AN EMPIRICAL TEST OF CALENDAR EFFECTS IN VIETNAM STOCK MARKET

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Abstract

This paper examines five popular calendar effects using closing prices of VN – Index over the period 2000 – 2014. Results of OLS regression show that while there is little evidence confirming the existence of some seasonal anomalies like weekend, January and Halloween effects, holiday and TOM effects assuredly exist on HOSE. One interesting finding is that there is some evidence for the presence of Tuesday effect. To specify, over the subperiod 2010 – 2014, the mean return for Tuesday is significantly negative and all mean returns for Wendnesday, Thursday and Friday are significantly higher than that for Tuesday. These findings provide additional international evidence for seasonal anomalies.

Key words: *Calendar Effects, Vietnam stock market calendar effects..*

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1. Introduction

According to efficient market hypothesis, investors cannot beat the market, i.e. consistently earning a positive excess return. Jordan and Miller (2008) stated that in a weak – form efficient market, technical analysis which is based on analyzing past prices and volume to determine the future trend, is useless. Provided a market is semistrong – form efficient, both technical analysis and fundamental analysis are not helpful. It is noticeable that a semistrong – form efficient market is also weak – form efficient. Furthermore, in a strong – form efficient market, no information, public or private, can help investors beat the market.

Reil and Brown (2002) concluded that like most financial and economic hypotheses, the empirical evidence on the EMH is inconsistent. Results of several studies have supported the EMH while many other studies found anomalies which are evidence against this hypothesis. The two authors summarized popular groups of tests of EMH, including: statistical tests of independence between rates of return, tests of trading rules, return prediction studies, event studies and tests for above - average returns earned by different identifiable investment groups. Many of these studies analyzed statistical and economic significance of calendar effects. Researchers have found evidence of calendar effects, and some of them even made further steps by comparing results of investment strategies

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taking advantage of these effects with results from buy – and – hold strategy, including transaction costs.

Sullivan et al. (2001) emphasized the dangers of data mining by using the same or positively correlated data set in US market for different models. It is also assumed that calendar effects found in other countries have been generated by US institutions and spread across the globe by US investors trading on foreign markets (Cadsby and Ratner, 1992). Acknowleging this idea is to deny the independent existence of calendar effects in foreign countries. Schewrt (2003) proposed using data from other financial markets to solve the misleading inferences caused by data – snooping phenomenon.

Therefore, several studies about anomalies have been conducted in different stock markets around the world. Kunkel et al. (2003) tested for turn – of – month (TOM) effect in 19 countries and concluded that TOM effect is international phenomenon existing in Europe, North America, South Africa, Asia and Australia. Bourman and Jacobsen (2002) found Halloween effect in 36 markets as well as confirmed the result that Halloween strategy outperforms the Buy and Hold strategy in most countries in their sample is statistically significant.

The Vietnamese security market has operated just for a while and remained moderate in size. After 15 years, the market capitalization is presently about USD57 million, much lower than some other South East Asia markets such as Thailand, Philippines, Indonesia and Singapore (Huynh The Du, 2015). The market history has witnessed several anomalies and abnormal fluctuations due to investors' psychological behaviors, suggesting that the market is inefficient.

This study examines the existence of some calendar effects in Vietnam stock market using OLS regression and data of VN – Index from 2000 to 2014. These effects include weekend effect, holiday effect, TOM effect, January effect and Halloween effect. Test results indicate the presense of TOM effect, holiday effect and a new pattern named "Tuesday effect".

The paper is organized as follow. Section 2 is literature review of empirical studies in the world. Section 3 and 4 represent data and models, respectively. Section 5 summarizes the test results. Section 6 suggests some actions in order to gain benefits from calendar effects. The final one is conclusion.

2. Literature review

Results of empirical studies on many security market have found the patterns of abnormal returns like negative returns on Monday, high returns on turn – of – the – month days, on pre – holiday days or in January and in the winter.

