may want to maintain a high leverage ratio, or because of debt overhang problem which makes issuing new equity less attractive

compared to issuing debt. The last explanation for the pecking order theory that this paper wants to examine is whether the new issuing convey investors the negative information of the firm. Myers and Majluf (1984) stated that stock prices will fall after firms announce new issuing. They argued that managers are reluctant to issue stocks when they believe that stocks of firms are undervalued, therefore, investors notice that equity issuing is the indicator of the overvalue of stocks.

The following hypotheses will be testified:

Hypothesis1. There is no abnormal return around new issuance announcement period.

H0. Cumulative average abnormal return around new issuance date equals zero.

Hypothesis2. There is no difference of abnormal return around new issuance announcement period between split-firms and non-split firms.

H0. Cumulative average abnormal returns around new issuance date of split-firms and non-split firms are equal.

4. Data and Methodology

4.1 Data

The data in this study are from Stock Exchange of Thailand (SET). It is focused on all firms that issue new equity after 1 year from the previous announcement date. The number of total sample is 331. The period observed is during 2002 to 2006. The sample excludes the companies under rehabilitation, merging and liquidation companies due to the lack of stock price information. To focus on the pure effect of the additional equity issuing, the sample is excluded stocks with confounding event such as dividends, warrants, employee stock options and treasury stocks. Initial public offering is also excluded from the sample.

After the total sample is obtained, it is classified into two groups. The first group is the samples of new issuance within 200 days after stock split. The second group is the samples that did not split stock before issuance or issuing new stocks more than 200 days after splitting. Therefore, the number of 331 total samples is separated into 33 samples for the first group and 298 samples for the second group. The summary of classified sample into two groups is shown in table 1.

Table 1: Descriptive statistics of total sample

Year	Group1	Group2	Total sample
2002	2	78	80
2003	12	61	73
2004	7	49	56
2005	8	55	63
2006	4	55	69
Total	33	298	331

This table presents descriptive statistics of total sample, Group1 is the samples of new issuance within 200 days after splitting, Group2 is the samples that did not split stock before issuance or issuing new stocks more than 200 days after splitting.

4.2 Methodology

Event Study

This study applies standard event study methodology to calculate abnormal return by using market model and t-test to test for significance. Event study is applied to both groups of sample. Time window of study is classified as below.

1. Pre-announcement period is from day -200 through day -21. Data of stocks during this period will be used for calculation α_i and β_i which used in estimation model.
2. Event date is the date that firm announces new stock issuance. The event date period is from day -20 through day 20. This period is used to calculate abnormal return and test for significance.

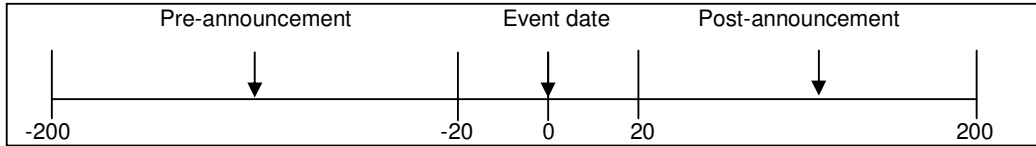


Figure1: Time window of event study

Abnormal return is measured as the difference between actual return and market return. The α_i and β_i of the market model are estimated over 180-day trading period from -200 to -20 days before the issuance announcement date. The stock split announcement may or may not exist in this period. Abnormal return, cumulative abnormal return and their significance are tested during event period.

In order to calculate expected return of pre-announcement period, the following equation is employed:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

where $E(R_{it})$ is the expected return of stock i at time t , R_{mt} is the return of market at time t (SET index return), ε_{it} is the stochastic error of stock i at time t

Abnormal return of stock can be calculated by:

$$AR_{it} = R_{it} - E(R_{it}) \quad (2)$$

where AR_{it} is the abnormal return of stock i at time t , R_{it} is the return of stock i at time t

Cumulative abnormal return is concerned during the event period of study which can be calculated by:

$$CAR_{it} = AR_{it} + CAR_{it-1} \quad (3)$$

where CAR_{it} is the cumulative abnormal return of stock i at time t

Average abnormal return and cumulative average abnormal return can be computed by:

$$AAR_t = \frac{\sum_{i=1}^N AR_{it}}{N} \quad (4)$$

$$CAAR_t = AAR_t + CAAR_{t-1} \quad (5)$$

where AAR_t is the average abnormal return at time t , $CAAR_t$ is the cumulative average abnormal return at time t , N is the number of sample

To test for significance of average abnormal return, the following equation is used.

$$t - test = \frac{AAR_t}{\frac{SD(AAR_t)}{\sqrt{N}}} \quad (6)$$

where $SD(AAR_t)$ is the standard deviation of AAR_t , N is the number of sample.

