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An anatomy of calendar effects in Thailand

Abstract

This paper aimed to study the interaction and profitability of the five most well-established calendar effects: Halloween effect, January effect, turn-of-the-month effect, weekend effect, and Thai holiday effect. The author found that turn-of-the-month effect (TOM) and weekend effect were the strongest and most profitable effects in Thai stock markets. The equity premium over the sample during 2000–2015 was 4.40 per cent if there was TOM effect or weekend effect, and -2.13 per cent in other cases. This study narrowed down the number of calendar effects from five to two, leading to more effective and less complex summary of different seasonal effects.

Keywords: calendar effects, Halloween effect, holiday effect, January effect, turn-of-the-month effect, weekend effect.
JEL Classification: C12, C22.

Introduction

The study and the practical strategies of calendar effects have fascinated academic researchers and all participants in capital market for decades. A lot of calendar effects are documented and considered most of the time as stylized facts of financial markets. For example, Bouman and Jacobsen (2002) and Jacobsen and Visaltanachoti (2009) provide empirical evidence on the Halloween effect, Haug and Hirschey (2006) on the January effect, Lakonishok and Smidt (1988) on the turn-of-the-month effect (TOM), Cross (1973) on the weekend effect, and Ariel (1990) on the holiday effect, Swinkels (2011) on the calendar effects, as well as Sutheebanjard and Premchaiswadi (2010) on day-of-the-week effect of the Stock Exchange of Thailand (SET).

On the face of it, it seems that a different type of calendar effect is totally distinct and separate from each other. Considering that some calendar effects could share the same trading days, it is possible that these effects might be interactive. In case that the interaction exists, but the classification has not been considered, this may lead the analyst to overestimate the results of calendar effects. Therefore, the interaction between calendar effects should be studied thoroughly. However, only a few studies have been conducted on the interaction between the five calendar effects, as mentioned above. For instance, regarding the numbers of calendar effects, the weekend effect can be explained by the turn-of-the-month effect, since some weekends occur at the end of the month. This study aims to fill this important gap by testing the five calendar effects all together and to identify whether there is any particular calendar effect that can be explained by others. The author does not aim to profoundly explain or discuss the factors driving these calendar effects, but to classify the different types of calendar effects and to investigate if there is any effect remains. Limiting the scope of numbers about calendar effects provides an effective summary of general stock returns in different periods.

Many researchers have given several explanations concerning the existence of calendar effects ranging from investors' behavioral biases (e.g.kamstra, Kramer, and Levi, 2003 and Doeswijk, 2008) to the reasons of various microstructure effects such as market closing effects (e.g.pettengill, 1989), time-varying bid-ask spreads (e.g.keim, 1989), short-sellers (e.g., Christophe, Ferri and Angel, 2009), or to the transactions related to the calendar effects such as tax-loss selling (e.g.,Van Den Bergh and Wessels, 1985 and Poterba and Weisbrenner, 2001), or macro-economic risk (e.g., Chen and Chan, 1997). Moreover, other researches claim that calendar effects are the consequence of a selection bias which was also known as data snooping or data-mining bias (e.g., Sullivan, Timmermann and White, 2001). In this study, the author aims to reduce the number of calendar effects by controlling other calendar effects.

The author disentangles the effects from the interaction effects by regression-based approach. In the regression, the author controls all calendar effects at the same time, while dividing each date of calendar effects into 32 groups in order to find the significance of each effect. The data are taken from the Stock Exchange of Thailand (SET) daily equity returns during 2000 to 2015. The author finds thatturn-of-the-month effect and weekend effect are the strongest and the most obvious effects comparing to all other effects. Therefore, Halloween effect, Thai holiday effect, and January effect will not be taken in account in the further study. These three effects are either interacted with the other calendar effects or a stand-alone effect which is neither unimportant nor complex for the theory of asset pricing. However, the effects of 2 others types

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still remain significant. In other words, the excess returns during 2000-2015 represents 4.4% when there is turn-of-the-month effect or weekend effect; and 2.13% in other cases, excluding the cost of transactions.

In this empirical research, the author narrows down the number of calendar effects from five to two, resulting in a more effective and less complex summary of general return patterns of seasonal effects. The findings of this study suggest that the investors behaviors vary from one time to another significantly which could be explained by 2 cycles with the length of a calendar month and a cycle with the length of long holidaysthat lead to low equity returns during the middle of the month or during the cycle of long holidays, and high equity returns during the turning points of the month as well as long holidays.