Weekend effect

There are several hypotheses explaining the patterns of negative Monday returns and extraordinary Friday returns. The first explanation is that bad news is systematically delayed until after the close of trading on Friday (Thaler, 1987a). The weekend effect is also considered to be related to short selling or caused by traders' fading optimism after weekend. On the contrary, French (1980) supposed that stock prices should increase more on Mondays than other days as the time between the close of trading on Friday and the close of trading on Monday is three

days instead of one day between other trading days. Therefore, Monday returns should triple other weekday returns. His empirical results, however, rejected this hypothesis. Cross (1973) studied the returns on the S&P 500 over the period 1953 – 1970 and found the weekend effect with the mean return on Fridays being 0.12% while the mean return on Monday – 0.18%. While conducting the research, French wondered whether returns were negative only on Monday or on any other days following the holidays when the market closed, but he did not find any evidence supporting this idea. However, it is interesting that a large number of studies documented the patterns of abnormally high returns on the day before holidays.

Holiday effect

Ariel (1990) and Pettengill (1989) reported the mean returns of American stocks on the preholidays were significantly higher than those on other days. The average preholiday return of DJIA over 90 years (1897 – 1986) was 0.219%, twenty three times higher than normal daily return of 0.0094% (Lakonishok and Smidt, 1988).

Using regression model with dummy variables, Cadsby and Ratner (1992) studied holiday effect on foreign markets and found the evidence in America, Canada, Japan, Hong Kong and Australia. The paper notes that there are two motives for seeking international evidence on holiday effect. The first one is to test the hypothesis about independent generation of anomalies by different countries, which is possible thanks to the different holidays among countries. The second is to test hypothesis that the seasonal effects found may reflect nothing due to the employment of the single data set from US financial market. Wong et al. (1990) reported significantly high return on the days before Lunar New Year in Malaysia, Singapore and Hong Kong. Other international evidence on holiday effect was also found in Spain (Meneu and Pardo, 2004) and Romania (Dumitriu et al., 2011).

Turn – of – the – month effect

Lakonishok and Smidt (1990) investigated not only holiday effect but also TOM effect. They examined the period from one trading day before the start of the month until the third day of the month and found that the cumulative rate of return over this period was 0.473%, whereas that over an average four – day period was 0.0612%. This discrepancy is statistically significant at 0.1% level. Similarly, Cadsby and Ratner (1991) studied both holiday effect and TOM effect and concluded that TOM effects were significant for the United States, Canada, the United Kingdom, Australia, Switzerland and West German. Jordan and Miller (2008) used S&P500 over period 1950 – 2006 and found average return on TOM days was 0.135%, exceeding that on the remaining days, 0.024%.

The reason for this pattern may come from the rules or habits of making payments at the end of each month (Ogden, 1990). For example, pension funds and mutual funds are likely to receive payments and make appropriate adjustments in their portfolios at dates that coincide with calendar changes since companies and individuals traditionally make such payments once a month (Thaler, 1987a). Another possibility is that investment managers restructure their portfolios, eliminating unsatisfactory securities before submitting their reports. Because reporting dates are normally at the beginning or the end of the month, such actions may be associated

with TOM effect.

January effect

The first study about January effect probably carried out by Rozeff and Kinney (1976). When calculating returns on an index on NYSE from 1904 to 1974, they found that the average January return was 3.5% while average return of other months was only 0.5%. More than one third of return belonged to January. Jacobsen and Zhang (2012) examined monthly effects using 300 years of UK stock market data. One of the results was that January returns used to be lower, yet not higher, than the returns of other months for the first 150 years. However, January has appeared since 1850s.

The most popular explanation for the effect is tax – loss selling. The second factor is that the payment of year-end bonuses is often made in January, and some of this bonus money was spent on buying stocks, lifting the prices. Another hypothesis is that new information about firms' financial situation which was frequently disseminated encourages investors to purchase stocks (Rozeff and Kinney, 1976). Besides, some causes of TOM effect can be used to explain January effect.

Some international evidence supports tax – loss selling hypothesis, but it does not explain the pattern completely (Thaler, 1987b). Firstly, the January effect has existed in Japan where investors cannot offset capital gains tax or loss (Kato and Schallheim, 1985). Secondly, Canada did not impose capital gains tax until 1972, but it had January effect before 1972 (Berges et al., 1984). Thirdly, Great Britain and Australia have January effects although their fiscal years start on April 1st and July 1st, respectively.