Cumulative average abnormal returns can be plot to the graph to see the trend around equity issuing announcement period. From the classification of total sample, the difference among two groups can be compared.

Cross-sectional Test

A regression method is used to investigate the relation between cumulative abnormal return and other variables related to financing decision. The following equation is employed in regression:

$$CAR = \alpha + \beta_1 \Delta RE + \beta_2 \Delta RE * D_{split} + \beta_3 DE + \beta_4 DE * D_{split} + \beta_5 Sdays + u \quad (7)$$

where u is the error term, the dependent variable CAR represents the cumulative abnormal return during day -1 through day 1. The independent variables are defined as below:

ΔRE is the percentage change of retained earnings during period $t-1$ and $t-2$ which calculated from:

$$\Delta RE = \frac{RE_{t-1} - RE_{t-2}}{RE_{t-2}} \quad (8)$$

DE is the debt to equity ratio of period $t-1$ which calculated from:

$$DE = \frac{Total_Debt_{t-1}}{Total_Equity_{t-1}} \quad (9)$$

Retained earnings, total liability and total debt are measured at quarterly basis where t is the quarter that event date occurred.

D_{split} is the dummy variable that equals one if a split declaration occurs within 200 days prior to the issuance announcement date, and zero otherwise.

$Sdays$ is the number of days between the issuance announcement date and the preceding split declaration.

If stock split is occurred within 200 days before issuance announcement, then D_{split} equals one and $Sdays$ equals the number of the days between the split declaration and the issuance announcement, otherwise both D_{split} and $Sdays$ equal zero.

5. Empirical Results

Table 2 presents the result of the event study. Average abnormal return and t-statistic are presented by groups of the sample. The event period covers 41 trading days from day -20 through day 20. There are positive and negative AAR_t found in the results.

Table 2 : Average abnormal return around equity issuing announcements

Trading day	Group1		Group2	
	AAR	t-stat	AAR	t-stat
-20	0.0007	0.0587	0.0057	0.8330
-19	0.0098	0.8792	0.0002	0.0786
-18	-0.0027	-0.5735	-0.0019	-0.8220
-17	0.0043	0.5330	0.0002	0.0886
-16	0.0163	2.4746**	0.0003	0.0897
-15	-0.0011	-0.1960	0.0017	0.3733
-14	-0.0002	-0.0321	0.0003	0.1369
-13	-0.0006	-0.0840	-0.0014	-0.5603
-12	0.0129	1.1783	-0.0027	-0.7364
-11	-0.0009	-0.1749	0.0007	0.3494
-10	-0.0064	-1.8808*	-0.0016	-0.6443
-9	-0.0042	-0.4106	0.0005	0.2971
-8	-0.0041	-0.8640	0.0000	-0.0152
-7	-0.0037	-0.8039	-0.0007	-0.3946
-6	0.0051	0.6889	-0.0017	-0.7103
-5	0.0089	1.4202	0.0021	0.8099
-4	-0.0021	-0.6042	-0.0016	-0.7776
-3	0.0036	0.6181	-0.0015	-0.6186
-2	-0.0041	-0.6988	0.0014	0.4046
-1	0.1538	0.9399	-0.0013	-0.3561
0	0.1242	1.0014	0.0064	0.2742
1	0.0045	0.3881	-0.0004	-0.1151
2	0.0078	1.0038	-0.0021	-0.6922
3	0.0003	0.0399	0.0013	0.4290
4	0.0026	0.5462	0.0009	0.4993
5	-0.0001	-0.0270	-0.0019	-0.6696
6	-0.0065	-1.0909	0.0077	0.8311
7	-0.0101	-1.8183*	-0.0002	-0.1203
8	-0.0069	-0.8416	-0.0036	-0.9771
9	0.0129	1.3232	-0.0018	-0.8154
10	-0.0020	-0.5905	-0.0021	-0.7534
11	-0.0022	-0.4885	-0.0014	-0.3715
12	-0.0036	-0.5950	-0.0008	-0.5053
13	0.0007	0.0986	-0.0011	-0.8446
14	0.0062	0.8046	0.0005	0.2586
15	-0.0045	-0.7446	-0.0006	-0.2526
16	-0.0078	-2.1108**	0.0029	0.7841
17	0.0084	1.2593	-0.0001	-0.0351
18	-0.0071	-1.0623	-0.0007	-0.3965
19	0.0057	1.0296	-0.0010	-0.3327
20	-0.0028	-0.7257	-0.0041	-0.8516

** Statistically significant at 5 percent level, * Statistically significant at 10 percent level

$CAAR_t$ of each group of samples during day -20 through day 20 are plot into the graph shown in Figure 2-4 below:

