

Stock Market Volatility during the General Election (Kemeruapan Pasaran Saham Semasa Pilihan Raya Umum)

Ricky Chia Chee Jiun
Yokohama National University
Universiti Malaysia Sabah

ABSTRACT

This study examines the effect of general election on the Malaysian stock market for the period of January 1994 to December 2015. The empirical model used in this study follows the Threshold GARCH model developed by Glosten et al. (1993), to investigate the stock returns and return volatility of the FTSE Bursa Malaysia KLCI and ten selected main sectoral indices before and after the elections. The selection of the event window is in line with the Malaysian general election process. Moreover, the full sample is divided into two sub-samples (1994-2005 and 2006-2015) to avoid erroneous inferences, and to reflect the real stock market volatility under two different political situation. Generally, results from statistical analysis uncover significant pre-general election effect and post-general election effect from the five most recent general elections held in Malaysia. Interestingly, the two sub-samples showed different election effect on stock market volatility. Most of the sectoral indices have lower volatility before general election and higher volatility after general election in the sub-sample period of 1994-2005. Remarkably, during the 2008 and 2013 general election years, political uncertainty due to the close fight between the two major political parties showed up its negative and significant influence in the stock market volatility before general election. The major implication of these findings is that while investors seek abnormal returns on certain sectors during the next general election, they will have to pay attention to the influence of political uncertainty on the stock market return during the general election year.

Keywords: Stock market volatility; Threshold GARCH model; political uncertainty

ABSTRAK

Kajian ini mengkaji kesan pilihan raya umum di pasaran saham Malaysia untuk tempoh Januari 1994 hingga Disember 2015. Model empirikal yang digunakan dalam kajian ini mengikuti model Threshold GARCH yang dibangunkan oleh Glosten et al. (1993), selaras dengan matlamat untuk menyiasat pulangan saham dan kemeruapan pulangan FTSE Bursa Malaysia KLCI dan sepuluh indeks sektor utama yang terpilih sebelum dan selepas pilihan raya. Pemilihan tetingkap acara adalah selaras dengan proses pilihan raya umum Malaysia. Selain itu, sampel penuh dibahagikan kepada dua sub-sampel (1994-2005 dan 2006-2015) untuk mengelakkan kesilapan penilaian dan mencerminkan kemeruapan pasaran saham sebenar di bawah keadaan politik yang berlainan. Secara amnya, hasil daripada analisis statistik membuktikan kesan pilihan raya pra-pilihan raya umum dan kesan pos-pilihan raya umum dari lima pilihan raya umum terdekat yang diadakan di Malaysia. Yang menariknya, kedua-dua sub-sampel menunjukkan kesan pilihan raya yang berbeza terhadap kemeruapan pasaran saham. Kebanyakan indeks sektoral mengalami turun naik yang lebih rendah sebelum pilihan raya umum dan ketidakpastian yang lebih tinggi selepas pilihan raya umum dalam tempoh sub-sampel 1994-2005. Pada pilihan raya umum 2008 dan 2013, ketidakpastian politik akibat perjuangan antara dua parti politik utama menunjukkan kesan negatif yang ketara dalam kemeruapan pasaran saham sebelum pilihan raya umum. Implikasi utama penemuan ini ialah apabila pelabur mencari pulangan yang tidak normal pada sektor tertentu dalam pilihan raya umum akan datang, mereka perlu memberi perhatian terhadap pengaruh ketidakpastian politik terhadap pulangan pasaran saham semasa tahun pilihan raya.

Kata kunci: Kemeruapan pasaran saham; Model GARCH Ambang; ketidakpastian politik

INTRODUCTION

Political factor that exerts influence on investors' decision-making is one of the possible causes of market sentiment in the stock market. Specifically, investor sentiment or expectations about major political events could exhibit optimism or pessimism. The stage of

sentiment will induce underreaction or overreaction in the market which influences changes in trading volume, volatility, prices and accordingly determine stock returns (Tuyon et al. 2016). Hence, sentiment risk could be deemed as a systematic behavioural risk. In investment practice, the role of investor sentiment on the stock market activity is important because the stock prices



are affected by both the fundamental and behavioural forces (Akerlof & Shiller 2009). During major political events, the combination of fundamental and behavioural forces in decision-making causes bounded rationality in market players which could induce uncertainty in the stock market.

In the literature, it is evident from several studies that the occurrences of major political events induced higher stock market volatility. The recent empirical evidence is found on the national election (Mei & Guo 2004; Bialkowski, et al. 2008; Jones & Banning 2009; Lean & Yeap 2017; Li, et al. 2018) among others, delay in election results (Nippani & Arize 2005), change of ruling party (Lin & Wang 2007), as well as the political scandal (Lobo 1999). Previous studies on the relationship between political events and stock market performance are largely centered on elections. Earlier studies of Niederhoffer et al. (1970), Nordhaus (1975), Allivine and O'Neil (1980), Peel and Pope (1983), Huang (1985), Gemmill (1992) have examined the stock price behaviours during national elections in developed countries. These studies found that changes in government administration after elections tend to affect financial policies or legislation, thereby stock prices were significantly impacted. Recent evidence in the area includes the study by (Wong & McAleer 2009) indicating the impact of U.S. presidential elections on its stock market. They found that the U.S. stock prices closely followed the four-year presidential election cycle and the cyclical trend existed for the last ten administrations from the year 1965 through 2003, particularly when the incumbent is Republican¹. However, the study on election effect in emerging market only started in recent years, for instance, (Wang & Lin 2009; Hung 2011; Hung 2013; Shun et al. 2017) on Taiwanese stock market, (Lean H. H. 2010) and (Lean & Yeap 2017) on Malaysian stock market.