Halloween effect

Bourman and Jacobsen (2002) analyzed stock returns in 37 countries from January 1970 to August 1988 and found the presence of Halloween effect in 36 countries. They also considered all possible explanations for this anomaly, such as: the lack of economic significance, data mining, risk differences, changes in the key indicators of economy, sector specific or summer vacation. Maberly and Pierce (2003) investigated Halloween effect on Japan stock market. A significant Halloween effect had existed by the internationalism of Japanese financial markets in the mid – 1980s. Nikkei 255 index returns are extraordinarily high over the November – April periods. Some studies examined the persistence of this pattern when including and excluding January or some particular months classified as outliers (Lucey and Zhao, 2008; Haggard and Witte, 2010).

3. Data

Our data consist of daily closing prices of VN – Index. VN – Index is a market – value –weighted series, comprising of all publicly listed stocks on Ho Chi Minh Stock Exchange. The index shows the comparison between current market value and the initial base value on July 28th, 2000 – the first trading day on the Exchange. The index prices are collected from July 28th, 2000 to December 31st, 2014. It is, however, important to emphasize that only models testing January and Halloween effects use data over the entire period. The data used to test other effects are between March 1st, 2002 (the date since which the number of trading days have been 5 days a week rather than 3 days as before) and December 31st, 2014.

It is impossible to obtain the data from website of Ho Chi Minh Stock Exchange (http://hsx.vn/), so the alternative source is the

website of Bao Viet Securities (http://www.bvsc.com.vn/). While coding, we discovered some missing values in the obtained file and decided to fill it with prices taken from database of Stockbiz Investment Ltd (http://www.stockbiz.vn/)[1].

We compute the daily returns of the index using the equation:

$$R_t = \ln \frac{P_t}{P_{t-1}} x100$$

Where R_t is the return on the day t and P_t is the closing price on the day t. For monthly returns, P_t is the closing price on the last trading day of the month t.

Table 1 describes average daily and monthly capital returns of VN – Index over the period 2002 – 2014. The daily mean return of the peroid was 0.032% and the monthly mean return was 0.54%. The 5 years, 2002, 2003, 2008, 2010 and 2011 experienced negative mean returns whether they were calculated on daily or monthly basis. The mean returns were largest in 2006 with daily mean return being 0.358% and monthly 7.45%. It was one of the years which had the most volatile standard deviations over the period. It appeared to be the riskiest for investors to trade stocks in 2008 because this year possessed not only negative mean returns but also the highest standard deviations. Comparing two periods 2006 – 2009 and 2010 – 2014, it is obvious that the stock market substantially fluctuated in the former, becoming more stable in the latter.

Table 1. Daily and monthly average returns over period 2002 – 2014

Computing basis	Daily				Monthly			
Year	No. of observations	Mean	SD	Median	No. of observations	Mean	SD	Median
2002	213	-0.026%	0.80%	-0.109%	12	-2.08%	5.00%	-2.35%
2003	247	-0.038%	0.91%	-0.112%	12	-0.78%	7.43%	-2.33%
2004	250	0.144%	1.33%	0,000%	12	3.00%	9.69%	-0.59%
2005	251	0.100%	0.77%	0.031%	12	2.09%	4.22%	0.91%
2006	250	0.358%	2.02%	0.258%	12	7.45%	14.51%	11.03%
2007	248	0.084%	1.72%	-0.066%	12	1.75%	13.79%	-2.37%
2008	245	-0.440%	2.34%	-0.589%	12	-8.98%	14.97%	-9.58%
2009	251	0.179%	2.18%	0.179%	12	3.75%	13.05%	5.05%
2010	250	-0.008%	1.32%	0.051%	12	-0.17%	4.80%	-0.18%
2011	248	-0.129%	1.33%	-0.131%	12	-2.68%	6.50%	-0.83%
2012	250	0.065%	1.27%	0.046%	12	1.36%	6.30%	-0.97%
2013	250	0.079%	1.08%	0.117%	12	1.66%	5.94%	1.52%
2014	247	0.032%	1.12%	0.178%	12	0.65%	5.04%	0.60%
2002 - 2014	3200	0.032%	1.50%	0.000%	156	0.54%	9.79%	-0.164%

[2] Dates on which prices were supplemented include: 12/01/2005, 23/07/2007, 20 – 21/03/2014, 21/04 – 06/06/2014.