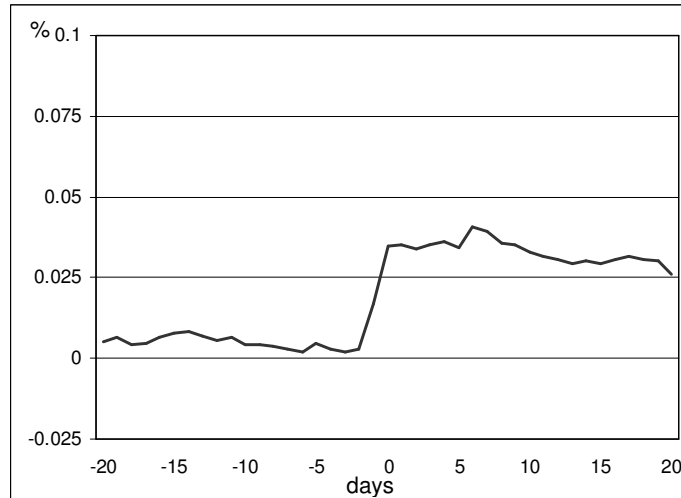


Figure 2: pattern of $CAAR_t$ for total sample

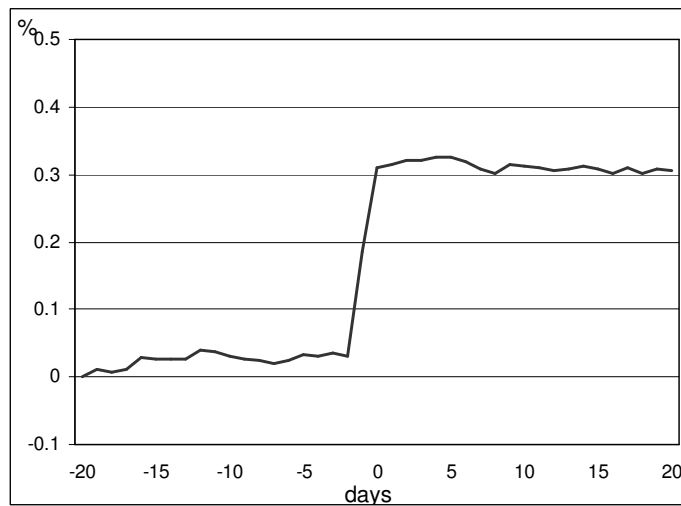


Figure 3: pattern of $CAAR_t$ for the Group1

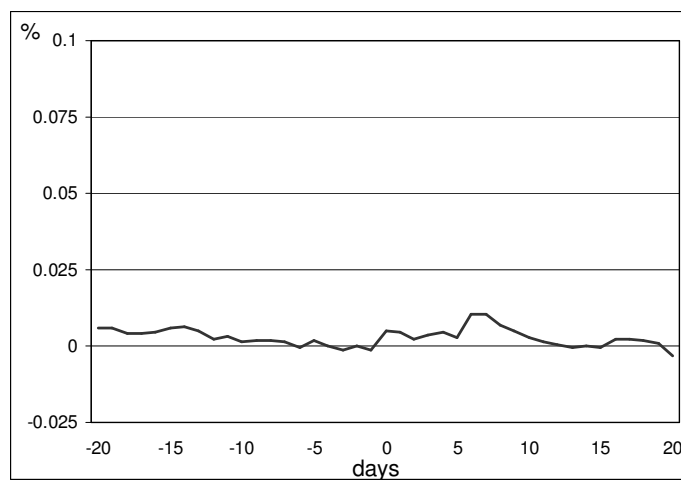


Figure 4: pattern of $CAAR_t$ for the Group 2

Figure 2 shows the pattern of $CAAR_t$ for the total sample. Figure 3 and 4 present the pattern of $CAAR_t$ of Group 1 and Group 2 respectively. The positive $CAAR_t$ are observed for both total sample and Group 1. On the contrary, both positive and negative $CAAR_t$ can be observed for Group 2. During the equity issue announcement period, the highest change in $CAAR_t$ is from day -1 through day 1 for both total sample and Group 1, while only slightly change can be observed for Group 2.

From the result of event study, $CAAR_t$ of the total sample does not equal zero, the hypothesis 1 is rejected. In addition, $CAAR_t$ of Group 1 and Group 2 are not equal. Hence, the hypothesis 2 is rejected.

The descriptive statistics of variables used in cross-sectional test is shown in table 3. The results of cross-sectional test are presented in table 4. There are 2 samples classified as outliers, namely, Jasmine International Public Company Limited in the second quarter of 2002 and the second quarter of 2003, which are excluded from the total sample because they have drastically high debt to equity ratio due to a large amount of deficit that reduce total equity during the period of study.