1. Literature review

A calendar effect is a market anomaly or economic effect which is related to the calendar day. Most of previous studies on the calendar effects have shown the empirical evidence regarding 5 calendar anomalies on market returns. These findings do not support the theory of market efficiency which states that the stock market prices evolve according to a random walk.

Lakonishok and Smidt (1988) studied a turn-of-the-month effect by using the Dow Jones Industrial Average (DJIA) during 1897-1986. As the consequence of the turn-of-the-month effect, equity returns from the last trading day of the month to the next three days later were significantly higher than other days. Xu and McConnell (2006) pursued the study based on the findings of Lakonishok and Smidt (1988) by employing CRSP (The Center for Research in Security Prices) daily returns. It was found that the turn-of-the-month effect occurred continuously during 1987-2005. The excess market return appeared during four days of a turning point of the month. In other words, the investors received no rewards for bearing market risk during other 16 trading days. Moreover, McConnell and Xu found that a turn-of-the-month effect was not limited to either small/low-priced stocks, December-January,turn-of-the-month or calendar-quarter-ends. Besides, it was not limited to the market risk measured by the standard deviation of returns. The standard deviation of returns at the turn-of-the-month was not higher than other days.

Frank Cross (1973) examined the weekend effect by studying the return on Mondays and Fridays. The sample included the pair of Friday and the following Monday as for 844 weeks from S&P Composite Index during 1953-1970. The data were taken from the stock market opening time on both Friday and Monday. It was found that the index appeared higher on Friday as for 523 days representing 62% of all Fridays, while the index appeared higher on Monday as for 333 days representing 39.5% of all Mondays. Friday index reached a higher level than Monday's significantly (0.62-0.395 = 0.225). The large gap could be explained by the probability of the contingency which could occur less than 1:1,000,000 and the differences between Friday and Monday persist each year. S&P Composite Index annual returns on Friday were higher than Monday over 18 years.

Haug and Hirschey (2006) studied the persistence of January effect by using both US value-weighted returns and equal-weighted returns. The data regarding value-weighted returns during 1802-2004 and the equal-weighted returns during 1927-2004 was employed.

For the data of equal-weighted returns,the data regarding value-weighted returns were taken for hypothesis testing by the paired difference of means in order to find the differences of the average returns from the large cap stock (CRSP) of January comparing to February-December during 1802-2004. It was found that the average returns of January show 1.10%, while those of February-December point out 0.7%. The hypothesis was tested by using paired difference of means figures 0.40%. After the announcement of Tax Reform Act of 1986, the average returns of January still appeared higher than those of February-December. However, when the researchers narrowed down the duration to 10 years, they found the persistence of return premium particularly during 1927-2004 which was the period of stock market's growth.

Later, Haug and Hirschey (2006) examined the difference of equal-weighted returns. It was found that there were significantly annual excess returns in Januaryof each year during 1927-2004. The findings suggested that the small cap stocks provided a higher return than usual in January because it was not affected by tax-loss selling and window dressing of the fund. The tax-loss selling and window dressing of the funds might maintain the effects. However, the investment in small cap stock was considered as a crucial limitation of funds. Furthermore, the funds had a slight tendency to invest in a small cap stock. For the general investors with tax-loss selling in small cap stock, it was found that either before or after the announcement of Tax Reform Act of 1986, the excess returns still continued to be detected during January.

Swinkels et al. (2012) studied the calendar effects especially in part of the interaction of the different calendar effects which had not been studied before. By

considering in details that some calendar effects shared the same trading days and interrelated, it might cause the over estimation of calendar effects. Swinkels et al (2012) employed the data of daily returns on the US value-weighted equity market from July 1963 to December 2008 or 11,455 trading days in total. The equity market returns were calculated in excess of the 30 day T-bill rate. She examined the interaction of calendar effects by adopting the multivariate regressions. The calendar effects were divided into 5 groups: Halloween effect, January effect, holiday effect, turn-of-the-month effect and weekend effect. It was observed that the constant figures -9.0% which signified the days that there was no calendar effect provided the expected annual return of -9.0%. Besides, all calendar effects exhibited strong results except January effect.