When working on historical data, especially the long one, researchers studies not only the full period but also the subperiods (French, 1980; Lakonishok and Smidt, 1988). There are two reasons for this action. First is to test the presence and persistence of the effects over time. Test results may confirm the existence of a calendar effect in the full sample due to its magnitude in just one or some subsamples rather than its existence in every subsample. The second reason is to examine the trends of calendar effects, whether they are becoming stronger or weaker. An anomaly can be significant in some subperiods and insignificant in others.

Therefore, we test the weekend, holiday and TOM effects in both entire period 2002 – 2014 and subperiods. As shown in table 1 and analysed above, the period 2006 – 2009 witnessed the extraodinary fluctuations on stock market with unusually high standard deviations of return. Therefore, three subperiods which will be investigated are 2002 – 2006, 2006 – 2009, and 2010 – 2014. For January and Halloween effects, tests are performed only in the period 2000 – 2014 as the number of observations is likely to be small in each subperiod.

4. Methodology

Both parametric and non – parametric methods have been used to detect market anomalies. Our study uses OLS regression to test seasonal effects. It is said that when parametric tests like OLS regression and analysis of variance are used with large samples, they are quite robust to mild violations of assumptions (Kunkel et al., 2003). Besides, they are more sensitive to tiny gaps in the rates of return.

Model for testing weekend effect

In order to test the hypothesis that returns are equal for each day of the week, the following regression is used:

$$R_t = \alpha_2 + \alpha_3 D_{3t} + \alpha_4 D_{4t} + \alpha_5 D_{5t} + \alpha_6 D_{6t} + \varepsilon_t$$

Where:

R_t is the return of VN – Index on the day t

D_{3t} through D_{6t} are dummy variables indicating the day of the week with D_{3t} being Tuseday, D_{4t} Wendnesday, and so on.

ε_t is an error term

Hence, α_2 is the intercept representing mean return for Monday, while α_3 through α_6 represent the difference between the mean return for Monday and the mean return for each day of the week. In accordance with weekend effect, α_2 should be significantly negative, whereas α_3 to α_6 are positive.

Model for testing holiday effect

The null hypothesis that pre - holiday returns and returns for other days are the same is tested by the regression:

$$R_t = \alpha_1 + \alpha_2 D_{Pre} + \varepsilon_t$$

R_t is the return of VN – Index on the day t

D_{Pre} is a dummy variable which equals to 1 for the trading day immediately prior to holiday and 0 otherwise.

ε_t is an error term

Hence, α_2 is the descrepancy between pre – holiday mean return and mean return for the remaining days of the month, and α_1 is the mean return for these remaining days. If α_2 is signifficantly positive, the null hypothesis will be rejected. The HOSE closes on the following days in accordance with Labour Law:

Table 2. Public holidays in Vietnam

No.	English name	Date
1	New Year's Day	January 1st
2	Vietnamese New Year	From last day of the last lunar month to the fourth day of the first lunar month
3	Reunification Day	April 30th
4	International Workers' Day	May 1st
5	National Day	September 2nd
6	Hung Kings Commemorations	The tenth day of the third lunar month

Model for testing holiday effect

The null hypothesis that difference between TOM returns and ROM returns is zero is tested by the regression:

$$R_t = \alpha_1 + \alpha_2 D_{TOM} + \varepsilon_t$$

Where:

R_t is the return of VN – Index on the day t

D_{TOM} is dummy variable which equals to 1 for days in TOM periods and 0 otherwise. Some studies used popular concept of TOM period while others adjust or extend it. TOM days in this paper follow the former concept which defines TOM period as the last day of a month and the first three days of the next month.

ε_t is an error term

Hence, α_1 is the mean return for TOM period and α_2 is the difference between mean return for TOM period and mean return for ROM period. The result that α_2 is signifficantly positve will reject the null hypothesis and be evidence for existence of holiday effect.