Table 3: Descriptive Statistics of variables							
		Average			Median		
Variables	unit	Group1	Group2	Total	Group1	Group2	Total
<i>RE</i>	%	0.1399	0.0213	0.0332	0.0677	0.0102	0.0128
<i>DE</i>	time	1.6747	1.8552	1.8371	1.0835	1.1481	1.1443
<i>Sdays</i>	day	76.7273	0.0000	7.6960	53.0000	0.0000	0.0000
		Max			Min		
Variables	unit	Group1	Group2	Total	Group1	Group2	Total
<i>RE</i>	%	1.6371	9.2906	9.2906	-0.6375	-3.8415	-3.8415
<i>DE</i>	time	13.9874	28.0783	28.0783	0.09166	-21.0457	-21.0457
<i>Sdays</i>	day	197.0000	0.0000	197.0000	5.0000	0.0000	0.0000

This table presents the descriptive statistics of variables used in cross-sectional test which classify by groups of sample. *RE* is the percentage change of retained earnings during period *t-1* and *t-2*. *DE* is the debt to equity ratio of period *t-1*, and *Sday* is the number of days between the issuance announcement date and the preceding split declaration.

From table 3, the average and median *RE* of split-firms are greater than non-split firms while the average and median *DE* of split-firms are less than non-split firms. These descriptive statistics suggest that firms that split their stocks before issuing equity are more likely to have high internal funds or lower debt compared to non-split firms.

Table 4 : Cross-sectional test results

Independent variable	Coefficient	Dependent variable <i>CAR</i>		
		Std. Error	t-statistic	Prob.
Constant	0.0131	0.0235	0.5570	0.5779
<i>RE</i>	0.0019	0.0281	0.0704	0.9439
<i>RE</i> * <i>D_{split}</i>	-0.3067	0.1561	-1.9639*	0.0504
<i>DE</i>	-0.0023	0.0057	-0.3977	0.6911
<i>DE</i> * <i>D_{split}</i>	0.2699	0.0252	10.6687**	0.0000
<i>Sdays</i>	-0.0022	0.0007	-2.9883**	0.0030
F-statistic				24.9077**
R-squared				0.2782

This table reports the result of the regression analysis of cumulative abnormal return during day -1 through day 1 and variables related to financing sources as independent variables. Statistical significant at the 5% and 10% levels are indicated by ** and * respectively.

From table 4, the coefficient of *RE* for the total sample is positive but not statistically significant while the coefficient of *RE* for the sample of splitting firms (*RE* * *D_{split}*) is negative and significant at 10 percent level. This means that firms with high internal fund, or retained earnings, cannot use stock splits to provide positive signal before issuing new stocks. The coefficient of *DE* for the total sample is negative but not statistically significant while the coefficient of *DE* for the splitting firms (*DE* * *D_{split}*) is positive and significant at 5 percent level. This indicates that firms with low debt to equity ratio cannot signal investors by splitting their stock before raise more funds. The coefficient of *Sdays* is negative and significant at 5 percent level provides evidence that conform to Guo and Mech (2000) which suggests that equity issuing are more likely shortly after the split announcement.

Further analysis, the significant negative coefficient of *RE* * *D_{split}* and significant positive coefficient of *DE* * *D_{split}* suggest that firms with enough sources of fund, high retained earnings or low debt to equity ratio, that willing to send the fake signal by

splitting stocks will be caught by investors. In addition, this interpretation supports the pecking order theory that firms finance investment by using sources of fund in sequence. An internal fund is the first source, when the external fund is required, lower cost of fund is preferred than higher cost. The pecking order theory can be implied to this finding that firms with good prospects but do not have sufficient retained earnings or have higher debt can issue new equity to raise more funds by using stock split to provide positive signal to investors.

6. Conclusion

This paper attempts to investigate whether stock split is a positive signal to lessen the negative impact at equity issuing by extending the study of Leemakdej (2007). The event date of this study is the new issuance announcement date which is different from Leemakdej (2007). The sample consists of 331 issuances that stock issuing occur after 1 year from the previous announcements during 2002 to 2006. The sample is divided into two groups, the split-firms and non-split firms. The main objective is to investigate whether there is no difference of abnormal return around event date between the two groups. This study employs both event study and cross-sectional for testing. The results from this study can be concluded in two main parts.

First, the event study obviously presents the significant abnormal return during event date for the split-firms. On the other hand, no significant abnormal returns found for non-split firms. Second, the cross-sectional result suggests that firms with sufficient sources of fund such as retained earnings or debt cannot use stock split as a positive signal to pretend to have a good prospect. The pecking order theory supports this finding that good potential firms with insufficient alternative sources of fund can issue new equity to raise more funds, and stock split can be a positive signal to lessen negative impact from new issuance.

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