Many studies indicate the anomalies of the stock market returns from the calendar effects which do not support the theory of market efficiency. Inspired by the concept of Swinkelset al (2012) who investigated the calendar effects in details, the author decided to study about the calendar effects in the Stock Exchange of Thailand.

2. Research data and methodology

2.1. Data. The author takes the data from Thomson Reuters DataStream for this study by employing the daily returns data on Stock Exchange of Thailand (SET) index) during 1 July 2000 to 31 October 2015 (15 years). There are 3,749 trading days in total. Risk free rate is interest rate of the 3 month term deposits.

The 5 calendar effects used in this study are Halloween effect, January effect, turn-of-the-month (TOM) effect, weekend effect and Thai holiday effect. In order to classify the calendar effects, dummy variables are used for the classification. The author defines the calendar effects using dummy variables that equal one for days in which the calendar effect is present, and zero otherwise. Here is the explicit explanation for a better understanding:

Halloween: Dummyvariable equals 1 for each trading day during 1 November to 30 Apriland 0 from 1 May to 31 October. There are 1,809 trading days in total or 48.3% of Halloween effect.

January: Dummyvariable equals 1 for each trading day during 1 January to 31 Januaryand 0 from 1 February to 31 December. There are 313 trading days in total or 8.4% ofJanuary effect.

TOM: Dummyvariable equals 1 on the last trading day of the month until the4th trading day of the next month and 0 for the 5th trading day until 1 day before the lasttrading day of the month. There are 920 trading days in total or 24.5% of the turn-of-the-month effect.

Weekend: Dummyvariable equals 1 for each trading day on Friday and 0 for each trading day for Monday to Thursday. There are 757 trading days in total or 20.2% of the weekend effect.

Holiday: Dummyvariable equals 1 for each trading day before the following holidays: New Year's Day, Chinese New Year, Magha Puja Day, Chakri Memorial Day, Songkran Festival, National Labor Day, Coronation Day, Visakha Puja Day, Asalha Puja Day, National Mother's Day, King Chulalongkorn Memorial Day,National Father's Day and the Constitution Day; and equals 0 for all other trading days. There are 203 trading days in total or 5.4% of the holiday effect.

The dummy variables of 5 calendar effects can be represented in form of graphs showing the effects of each month in which the calendar dummies equal one as follows:

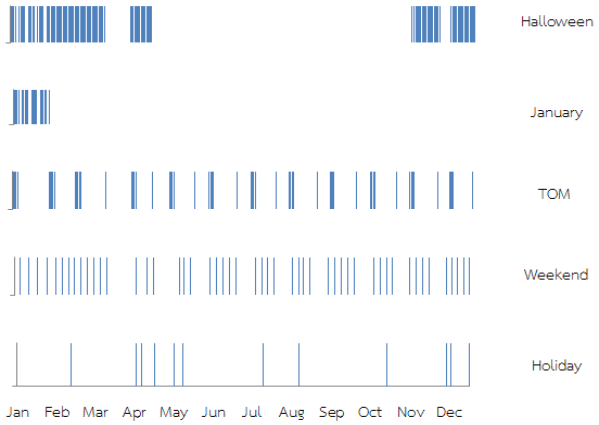

Fig. 1. Five calendar effects in a year

Figure 1 shows that some trading days could exhibit multiple calendar effects. For example, some days in April could be both weekend effect and holiday effect, some days in June could be both TOM effect and weekend effect, and some days in January could be January effect, weekend effect and Halloween effect simultaneously. The objective of this research is to study the each calendar effects separately. Therefore, it aims to disentangle these five calendar effects.

2.2. Methodology. This study examines the interaction of different variables which are the 5 calendar effects with the excess return by using the regression equation (Regression model) in order to investigate the interaction's tendency of each variable and the excess return. The calendar effects are defined in form of dummy variables.

The regression equation pattern is presented as follows:

1. Analysis of Univariate Regressions

$$r_i = +\alpha + \beta_i D_t^{seasonal} + \varepsilon_t.$$

The analysis of this equation will take dummy variables from each calendar effect for investigating the interaction of that variable with a particular excess return.

2. Analysis of Multivariate Regressions

$$r_i = \alpha + \sum_i \beta_i D_{i,t}^{seasonal} + \varepsilon_t.$$

The analysis of the Multivariate Regressions will take the Dummy variables from each calendar effect for testing simultaneously.