Models for testing January effect

To test the difference between mean return for January and mean return for the remaining months of the year, we use the following regression:

$$R_t = \alpha_1 + \alpha_2 D_{Jan} + \varepsilon_t$$

Where:

R_t is the return of VN – Index on month t

D_{Jan} is dummy variable which equals to 1 for January and 0 otherwise.

ε_t is an error term

Hence, α_1 is mean return for January and α_2 is the difference between mean return for January and mean return for the remaining months of the year. A positive α_2 with statistical significance can be evidence for January effect.

To check whether return for each month of the year is the same, we use the regression:

$$R_t = \alpha_1 + \alpha_2 D_{2t} + \alpha_3 D_{3t} + \alpha_4 D_{4t} + ... + \alpha_{11} D_{11t} + \alpha_{12} D_{12t} + \varepsilon_t$$

Where:

R_t is the return of VN – Index on month t

D_{2t} through D_{12t} are dummy variables indicating the month of the year, from February to December.

ε_t is an error term

Hence, α_1 is mean return for January, while α_2 through α_{12} represent the difference between mean return for January and mean return for each month of the year. If the mean return for each month of the year is the same, α_2 through α_{12} will be close to zero.

The first model is a weak test, whereas the second one is a strong test (Raj and Thurston,

2010) since the latter estimates the difference between mean return for January and mean return for each month while the former estimates the difference between mean return for January and mean return for eleven remaining months.

Models for testing Halloween effect

To test the Halloween effect, we run the following regression:

$$R_t = \alpha_1 + \alpha_2 D_{Hal} + \varepsilon_t$$

Where:

R_t is the return of VN – Index on month t

D_{Hal} is a dummy variable which equals to 1 for the month falling on the period November through April and 0 otherwise.

ε_t is an error term

Hence, α_1 represents monthly mean return for the period May – October and $\alpha_1 + \alpha_2$ represents monthly mean return for the period November – April. The result that α_2 is significantly positive confirms the presence of Halloween effect.

It is argued that January effect is driving force behind the Halloween effect (Bouman and Jacobsen, 2002; Maberly and Pierce, 2003). In other words, January returns are so positively high that they enhance the average returns of the six – month period. To test this possibility, the following regression is used:

$$R_t = \alpha_1 + \alpha_2 D_{Hal} + \alpha_3 D_{Jan} + \varepsilon_t$$

Where D_{Hal} is a dummy variable which equals 1 for the month falling between October and April except for January and 0 otherwise. D_{Jan} takes value of 1 for January and 0 otherwise. Using this model, we acknowledged that all excess returns in January are totally owing to the January effect and not influenced by Halloween effect. As a consequence, this can exaggerate the power of the January effect as well as underestimate the real strength of Halloween effect.

5. Results

Weekend effect

The results of regression show that there is little evidence confirming the existence of weekend effect. The mean return for Monday is negative but insignificant. Besides, the mean returns for Tuesday, Wednesday and Thursday are not significantly higher than that for Monday. Nevertheless, the mean return for Friday is 0.222% higher than the mean return for Monday at the 1% level over the period 2002 – 2014. When taking a closer look, we find that this pattern exists only in the subperiod 2002 – 2005 and then disappears.

By contrast, when analyzing data, we realize that Tuesday average return is negative and lower than the mean return of the following trading days of the week. To examine the statistical significance of this phenomenon, we use the regression similar to that used for testing weekend effect:

$$R_t = \alpha_3 + \alpha_2 D_{2t} + \alpha_4 D_{4t} + \alpha_5 D_{5t} + \alpha_6 D_{6t} + \varepsilon_t$$

Where:

R_t is the return of VN – Index on the day t

D_{2t} through D_{6t} are dummy variables indicating the day of the week with D_{2t} being Monday, D_{4t} Wendnesday, and so on.

ε_t is an error term

Results of this regression illustrated in table 4 show that the mean return for Tuesday is significantly negative and the mean returns for Wednesday, Thursday and Friday are significantly higher than that for Tuesday on the period 2002 – 2014. The same result is seen in only the final subperiod 2010 – 2014. Over the period from 2002 to 2005, the coefficients for Thursday and Friday are

significantly high with the former accounting for 0.213% and the latter 0.288% at the 5% and 1% levels, respectively. In the next period, only mean return for Friday is significantly higher than that for Tuesday. To conclude, there is more evidence supporting "Tuesday effect", compared to weekend effect.