The evidence found in previous studies is mostly based on the examination of main composite indices, such as the Toronto 300 Composite and the I.P.C. All-Share in (Nippani & Arize 2005), the Taiwan Stock Exchange Value Weighted Index (TAIEX) in (Wang & Lin 2009), and the FTSE Bursa Malaysia KLCI Index in (Lean & Yeap 2017). Besides information from the composite index, sector-specific information could be useful for investors to narrow down their investments option in the financial market. Nevertheless, the stock return volatility due to changes in political may evolve differently in sectoral indices. Therefore, the evidence found based on composite indices might not apply to the individual sectors.

In addition, there are recent studies on the sector-specific analysis of the stock market in the Asian region (Cao et al. 2013; Lakshmi 2013). The main focus of their studies is to investigate the sensitivity of the sectoral indices to market fluctuation and the performance of the sectoral indices. Nevertheless, the aspect of the

influence of political events on the movement of sectoral indices has not been thoroughly discussed. Moreover, recent research provided evidence that firms in different sectors are reported to have different sentiment effect (Kaplanski & Levy 2010; Chen et al. 2013; Dash & Mahakud 2013)). Hence, a comprehensive analysis of stock market performance based on sectoral indices should be addressed to have a better understanding of political changes in relation to fluctuation in sectoral indices.

In behavioural finance, Asia suffers from a higher risk of behavioural biases than other developed markets (Ritter 2003; Schmeling 2009). Nevertheless, emerging financial markets are still attractive to investors because of their relatively higher returns compared to developed financial markets (Kearney 2012). Among the emerging markets, the Malaysian stock market is quite a developed capital market (Mohamad et al. 2007). Bursa Malaysia has steadily emerged as one of the top-performing markets in Asia. Its capitalization has reached USD 382 billion in December 2015 and the market ranked the second-highest in ASEAN markets after the Singapore Exchange. In terms of behavioural risk, empirical studies of (Statman et al. 2008) and (Tuyon et al. 2016). (Statman et al. 2008) found that Malaysian investors are affected by sentiment in their investment decision making. Furthermore, the finding of (Tuyon et al. 2016) highlighted that investor sentiment risks influence stock prices regardless of size and industry groups.

From the perspective of statistical analysis, single country data analysis is preferred to mitigate the heterogeneous effect of multiple country characteristics such as differences in economics, political, institutional, demographics and culture (Bekaert & Harvey 2002) (Statman et al. 2008). Hence, taken all these facts, the Malaysian stock market is chosen as a single country testing case to see the influence of political events on the movement of stock prices and this study could be of interest to international investors. Evidently, as a proxy of the Malaysian stock market, the key index of FTSE Bursa Malaysia KLCI experienced significant volatility during the general election years (Lean & Yeap 2017). Before the year 2005, the 9th, 10th, and 11th Malaysian general elections have not resulted in unexpected outcomes as the coalition Barisan Nasional (BN) won and continued ruling with a stable two-thirds majority. Hence, general ups and downs in the stock market are well-anticipated by investors. On the other hand, the coalition BN experienced the close fight in the 12th and 13th general elections and consecutively lost the two-thirds majority in parliament, which is never happened in political history since Malaysia's independence. Besides, the total percentage vote for BN experienced a significant drop from 63.8% in 2004, to 51.4% in 2008 and 47.4% in 2013. Due to political uncertainty, a sharp decline in the key indices of FTSE Bursa Malaysia was recorded prior to the general election and investors'

confidence was badly shaken due to the potential shift of the ruling party.

Therefore, in order to examine the election effect, the focus of this study is on the Malaysian sectoral indices for the general election years of 1995, 1999, 2004, 2008 and 2013. The sectoral index provides a value for the aggregate performance of several companies of a particular sector and it serves as an indirect measure of the performance of the economy. There are ten main indices based on sectors or industries at the Bursa Malaysia, each represents the sector of Construction, Consumer Product, Finance, Industrial, Industrial Product, Mining, Plantation, Property, Trading and Services, Technology. A benchmark index of FBMKLCI also included in the analysis for comparison purposes.

In general, using a long history of aggregate stock returns that incorporates a sharp decline may produce erroneous inferences due to model misspecification. However, previous studies on the Malaysia election effect did not address this issue. For example, (Lean & Yeap 2017) covered six general elections (the 8th to 13th general elections) under the same sample period. In fact, the market condition during the general election years of 2008 and 2013 (the 12th and 13th general elections) is clearly different from previous general elections. In concern of the different effects of the general election on stock market volatility, this study divides the general election periods into two stages. One stage represents the general ups and downs periods from 1994 to 2005 (Ruling Coalition Barisan Nasional won with a stable two-thirds majority), and the other represents drastic shock periods from 2006 to 2015 (Ruling Coalition Barisan Nasional lost two-thirds majority in the general election).