The following symbols stand for these variables:

r stands fordaily excess return of SET index which is the return of SET index subtracted by risk free rate.

β stands for average return when there are calendar effects.

$D_{i,t}^{seasonal}$ stands for dummy variables of the calendar effects. Dummy variable equals 1 for the interested calendar effect and 0 for other calendar effects.

3. Findings and analysis

This paper aims to examine the interaction's tendency of the calendar effects with the excess return. Table 1 contains the coefficient resulted from the regression equation. The first 5 rows display the result of Univariate Regressions. The last row shows the results of Multivariate Regressions. The constant indicates the average returns outside the period of calendar effect and the slope coefficient indicates the annualized return in the periods of calendar effect.

Table 1.Calendar effect on Thailand equity risk premium

Constant		Halloween		January		TOM		Weekend		Thai holiday	
Estimate (%)	t-value	Estimate (%)	t-value	Estimate (%)	-value	Estimate (%)	t-value	Estimate (%)	t-value	Estimate (%)	t-value
9.05	(3.41)**	-	-	-	-	-	-	-	-	-	-
1.30	(0.42)	5.92	(1.33)	-	-	-	-	-	-	-	-
3.77	(1.63)	-	-	4.63	(0.58)	-	-	-	-	-	-
-1.23	(-0.48)	-	-	-	-	21.97	(4.27)**	-	-	-	-
0.05	(0.02)	-	-	-	-	-	-	20.37	(3.69)**	-	-
3.00	(1.32)	-	-	-	-	-	-	-	-	21.40	(2.19)**
-8.11	(-2.32)	5.25	(1.13)	2.55	(0.30)	20.67	(3.99)*	19.02	(3.43)**	11.31	(1.13)

Notes: * statistical significance at confidence level of 90%, ** statistical significance at (confidence level of 95%, *** statistical significance at confidence level of 99%.

The analysis of Univariate Regressions is found that Halloween effect and January effect have no statistical significance because the t-value is less than 2 while TOM effect, Weekend effect and Thai Holiday effect are interacted significantly to Thailand equity risk premium because the t-value represents more than 2 and the annualized returns are at 21.97%, 20.37% and 21.40%, respectively.

However, some trading days could have multiple calendar effects simultaneously. By using the Multivariate Regressions for investigating the interaction of calendar effectswhich show at the last row of Table 1. The dummy variables of calendar effects are tested at the same time. The dummy equals 1 for the interested calendar effect and 0 for other calendar effects.

The analysis of Multivariate Regressions could provide a more precise comparison of the results. By using the Multivariate Regressions, it is found that the constant becomes more negative -8.11% whereas this number varied between - 1.23 and 9.05 for the Univariate Regressions. It means that the expected annual return is at -8.11% for the trading days that there is no calendar effect.

The t-value of the calendar effects shows the decrease or statistically significant decrease. By employing the Multivariate Regressions, the coefficients are calculated for determining the expected annualized return of each calendar effect. For example, the coefficient and the constant of TOM effect are at 20.67 % and -8.11%, respectively. These numbers are afterwards calculated for estimating the expected annualized total return of TOM effect which is at 12.56%.

The author employs the Multivariate Regressions above to investigate the interaction between calendar effects by assuming that the calendar effects are linearly related to each other. The coefficients show the annualized return of each calendar effect. For example, the coefficient of TOM effect is at 20.67% representing the turn of the month which might be included in other calendar effects. This analysis reports the annualized return of all events during the period of TOM and leads to the ignorance of non-linear interaction effects.

It is found that Multivariate Regressions can expand the scope of differences in calendar effects explicitly. However, this method has some week points regarding

the accuracy of the data from non-linear interaction effects.

The problem mentioned above can be solved by the combination of the 5 calendar effects: 32 combinations comparing to the previous 5 variables. After calculating the average return, there are 32 possible combinations. Of these 32 combinations, 12 do not occur the effects in this examination. Afterwards, the variables are examined by Multivariate Regressions.

The left side of Table 2 shows the effects of combination group of 5 calendar effects. It is identified that any cases of calendar effects will be equal one and zero otherwise.

The frequency is the number of all trading days that occurs in each group. For example, group (0, 0, 1, 0) contains 85 trading days or at 2.27% of all trading days and those 85 days is in the period of both TOM and weekend.