Holiday effect

Results of regression provide strong evidence for holiday effect. Over period 2002 – 2014, mean return for pre – holiday is significantly 0.5653% higher than the mean return for the remaining days at the 1% level. There is, however, a discontinuity in this pattern with the subperiod 2006 – 2009 witnessing no significant signal for the existence of holiday effect.

TOM effect

Using the mentioned concept about the turn – of – the – month period, there are 615 days belonging to this period in the full sample. In the period 2002 – 2014, the average return for those 615 days is 0.1425%, substantially higher than that for the other days (0.0062%). Table 6 shows that the TOM effect has not appeared until the most recent subperiod 2010 – 2014. The influence of the effect in this period is so tremendous that the result of

Table 3. Results of regression for Monday effect 2002 – 2014

Period	Constant		D_3		D_4		D_5		D_6		F - test
	α	s.e.	α	s.e.	α	s.e.	α	s.e.	α	s.e.	
2002 - 2014	-0.0002	0.0006	-0.0013	0.00084	0.00077	0.00084	0.00097	0.00084	0.00222***	0.00084	4.58***
2002 - 2005	-0.00056	0.00071	-0.00019	0.0010	0.00080	0.0010	0.00194*	0.0010	0.00268***	0.00101	3.07**
2006 - 2009	0.000312	0.00151	-0.00250	0.00212	0.00071	0.002115	0.00034	0.00212	0.00225	0.00211	1.34
2010 - 2014	-0.00034	0.00079	-0.0011	0.00111	0.00078	0.00111	0.00073	0.00110	0.00168	0.00111	1.75

Table 4. Results of regression for Tuesday effect 2002 – 2014

Period	Constant		D_2		D_4		D_5		D_6		F - test
	α	s.e.	α	s.e.	α	s.e.	α	s.e.	α	s.e.	
2002 - 2014	-0.00146**	0.00059	0.00125	0.00084	0.00202**	0.00083	0.00222***	0.00083	0.00341***	0.00083	4.58***
2002 - 2005	-0.00076	0.00071	0.00019	0.0010	0.000996	0.000998	0.00213**	0.000998	0.00288***	0.0010	3.07**
2006 - 2009	-0.00218	0.00148	0.00250	0.00211	0.00321	0.00209	0.00284	0.00210	0.00475**	0.0021	1.34
2010 - 2014	-0.00143*	0.00078	0.00109	0.00111	0.00187*	0.001099	0.00181*	0.001097	0.00277**	0.0011	1.75

Notes: ***, **, * denote significance at 1%, 5%, 10% levels, respectively

Table 5. Results of regression for holiday effect 2002 – 2014

Period	Constant		D_{Pre}		F - test
	α	s.e.	α	s.e.	
2002 - 2014	0.000221	0.000267	0.005653***	0.00198	8.14***
2002 - 2005	0.0004116	0.0003203	0.0044731*	0.002564	3.04*
2006 - 2009	0.0003715	0.00067	0.00591	0.00498	1.41
2010 - 2014	-0.000046	0.0003515	0.00622**	0.00248	6.29**

Table 6. Results of regression for TOM effect 2002 – 2014

Period	Constant		D_{TOM}		F - test
	α	s.e.	α	s.e.	
2002 - 2014	0.000061	0.000294	0.001366**	0.00067	4.14**
2002 - 2005	0.0003959	0.0003537	0.0004495	0.0008106	0.31
2006 - 2009	0.00023	0.00074	0.0012845	0.00168	0.58
2010 - 2014	-0.0003329	0.0003874	0.0021341**	0.0008823	5.85**

regression for the entire period also confirms the presence of TOM effect. The coefficient of D_{TOM} in the period 2002 – 2014 is 0.1363%, significant at the 5% level.

January effect

The result of the weak test shows that mean return for January is 5.0691% higher than that for eleven other months, significant at the 10% level. This means that the null hypothesis that the coefficient of D_{Jan} is zero cannot be rejected at 95% confidence level, i.e. significance level of 5%. The strong test reinforces this conclusion. The signs of coefficients for eleven months are negative, suggesting that the mean return for each month is lower than mean return for January, but mostly insignificant. The only variable whose coefficient achieving the significance level of 5% is D_7. Accordingly, the difference between mean return for January and July is 9.182%.