In brief, the contributions of this study are, first, the Threshold Generalized Autoregressive Conditional Heteroscedasticity (Threshold GARCH/GJR GARCH) model developed by (Glosten et al. 1993) is applied to investigate the pre-general election and post-general election effect on sectoral indices of the Malaysian stock market. Previous studies in this interest (Nippani & Arize 2005; Wang & Lin 2009; Lean H. H., 2010; Lean & Yeap 2017) examined the impact of the election on the composite index, while this study attempts to see the election effect on the ten sectoral indices. Second, the selection of the event window in this study is in line with the Malaysian general election process. Relevant studies normally used trading day windows before and after the election, for example, 1 week, 2 weeks and 1 month, to see the different effects of the election. This study precisely defines the pre-general election period as the trading days from the day of dissolution of the parliament until the day before voting, while the post-general election period covers the trading days from the day after voting until the day of first parliament assembly.

Third, this study enhances the knowledge in the case of Malaysia by investigating the election effect in two different stages which represent the general up and down and the drastic rise and fall period. Fourth, the Morgan Stanley Capital International (MSCI) World Index is included as a control variable in the model to account for the global market effect (Lean & Yeap 2017). Moreover, this study also conducts an array of robustness checks by replacing the control variable which included analyzing the model with the MSCI Emerging Market Index to control for emerging market effect, Chicago Board Options Exchange (CBOE) Volatility Index (VIX) as the market uncertainty indicator for global risk, and the US Federal Fund Rate for interest rate differentials effect. This study may be of interest to investors as the results will come up with information that most investors require particularly in constructing an effective equity portfolio investment during the times of election.

The rest of the paper is organized as follows. Section 2 describes the nature of the data sets and the methodology adopted in this study. Section 3 reports the estimation results and Section 4 concludes by highlighting some implications of the findings.

DATA AND EMPIRICAL METHODOLOGY

This study uses daily closing values of the FTSE Bursa Malaysia KLCI Index and ten selected main sectors indices (Construction, Consumer Product, Finance, Industrial, Industrial Product, Mining, Plantation, Property, Trade and Services, and Technology). The full sample period covers from 4 January 1994 to 31 December 2015, with a total of 5,738 observations, which covers the recent five Malaysia general elections. Furthermore, this study also divides the general election periods into two sub-samples, (a) Sub-sample from 4 January 1994 to 30 December 2005 which included the stable two-third majority won and (b) Sub-sample from 2 January 2006 – 31 December 2015 which included the lost in the two-third majority. All data are collected from Bursa Malaysia (<http://www.bursamalaysia.com>). For the control variable, the MSCI World Index and MSCI Emerging Index, obtained from the S&P Capital IQ, are used to control for the world market and emerging market effect, respectively. Besides, the Chicago Board Options Exchange (CBOE) Volatility Index (VIX) is used as an indicator of global risk, and the US Federal Fund Rate is used for interest rate differentials. The important dates of general elections are summarized in Table 1, which are the date of dissolution of parliament, election date or voting date and the 1st parliament assembly after the election. The pre-general election period refers to the duration from the day of dissolution of the parliament until the day before voting, while the post-general election period refers to the duration

TABLE 1. Malaysia general election information

| | Dissolution of Parliament | Election Date and Day | 1 st Parliament Assembly after Election |
|-----------------------------------|------------------------------|---------------------------|----------------------------------------------------|
| 9 th General Election | 6 April 1995 (Thursday) | 25 April 1995 (Tuesday) | 7 June 1995 (Wednesday) |
| 10 th General Election | 11 November 1999 (Wednesday) | 29 November 1999 (Monday) | 20 December 1999 (Monday) |
| 11 th General Election | 4 March 2004 (Thursday) | 21 March 2004 (Sunday) | 17 May 2004 (Monday) |
| 12 th General Election | 13 February 2008 (Wednesday) | 8 March 2008 (Saturday) | 28 April 2008 (Monday) |
| 13 th General Election | 3 April 2013 (Wednesday) | 5 May 2013 (Sunday) | 24 June 2013 (Monday) |

Sources: Suruhanjaya Pilihan Raya, Election Report, various years.

from the day after voting until the day of the first parliament assembly.

Table 2 presents the descriptive statistics for the daily returns series for the full sample period. Daily returns are calculated as the first difference in the natural logarithms of the stock market index, $R_t = 100 \times \ln(I_t/I_{t-1})$ where I_t and I_{t-1} are the values of each index for periods t and $t - 1$, respectively. In the case of a trading day following a non-trading day, the return is calculated using the closing price of the last trading day. Besides, the characterization of the data includes skewness and kurtosis are presented in Table 2. The skewness for a normal distribution is zero, and any symmetric data should have a skewness near zero. Negative values for the skewness indicate data that are skewed left and positive values for the skewness indicate data that are skewed right. The kurtosis of the normal distribution is

3. If the kurtosis exceeds 3, the distribution is peaked (leptokurtic) relative to the normal. If the kurtosis is less than 3, the distribution is flat (platykurtic) relative to the normal. From the descriptive statistics, the null hypothesis of normally distributed daily returns is rejected by the Jarque-Bera normality test. This finding summarizes that the nature of the data is in line with most of the previous findings, saying that daily stock returns are not normally distributed.

Furthermore, the mean returns for the periods of pre-general election and post-general election are presented in Table 3. It is observed that the mean returns prior to the general election are mostly positive for the sub-sample period of 1994-2005. However, for the sub-sample period of 2006-2015, the mean returns are all negative prior to the general election. On the other hand, for the period of post-general election, the mean returns for the indices are all negative for the sub-sample period of 1994-2005, except for the sectoral indices of Consumer Product and Industrial. For the period of 2006-2015, all the mean returns are positive after the general election. From the descriptive statistics and mean returns for the two sub-sample periods, it is notable that there could be different election effects on the stock market between the general elections from 1994 to 2005 and the general elections from 2006 to 2015. The preliminary statistics justify the aim of this study in dividing the full sample period into two sub-samples in order to study the election effects under different political conditions, specifically refer to the market reaction on won in a two-third majority comparing with lost in a two-third majority in the general election.