The last one is the expected return. Expected return is the result from the examination using Multivariate Regressions as follows:

1.Interaction presents annualized expected return resulting from the examination using Multivariate Regressions by replacing the combination of all 5 calendar effects with dummy variables.

2.Linear shows annualized expected return resulting from the examination using Multivariate Regressions by indicating each variable relating linearly and taking the value of the coefficients from Table 1 as the coefficients to define linear equation for the examination.

Table 2.The interaction effects among five groups of calendar effects

Halloween	January	TOM	Weekend	Holiday	Frequency		Expected return		
					Days	Relative (%)	Interaction (%)	t-value	Linear
0	0	0	0	0	1141	30.44	-7.01	(-2.45)	-8.11
1	0	0	0	0	880	23.48	-3.42	(-1.89)	-2.86
0	1	0	0	0	-	-	-	-	-5.57
0	0	1	0	0	349	9.31	9.79	(0.81)	12.56
0	0	0	1	0	268	7.15	10.71	(0.82)	10.91
0	0	0	0	1	35	0.93	-24.56	(-1.26)	3.19
1	1	0	0	0	193	5.15	-5.72	(-1.04)	-0.32
1	0	1	0	0	253	6.75	18.42	(1.73)	17.81
1	0	1	0	0	200	5.34	9.54	(0.58)	16.15
1	0	0	0	1	23	0.61	49.17	(1.59)	8.44
0	1	1	0	0	-	-	-	-	15.10
0	1	0	1	0	-	-	-	-	13.45
0	1	0	0	1	-	-	-	-	5.74
0	0	1	1	0	85	2.27	37.42	(2.29)**	31.58
0	0	1	0	1	22	0.59	24.86	(0.72)	23.86
0	0	0	1	1	25	0.67	38.06	(1.25)	22.21
1	1	1	0	0	58	1.55	37.79	(1.90)	20.35
1	1	0	1	0	45	1.20	31.74	(1.37)	18.70
1	1	0	0	1	-	-	-	-	10.99
1	0	1	1	0	56	1.49	53.23	(2.73)**	36.83
1	0	1	0	1	37	0.99	31.3	(1.22)	29.11
1	0	0	1	1	18	0.48	66.15	(1.94)	27.46
0	1	1	1	0	-	-	-	-	34.12
0	1	1	0	1	-	-	-	-	26.41
0	1	0	1	1	-	-	-	-	24.76
0	0	1	1	1	14	0.37	29.74	(0.71)	42.88
1	1	1	1	0	17	0.45	6.70	(0.08)	39.37
1	1	1	0	1	-	-	-	-	31.66
1	1	0	1	1	-	-	-	-	30.01
1	0	1	1	1	29	0.77	14.37	(0.41)	48.13
0	1	1	1	1	-	-	-	-	45.43
1	1	1	1	1	-	-	-	-	50.68
-	-				3748	100.00	-	-	-

Notes: * statistical significance at confidence level of 90%, ** statistical significance at (confidence level of 95%, *** statistical significance at confidence level of 99%.

Moreover Table 2 also shows that the annualized expected returns from the two examinations are different since the interaction effects were taken in account, resulting in a more accurate result than the linear relation examination.

The first row of the Table 2 shows the calendar effects with no effects of which the expected return value is at -7.01% when the interaction effects are taken into consideration. When excluding the interaction effects, the value differs by 8.11% for the second row. The sixth row represents each type of calendar effects or only 1 calendar effect occurs. For the expected return of the group containing only holiday effect, considering the interaction effects, the value decreases excessively from 3.19% to -24.56%.However, there is no statistical significance.

In addition, considering Table 2, it is found that there are only three groups which contain t-value in the range of statistical significance. There are 'No Effect' of which the annualized average return is at -7.03%; TOM and weekend contain the annualized average return at 37.42%; and the last one, Halloween, TOM and Weekend contain the annualized average return at 53.23%.