Table 7. Results of weak test for January effect

Variable	Constant	D_{Jan}	F – test
α	0.005619	0.050691*	2.83*
s.e.	0.008570	0.030126	

Table 8. Results of strong test for January effect

Variable	α	s.e.	F - test
Constant	0.056310*	0.029435	
D_2	-0.054873	0.041627	
D_3	-0.037615	0.041627	
D_4	-0.019247	0.041627	
D_5	-0.056168	0.041627	
D_6	-0.048823	0.041627	0.58
D_7	-0.091820**	0.041627	
D_8	-0.050147	0.040927	
D_9	-0.052331	0.040927	
D_{10}	-0.060747	0.040927	
D_{11}	-0.044724	0.040927	
D_{12}	-0.041398	0.040927	

Halloween effect

Statistical descriptions show that mean return for winter is 2.31% and summer – 0.35%. These figures somewhat explain the popular market saying "Sell in May and go away". Nevertheless, results of regression in Vietnam stock market do not support that myth with both models providing no evidence for the existence of Halloween effect. The coefficients of D_{Hal} are positive in two models, yet statistically insignificant.

Table 9. Results of regression for Halloween effect

Model 1				Model 2				
Variable	Constant	D_{Hal}	F – test	Variable	Constant	D_{Hal}	D_{Jan}	F – test
α	-0.0035	0.0266	2.62	α	-0.0035	0.0201	0.0598*	2.10
s.e.	0.0116	0.0164		s.e.	0.0116	0.0172	0.0311	

6. Gaining benefits by taking advantage of calendar effects in Vietnam stock market.

Instead of following Buy and Hold strategy, investors in Vietnam stock market can make use of seasonal anomalies to earn profit. A simple strategy exploiting TOM effect is to invest in a market portfolio at the beginning of the last trading day of a month, sell these investments at the end of the third trading day of the next month, and use the proceeds to buy the risk free Government bonds and hold these for the remaining time. Similarly, the holiday strategy is that investors hold a market portfolio for few days before holiday, sell it at the end of the trading day immediately prior to holiday and hold risk free assets for the remaining days. The strategy based on Tuesday effect is to purchase a portfolio replicating VN – Index every Tuesday afternoon and to sell it on Friday afternoon, holding cash over the weekend.

It is, however, not easy to make profit continuously from exploiting calendar effects. The first problem is whether these historical trends repeat or not. Secondly, when transaction costs are taken into account, the profit will drop and probably disappear. Because the shorter the investment horizon the more transaction costs, the strategy taking advantage of Tuesday effect may be the most expensive. Nevertheless, investors can still gain some benefits from understanding market anomalies despite the existence of transaction costs. Investors can raise the expected returns by adjusting the timing of transactions which would have been made anyway so that it is appropriate with the timing of calendar effects.

7. Conclusion

This paper investigates five popular calendar effects using closing prices of VN – Index over the period 2000 – 2014. Results of OLS regression show that some seasonal anomalies like holiday and TOM effects do exist on HOSE. Over period 2002 – 2014, mean return for pre – holiday is significantly 0.5653% higher than the mean return for the remaining days at the 1% level. The coefficient of D_{TOM} in the period 2002 – 2014 is 0.1363%, significant at the 5% level. Though holiday and TOM effects are found, they are not likely to persist over years with the former being absent in the subperiod 2006 – 2009 and the latter being present only in the subperiod 2010 – 2014.

On the other hand, there is little evidence confirming the existence of weekend, January and Halloween effects. However, it is noticable that results of regression show there is a signifficant descrepancy of 0.222% between the mean return for Friday and Monday. Similarly, the mean return for January is significantly higher than that for July. One interesting finding is that there is some evidence for the existence of Tuesday effect. To specify, over the subperiod 2010 – 2014, the mean return for Tuesday is significantly negative and all mean returns for Wendnesday, Thursday and Friday are signifficantly higher than that for Tuesday. These findings support the opinion that seasonal anomalies are international phenomenon.❑

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