In this study, the test for stock market volatility during general elections is carried out by using the Threshold Generalized Autoregressive Conditional Heteroscedasticity (Threshold GARCH/GJR GARCH) model developed by (Glosten et al. 1993). The conditional variance of the Threshold GARCH model is defined as a linear piecewise function and this model incorporates the nonlinearity of the variables. The Threshold GARCH model relax the linear restriction on the conditional

TABLE 2. Descriptive Statistics for the Malaysian Sectoral Indices (Full Sample 1994 - 2015)

| | KLCI | CONST | CONPR | FIN | IND | INDPRO | MNG | PLANT | PROP | TRAD | TECH |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| Mean | 0.0047 | -0.0075 | 0.0167 | 0.0084 | 0.0085 | -0.0062 | -0.0096 | 0.0120 | -0.0185 | -0.0003 | -0.0446 |
| Max | 20.8174 | 23.9197 | 16.1281 | 22.6276 | 17.2483 | 18.9714 | 52.0143 | 16.9362 | 20.9022 | 22.3703 | 11.3668 |
| Min | -24.1534 | -22.7828 | -16.4773 | -20.5651 | -22.6965 | -24.7880 | -42.0379 | -16.6592 | -18.9174 | -21.0987 | -13.3861 |
| Std. Dev. | 1.3097 | 1.7787 | 1.0439 | 1.4683 | 1.2145 | 1.3035 | 2.9459 | 1.3692 | 1.5963 | 1.3945 | 1.5378 |
| Skewness | 0.4731 | 0.6526 | 0.1895 | 1.2226 | -0.1577 | -0.7173 | 0.7910 | -0.2772 | 0.5177 | 0.8819 | -0.0574 |
| Kurtosis | 58.5326 | 33.3929 | 51.6275 | 39.4080 | 54.3015 | 49.8949 | 46.6704 | 29.3345 | 24.8775 | 43.0376 | 11.2884 |
| Jarque-Bera Probability | 737515.40 | 221254.80 | 565378.40 | 318344.50 | 629254.30 | 526268.20 | 456555.10 | 165878.50 | 114687.10 | 383997.20 | 11678.11 |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Note: KLCI: FTSE Bursa Malaysia KLCI Index, CONST: Construction, CONPR: Consumer Product, FIN: Finance, IND: Industrial, INDPRO: Industrial Product, MNG: Mining, PLANT: Plantation, PROP: Property, TRAD: Trade and Services, TECH: Technology (TECH data only available since May 15, 2000).

TABLE 3. Comparing the Mean Returns on Pre-General Election and Post-General Election for Sub-sample 1994 – 2005 and 2006 – 2015

| 1994 - 2005 | KLCI | CONST | CONPR | FIN | IND | INDPRO | MNG | PLANT | PROP | TRAD | TECH |
|--------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| PreGE-Mean | 0.0762 | 0.0167 | 0.0157 | 0.0311 | -0.0297 | 0.0261 | 0.1972 | 0.0663 | -0.0425 | 0.0586 | 0.1484 |
| Observations | 39.0000 | 39.0000 | 39.0000 | 39.0000 | 39.0000 | 39.0000 | 39.0000 | 39.0000 | 39.0000 | 39.0000 | 12.0000 |
| PostGE-Mean | -0.0123 | -0.1253 | 0.0617 | -0.0205 | 0.0363 | -0.0250 | -0.0380 | -0.0899 | -0.1742 | -0.0055 | -0.5105 |
| Observations | 87.0000 | 87.0000 | 87.0000 | 87.0000 | 87.0000 | 87.0000 | 87.0000 | 87.0000 | 87.0000 | 87.0000 | 41.0000 |
| 2006 - 2015 | KLCI | CONST | CONPR | FIN | IND | INDPRO | MNG | PLANT | PROP | TRADSER | TECH |
| PreGE-Mean | -0.2039 | -0.4886 | -0.1524 | -0.1920 | -0.2428 | -0.1513 | -0.5291 | -0.1223 | -0.3323 | -0.2182 | -0.1881 |
| Observations | 41.0000 | 41.0000 | 41.0000 | 41.0000 | 41.0000 | 41.0000 | 41.0000 | 41.0000 | 41.0000 | 41.0000 | 41.0000 |
| PostGE-Mean | 0.0340 | 0.0688 | 0.1195 | 0.0787 | 0.0311 | 0.1137 | 0.1909 | 0.0700 | 0.0765 | 0.0406 | 0.2037 |
| Observations | 72.0000 | 72.0000 | 72.0000 | 72.0000 | 72.0000 | 72.0000 | 72.0000 | 72.0000 | 72.0000 | 72.0000 | 72.0000 |

Notes: KLCI: FTSE Bursa Malaysia KLCI Index, CONST: Construction, CONPR: Consumer Product, FIN: Finance, IND: Industrial, INDPRO: Industrial Product, MNG: Mining, PLANT: Plantation, PROP: Property, TRAD: Trade and Services, TECH: Technology. Pre-General Election: start from Dissolution of Parliament to the day before General Election, and Post-General Election: start from Day after the General Election to the first day of the Parliament Assembly.