In this part, the author also calculates the equity premium caused by the effect of each group. The equity premium can be calculated by the observation frequency multiplying with the average return in order to examine the economic significance of each effect and the interacted effects. For instance, for the first case, weekend and holiday effects which are rare to occur simultaneously, have frequency at 0.67%. Meanwhile, for the second case, Halloween and TOM effects tend to have more chances to occur simultaneously,having frequency at 6.75%. For both cases, the average returns are at 38.06% and 18.42%, respectively. The equity premiums are at 25.5% and 1.24%,respectively. Both cases affect the equity premium differently by 21 times (25.5% / 1.24%)

To calculate the annualized equity premium which disentangles each effect and concerned with mutual occurrence of calendar effects, Table 3 was created. Table 3 presents the observation frequency and the annualized equity premium divided into 3 components indicated in Panel A of the Calendar Effects as the following details:

Panel A of Table 3 shows the observation frequency in each group of calendar effects as the following explanation; the first part (No effect) shows the frequency of the occurrence of 'No calendar effects'. The second part shows the frequency of the effect occurrence in the upper column (might include other effects occurring simultaneously with the upper column). The third part shows the frequency of the effect occurrence at least one group excluding the effect indicated in the upper column.

Panel B of the table shows the annual excess returns of Thailand equity market composed of three components indicated in Panel A. The numbers in the bracket aret-statistics; it means the statistical significance (Confidence level 95%) of calendar effects.

Table 3. The classification of Thailand equity risk premium with calendar effects

	Halloween	January	TOM	Weekend	ThaiHoliday
Panel A:	Frequency				
No effect	30.4%	30.4%	30.4%	30.4%	30.4%
Effect	48.3%	8.4%	24.5%	20.2%	5.4%
Other effect 21.3%		61.2%	45.0%	49.4%	64.1%
Total	100%	100%	100%	100%	100%
Panel B:	Equity premium				
No effect	-2.13%	-2.13%	-2.13%	-2.13%	-2.13%
(t-stat)	(-3.34)	(-3.34)	(-3.34)	(-3.34)	(-3.34)
Effect	3.43%	0.70%	5.09%	4.07%	1.56%
(t-stat)	(2.78)**	(1.78)	(4.62)**	(4.32)**	(3.04)**
Other effect 0.97%		3.70%	-0.69%	0.33%	2.84%
(t-stat)	(3.23)**	(3.29)**	(1.86)	(2.24)**	(3.03)**
Total	2.27%	2.27%	2.27%	2.27%	2.27%

Notes: * statistical significance at confidence level of 90%, ** statistical significance at (confidence level of 95%, *** statistical significance at confidence level of 99%.

For the Halloween column and the first component (No effect), the observation frequency is at 30.44% and the average return is at -0.07%. Therefore, the calculation of the equity premium is at -2.13%, significantly negative since the t-value is at -3.34. All in all, for the first component, the equity premium of all five calendar effects is equal. For the second component (Halloween effect day), the equity premium is at 3.43%. For the third component (other effects which occur at least one

group excluding Halloween effect), the equity premium is at 0.97%.

For the January column and the second component (January effect day), the equity premium is at 0.70%.For the third component (other effects which occur at least one group excluding January effect), the equity premium is at 3.70%.

For the TOM column and the second component (TOM effect day), the equity premium is at 5.09%.For the third component (other effects which occur at least one group excluding TOM effect), the equity premium is at -0.69%.

For the weekend column and the second component (weekend effect day), the equity premium is at 4.07%.For the third component (other effects which occur at least one group excluding weekend effect), the equity premium is at 0.33%.

For the holiday column and the second component (holiday effect day), the equity premium is at 1.56%.For the third component (other effects which occur at least one group excluding holiday effect), the equity premium is at 2.84%.

The holiday effect contains the least amount of trading day at the rate merely 5.4% of all trading days. It is also found the very less equity premium at 1.56%. The January effect contains the second least amount of trading day according to the Holiday effect, at the rate 8.4% of all trading days. It is also found that the equity premium is at the lowest rate 0.70%. Therefore, January and Holiday effects are economically relatively unimportant though the holiday effect is statistically significant on stand-alone basis and the t-value is at 3.04 while January effect has no statistical significance and the t- value is equal to 1.78.

In conclusion, TOM and weekend effects are the most economically important, because they contain a number of trading days at the rate 24.5% and 20.2%,respectively. The equity premium of TOM effect is in the first place at 5.09% with the statistical significance of which t-value is equal to 4.62 while the equity premium of Weekend effect is in the second place at 4.07% with the statistical significance and the t-value is equal to 4.32.

According to Table 3, TOM and weekend effects contain the annualized equity premium. In the following Table 4, there is a comparison of the effects caused by TOM and weekend effects. The equity premium has been divided into 5 components during all the trading days over 2000-2015 as follows: (1) The No calendar effect trading days;

(2) TOM and weekend trading days;

(3) TOM trading days excluding weekend;

(4) Weekend trading days excluding TOM; and

(5) Other trading days excluding neither TOM nor weekend.

Besides, this table consists of observation frequency of each component and the numbers in the bracket are the t-statistics indicating whether the calendar effects are statistically significant or not.

Table 4. The classification of Thailand equity risk premium with only TOM and Weekend effects

Decomposition	Frequency (%)	Equity	Premium t-stat
(1) No calendar effect	30.4	-2.13	(-3.34)
(2) TOM and weekend	2.3	0.85	(2.29)**
(3) TOM not weekend	9.3	0.91	(0.81)
(4) Weekend not TOM	7.2	0.77	(0.82)
(5) Other calendar effect	50.8	3.77	(1.49)
Total	100	4.16	-

Notes: * statistical significance at confidence level of 90%, ** statistical significance at (confidence level of 95%, *** statistical significance at confidence level of 99%.

Table 4 aims to conclude the most clearly calendar effects by classification of the effects into five components and considering each splitting component as follows:

The first component (No calendar effect) presents the non-calendar effects state of which the trading days are at the rate 30.4% of all the components and the equity premium is at -2.13%.

The second component (TOM and weekend) presents the simultaneous TOM and weekend of which the trading days are at the rate 2.3% of all the components and the equity premium is at 0.85% with the statistical significance (t-statistic is equal to 2.29).

The third component (TOM not weekend) presents the TOM, but not weekend simultaneously of which the trading days are at the rate 9.3% of all the compo-nents and the equity premium is at 0.91% without statistical significance (t-statistic is equal to 0.81).

The fourth component (weekend not TOM) presents the Weekend but not TOM at the same time of which the trading days are at the rate 7.2% of all the compo- nents and the equity premium is at 0.77% without statistical significance (t-statistic is equal to 0.82).The fifth component (other calendar effects) presents the other effects which are neither TOM nor weekend effects of which the trading days are at the rate 50.8% of all

the components and the equity premium is at 3.77% without statistical significance (t-statistic is equal to 1.49).

The unconditional equity premium is at 4.16% and the unconditional expectation equity premium is at 2.11%, while the other effects which are neither TOM nor weekend effects contain the equity premium at 3.37%. To compare the equity premium of other effects which are neither TOM nor weekend effects and the unconditional expectation equity premium, it is found that the equity premium of other effects which are neither TOM nor weekend effects is more than the unconditional expectation equity premium (3.37% > 2.11%). As the consequence, for the effects which are considered separately and not overlapped one another, both with TOM and weekend differ from the unconditional expectation equity premium.

Conclusion

This research studies the interaction among 5 groups of calendar effects that are Halloween effect, January effect, TOM effect, weekend effect and Holiday effect and the excess returns during the year 2000-2015.

According to the examination of those variables indicated above by considering the interaction effects of all five groups of calendar effects, it is found that there are three groups out of 32 which contain the interaction and the excess returns together with the annualized average return with the statistical significance at the confidence level 95%, namely, No effect group, TOM and weekend group, and Halloween, TOM and weekend group. Their annualized average returns represent at 7.03%, 37.42% and 53.23%, respectively. Moreover, as separately considering all five groups of calendar effects, it is found that TOM and weekend effectsare the most important ones since both of them contain the first highest value of equity premium with economic significance. Unconditional equity premiums of Thailand's stock market figure 4.16%. For the No effect group, its observation frequency and equity premiumareat 30.4% and -2.13%, respectively. For TOM and weekend group, its observation frequency and equity premium areat 18.8% and 2.53%, respectively. The other effects which do not occur simultaneously with TOM or weekend effects such as Halloween, January and Holiday effects, are found thattheir observation frequency and equity premium areat 50.8% and 3.77%, respectively.

The findings of this research can extend for the future research. One possible research extension is to study if combining practical strategies of calendar effects with investment strategies for retirement such as dollar cost averaging (DCA) or Value Averaging (VA) strategies will be able to enhance risk adjusted returns. This research will be beneficial for wealth management and financial planning.

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