variance dynamics and it fits non-normal distributed stock market return series well. Threshold GARCH² model with dummy variables:

$$R_t = \alpha_0 + \alpha_1 PGE_t + \alpha_2 PtGE_t + \alpha_3 R_{t-1} + \chi_1 RWM_{t-1} + \varepsilon_t \quad (1)$$

$$\sigma_t^2 = \beta_0 + \gamma_1 \sigma_{t-1}^2 + \varphi \varepsilon_{t-1}^2 N_{t-1} + \beta_1 \varepsilon_{t-1}^2 + \alpha_1 PGE_t + \alpha_2 PtGE_t \quad (2)$$

where R_t is the logarithmic return of the market index at day t ; PGE_t and $PtGE_t$ are dummy variables which take on value 1 if the corresponding return for day t is the period of the pre-general election, and the period of the post-general election respectively, and 0 otherwise; ε_t is the error term. Meanwhile, $\alpha_0, \dots, \alpha_3$ are the parameters to be estimated. Among them, α_0 measures the mean return (in percentage) on other trading days; whereas α_1 and α_2 capture the average return of the stock index for the period of pre-general election and post-general election. At the later part of the estimation, a lagged value return variable for the MSCI World Index (RWM_{t-1}) is introduced into the mean equation and variance equation as control variables to examine whether the returns of the general election years are associated with the MSCI World Index lagged return.

The null hypothesis of the test is $H_0: \alpha_1 = \alpha_2 = 0$, which implies that average daily returns (volatility) for the period of pre-general election and post-general election are significantly different from zero. If the null hypothesis does not hold, then it can be concluded that the market index is characterized by statistically different on average returns (volatility) for the period of pre-general election and post-general election. In another word, this would imply that general election effect is indeed present in the market. Besides, if the parameter of α_3

is insignificant, then it can be concluded that the stock returns of the general election years are not influenced by the MSCI World Index return.

In the Equation (2), N_t takes on value 1 when the stock quote falls in a period and 0 for increments of the stock quotation. Besides, the parameter ϕ is used to capture the asymmetrical effect of bad news (decrease in stock indices, hence negative R_t) and good news (increase stock indices, hence positive R_t). If $\phi \neq 0$ by the t -test of significance, then it can be concluded that the impact of news is asymmetric. If the parameter ϕ is positive, then good news has an impact of β_i on volatility while bad news has an impact of $(\beta_i + \varphi)$ on volatility. Thus, the positive value of ϕ indicates the existence of a leverage effect in that bad news increases volatility. The additional parameters, α_1 and α_2 in the Equation (2), which makes this specification different from the original Threshold GARCH model, are employed to capture the daily effect. Furthermore, a lagged value of the return variable is introduced in the equations to avoid serial correlation error terms in the model, which may yield misleading inferences.

EMPIRICAL RESULTS AND DISCUSSIONS

Firstly, the results of the pre-general election and post-general election effect on the sectoral indices for the full-sample period of 1994-2015 are presented in Table 4(a) and Table 4(b). Table 4(a) reports the results of the mean equation and variance equation of the Threshold GARCH (1, 1) model for the FTSE Bursa Malaysia KLCI index and the sectoral indices of Construction, Consumer Product, Finance, and Industrial. Meanwhile, Table 4(b)

reports the estimation results for the sectoral indices of Industrial Product, Mining, Plantation, Property, Trade and Services, and Technology. The diagnostic test result is included in the lower part of the tables to support the validity of the models.

Under the mean equation, the dummy coefficients are all insignificant. The high *p*-value of the dummy

coefficient indicates insignificant stock returns for both the pre-general election and post-general election periods. The finding of insignificant abnormal return around the election period is consistent with the studies of (Lean H. H. 2010) and (Lean & Yeap 2017). In terms of control variables, the dummy coefficients of the MSCI World Index for the mean equation are all positive and

TABLE 4(a). Threshold GARCH Results for Pre-General Election and Post-General Election (Full Sample 1994 - 2015) - Controlled by World Market Effect

| Variables | KLCI | Construction | Consumer Product | Finance | Industrial |
|-------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| (<i>p</i> , <i>q</i>) | (<i>I</i> , <i>I</i>) | (<i>I</i> , <i>I</i>) | (<i>I</i> , <i>I</i>) | (<i>I</i> , <i>I</i>) | (<i>I</i> , <i>I</i>) |
| Mean Equation | | | | | |
| α_0 | 0.0081 (0.3549) | -0.0027 (0.8461) | 0.0205 (0.0080)*** | 0.0153 (0.1446) | 0.0141 (0.1412) |
| <i>PGE</i> | 0.1226 (0.2740) | 0.1401 (0.5256) | -0.0157 (0.8686) | 0.0571 (0.7352) | -0.0269 (0.7994) |
| <i>PtGE</i> | -0.0783 (0.2195) | -0.2170 (0.1263) | 0.0083 (0.8624) | -0.0704 (0.4133) | -0.0658 (0.3164) |
| R_{t-1} | 0.0925 (0.0000)*** | 0.0721 (0.0000)*** | 0.0645 (0.0000)*** | 0.1139 (0.0000)*** | 0.0354 (0.0079)*** |
| RWN_{t-1} | 0.2244 (0.0000)*** | 0.2774 (0.0000)*** | 0.1603 (0.0000)*** | 0.2396 (0.0000)*** | 0.1942 (0.0000)*** |
| Variance Equation | | | | | |
| β_0 | 0.0057 (0.0000)*** | 0.0218 (0.0000)*** | 0.0040 (0.0000)*** | 0.0068 (0.0000)*** | 0.0069 (0.0000)*** |
| γ_1 | 0.0538 (0.0000)*** | 0.0663 (0.0000)*** | 0.0468 (0.0000)*** | 0.0624 (0.0000)*** | 0.0446 (0.0000)*** |
| ϕ_i | 0.0665 (0.0000)*** | 0.0756 (0.0000)*** | 0.0377 (0.0000)*** | 0.0458 (0.0000)*** | 0.0512 (0.0000)*** |
| β_1 | 0.9106 (0.0000)*** | 0.8926 (0.0000)*** | 0.9299 (0.0000)*** | 0.9132 (0.0000)*** | 0.9240 (0.0000)*** |
| <i>PGE</i> | 0.0479 (0.0041)*** | 0.2568 (0.0000)*** | 0.0090 (0.0801)* | 0.0746 (0.0000)*** | 0.0529 (0.0001)*** |
| <i>PtGE</i> | 0.0006 (0.9093) | 0.0224 (0.0615)* | 0.0005 (0.8230) | 0.0011 (0.8850) | -0.0006 (0.9013) |
| (Diagnostic Checking) | | | | | |
| ARCH – LM Statistic (<i>p</i> -value) | | | | | |
| 5 lags | 0.2865 | 0.5556 | 0.2209 | 0.0023 | 0.9160 |
| 10 lags | 0.3826 | 0.4533 | 0.3500 | 0.0057 | 0.9617 |
| Ljung-Box Q^2 Statistic (<i>p</i> -value) | | | | | |
| 5 lags | 0.2840 | 0.5500 | 0.2070 | 0.0020 | 0.9170 |
| 10 lags | 0.3370 | 0.4010 | 0.3030 | 0.0030 | 0.9610 |
| Return Equation: Wald Test (<i>p</i> -value) | | | | | |
| <i>F</i> -stat | 0.1405 | 0.1426 | 0.9704 | 0.6149 | 0.6031 |
| Chi-Square | 0.1404 | 0.1425 | 0.9704 | 0.6149 | 0.6030 |
| Variance Equation: Wald Test (<i>p</i> -value) | | | | | |
| <i>F</i> -stat | 0.0108 | 0.0000 | 0.1791 | 0.0001 | 0.0003 |
| Chi-Square | 0.0108 | 0.0000 | 0.1790 | 0.0001 | 0.0002 |

Note: ***, ** and * denote significance at 1, 5 and 10% levels respectively. Numbers in parentheses depict *p*-value. The null hypothesis of the Wald Test is $H_0: \alpha_1 = \alpha_2 = 0$ (average daily returns (volatility) for the period of pre-general election and post-general election are significant different from zero).

TABLE 4(b). Threshold GARCH Results for Pre-General Election and Post-General Election (Full Sample 1994 - 2015) - Controlled by World Market Effect

| Variables | Industrial Product | Mining | Plantation | Property | Trade and Services | Technology |
|-------------------------------------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| (<i>p, q</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) |
| Mean Equation | | | | | | |
| α_0 | 0.0039 (0.6898) | 0.0378 (0.2308) | 0.0142 (0.2255) | -0.0172 (0.1422) | 0.0044 (0.6346) | -0.0380 (0.0350)** |
| PGE | 0.0798 (0.5014) | -0.2898 (0.2649) | 0.0701 (0.5091) | 0.1208 (0.5663) | 0.1329 (0.2989) | 0.0072 (0.9684) |
| P_tGE | -0.0117 (0.8482) | -0.1277 (0.4857) | -0.0055 (0.9471) | -0.1226 (0.2179) | -0.0915 (0.2112) | -0.0982 (0.4705) |
| R_{t-1} | 0.0696 (0.0000)*** | -0.0612 (0.0000)*** | 0.1047 (0.0000)*** | 0.1242 (0.0000)*** | 0.0572 (0.0000)*** | 0.1189 (0.0000)*** |
| RWN_{t-1} | 0.2068 (0.0000)*** | 0.3195 (0.0000)*** | 0.1948 (0.0000)*** | 0.2213 (0.0000)*** | 0.2173 (0.0000)*** | 0.2330 (0.0000)*** |
| Variance Equation | | | | | | |
| β_0 | 0.0139 (0.0000)*** | 0.4406 (0.0000)*** | 0.0208 (0.0000)*** | 0.0157 (0.0000)*** | 0.0048 (0.0000)*** | 0.0343 (0.0000)*** |
| γ_1 | 0.0798 (0.0000)*** | 0.1244 (0.0000)*** | 0.0894 (0.0000)*** | 0.1172 (0.0000)*** | 0.0483 (0.0000)*** | 0.0794 (0.0000)*** |
| ϕ_i | 0.0790 (0.0000)*** | 0.1302 (0.0000)*** | 0.0450 (0.0000)*** | 0.0285 (0.0000)*** | 0.0758 (0.0000)*** | 0.0206 (0.0046)*** |
| β_1 | 0.8742 (0.0000)*** | 0.7855 (0.0000)*** | 0.8765 (0.0000)*** | 0.8698 (0.0000)*** | 0.9144 (0.0000)*** | 0.8964 (0.0000)*** |
| PGE | 0.0486 (0.0143)** | -0.2188 (0.0012)*** | 0.0002 (0.9893) | 0.2440 (0.0000)*** | 0.0645 (0.0020)*** | 0.0631 (0.0071)*** |
| P_tGE | 0.0135 (0.1264) | 0.0462 (0.6804) | 0.0312 (0.0143)** | 0.0170 (0.1021) | -0.0034 (0.5671) | 0.0698 (0.0000)*** |
| (Diagnostic Checking) | | | | | | |
| ARCH – LM Statistic (<i>p</i> -value) | | | | | | |
| 5 lags | 0.5444 | 0.9999 | 0.0154 | 0.4935 | 0.4044 | 0.0120 |
| 10 lags | 0.6203 | 0.9996 | 0.0252 | 0.6618 | 0.4799 | 0.0565 |
| Ljung-Box Q^2 Statistic (<i>p</i> -value) | | | | | | |
| 5 lags | 0.5430 | 1.0000 | 0.0160 | 0.4810 | 0.4140 | 0.0120 |
| 10 lags | 0.5900 | 1.0000 | 0.0190 | 0.6290 | 0.4540 | 0.0480 |
| Return Equation: Wald Test (<i>p</i> -value) | | | | | | |
| <i>F</i> -stat | 0.7502 | 0.4159 | 0.8025 | 0.2827 | 0.1349 | 0.7707 |
| Chi-Square | 0.7502 | 0.4158 | 0.8025 | 0.2826 | 0.1348 | 0.7707 |
| Variance Equation: Wald Test (<i>p</i> -value) | | | | | | |
| <i>F</i> -stat | 0.0037 | 0.0053 | 0.0433 | 0.0000 | 0.0083 | 0.0000 |
| Chi-Square | 0.0037 | 0.0053 | 0.0432 | 0.0000 | 0.0083 | 0.0000 |

Note: ***, ** and * denote significance at 1, 5 and 10% levels respectively. Numbers in parentheses depict *p*-value. The null hypothesis of the Wald Test is $H_0: \alpha_1 = \alpha_2 = 0$ (average daily returns (volatility) for the period of pre-general election and post-general election are significant different from zero).

significant at 1%. The results indicate that the Malaysian stock market returns are strongly affected by the global market environment.

The estimation results of the variance equations are also presented in Table 4(a) and Table 4(b). For the variance equation, the pre-general election dummy

coefficients for eight out of ten sectoral indices are positive and highly significant. These eight sectoral indices of Construction, Consumer Product, Finance, Industrial, Industrial Product, Property, Trade and Services, and Technology experienced significant high volatility in pre-general election periods. Besides,

significant low volatility is found in the sectoral index of Mining during the pre-general election periods. The plantation is the only sector with an insignificant result. Thus, the results of Threshold GARCH estimation on the pre-general election period show the existence of a significant pre-general election effect in stock market volatility in eight out of ten sectoral indices in the Malaysian stock market. Meanwhile, for the period of the post-general election, the dummy coefficients of the variance equations are positive and significant for the Construction, Plantation, and Technology sectoral indices.

The leverage effect term, ϕ , in the variance equation is positive and statistically different from zero for all the sectoral indices. The positive value of ϕ indicates that the leverage effect in bad news increases the volatility. In particular, the bad news has an impact of $(\beta_i + \phi)$, while good news has an impact of (β_i) only. For example, refer to Table 4(a), bad news in the Construction sectoral index has an impact of 0.9682 ($0.8926 + 0.0756$), while good news has an impact of 0.8926 only. Hence, the results indicate the existence of the asymmetric effect on stock volatility in all ten sectoral stock indices of the Malaysian stock market. In other words, bad news has a greater impact on the sectoral stock indices in the Malaysian stock market.

Next, this study examines the presence of pre-general election effect and post-general election effect in the sectoral indices for the first sub-sample period of 1994-2005 and the results are presented in Table 5(a) and Table 5(b). For the stock return, the dummy coefficients for the mean equations of the pre-general election are significantly positive for two out of ten sectoral indices, which are Construction and Industrial Product. These two sectoral indices recorded a significant positive return before the general election. On the other hand, for the post-general election, the dummy coefficients are significantly negative for Technology sectoral index. The general election has negatively impacted this sector due to less emphasizing and developing in this sector by the ruling Coalition Barisan Nasional (BN) during that period.³ Overall, the results indicate that the election effect in stock return only exists in certain sectors in the Malaysian stock market. From the dummy coefficients of the control variables, it is evident by the positive and significant coefficients that the Malaysian stock market returns are positively impacted by the MSCI stock return.

Furthermore, the estimation results of the variance equations with control variables are also presented in Table 5(a) and Table 5(b). For the sub-sample period of 1994-2005, the results are consistent among the sectoral indices, compare to the results of the full sample period. Among the ten sectoral indices, eight of them experienced significant volatility change before and after the general election. In particular, the sectoral indices of Construction (-2.0862), Finance (-0.0785),

Industrial Product (-0.0630), Mining (-0.3728), Plantation (-0.0409), Property (-0.9755), and Trade and Services (-0.0896) experienced significant low volatility before the general election. However, after the announcement of the election result, the stock market volatility increased significantly in these seven sectoral indices. For the sector of Construction, this sector recorded significant low volatility after the general election. Thus, it is evident that most of the sectoral indices in the Malaysian stock market experienced significant volatility change due to the general election. Meanwhile, no significant result is found for the sectoral indices of Consumer Product.

The results of variance equations also confirm that there is an asymmetric effect of political elections on stock market volatility for the sub-sample period of 1994-2005. The positive value of the leverage effect term is statistically significant, and this indicates the existence of an asymmetrical effect in the Malaysian stock market. This finding implies that negative shocks or bad news from the election have a larger impact on stock market volatility than good news in the sub-sample period of 1994-2005. Lastly, the validity of the model is checked by the diagnostic tests. No remaining ARCH effect and serial correlation are found in most of the estimated models.

For the second sub-sample period of 2006-2015, Table 6(a) presents the results of the pre-general election and post-general election effect for the FTSE Bursa Malaysia KLCI index and the sectoral indices of Construction, Consumer Product, Finance, and Industrial. Table 6(b) reports the estimation results for the sectoral indices of Industrial Product, Mining, Plantation, Property, Trade and Services, and Technology. From the estimations of mean equations, the sectoral index of Consumer Product and Mining are the only two indices that show the significant result for the period of pre-general election and post-general election. The Mining index has a negative and significant return during the period of the pre-general election, while the Consumer Product sectoral index has a positive and significant return during the period of the post-general election. The finding indicates that the general election result brought a negative impact to the Mining sector and a positive impact on the Consumer Product sector. Besides, the dummy coefficients of the MSCI World Index for the mean equations are positive and significant at 1% for all the sectoral indices. The positive sign of the dummy coefficient indicates that the global index has a positive impact on the Malaysian sectoral indices.

As explained earlier, the political condition in the 12th and 13th Malaysia general elections was different from previous general elections due to the close fight between the two major coalition. Prior to the general election, the market condition experienced significant volatility change as supported by the empirical results of this study. From the estimation results of the Threshold GARCH variance equations, six out of ten of the sectoral

indices encountered significant high volatility in pre-general election periods. The Mining sectoral index is the only one that recorded significant low volatility during the period. On the other hand, this study also finds evidence of the post-general election effect in stock market volatility. The results of the post-general election show insignificant low volatility in the sectoral

indices of Construction, Consumer Product, Industrial, Mining, Plantation, Property, and Trade and Services. Meanwhile, the Technology sectoral index is the only sector with significant high volatility in the post-general election period. The result on the second sub-sample period of 2006-2015 is clearly different between the first sub-sample period which covers the 9th, 10th and

TABLE 5(a). Threshold GARCH Results for Pre-General Election and Post-General Election (Sub-Sample 1994 - 2005) - Controlled by World Market Effect

| Variables | KLCI | Construction | Consumer Product | Finance | Industrial |
|-------------------------------------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|
| (<i>p, q</i>) | (<i>I, I</i>) | (<i>I, 0</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>0, I</i>) |
| Mean Equation | | | | | |
| α_0 | -0.0089 (0.5590) | -0.0849 (0.0118)** | 0.0075 (0.5510) | 0.0032 (0.8662) | 0.0149 (0.3229) |
| PGE | 0.1812 (0.3122) | 0.2991 (0.0267)** | 0.0973 (0.5496) | 0.1125 (0.5832) | -0.0169 (0.9482) |
| $PtGE$ | -0.1225 (0.2268) | -0.0545 (0.7923) | -0.0566 (0.3920) | -0.1914 (0.1898) | -0.1189 (0.2530) |
| R_{t-1} | 0.1274 (0.0000)*** | 0.0093 (0.3114) | 0.1221 (0.0000)*** | 0.1534 (0.0000)*** | 0.0585 (0.0001)*** |
| RWN_{t-1} | 0.2353 (0.0000)*** | 0.4677 (0.0000)*** | 0.1448 (0.0000)*** | 0.2879 (0.0000)*** | 0.1723 (0.0000)*** |
| Variance Equation | | | | | |
| β_0 | 0.0088 (0.0000)*** | 2.4997 (0.0000)*** | 0.0042 (0.0000)*** | 0.0156 (0.0000)*** | 0.0057 (0.0000)*** |
| γ_1 | 0.0464 (0.0000)*** | 0.3265 (0.0000)*** | 0.0306 (0.0000)*** | 0.0584 (0.0000)*** | -- -- |
| ϕ_i | 0.0752 (0.0000)*** | 0.1947 (0.0000)*** | 0.0438 (0.0000)*** | 0.0559 (0.0000)*** | 0.0745 (0.0000)*** |
| β_1 | 0.9152 (0.0000)*** | -- -- | 0.9448 (0.0000)*** | 0.9104 (0.0000)*** | 0.9583 (0.0000)*** |
| PGE | -0.0585 (0.0503)* | -2.0862 (0.0000)*** | -0.0035 (0.7338) | -0.0785 (0.0751)* | 0.0885 (0.0034)*** |
| $PtGE$ | 0.0437 (0.0075)*** | -0.6282 (0.0000)*** | 0.0030 (0.6081) | 0.0900 (0.0000)*** | -0.0134 (0.1883) |
| (Diagnostic Checking) | | | | | |
| ARCH – LM Statistic (<i>p</i> -value) | | | | | |
| 5 lags | 0.1877 | 0.0000 | 0.2209 | 0.0206 | 0.0000 |
| 10 lags | 0.4197 | 0.0000 | 0.5794 | 0.0355 | 0.0000 |
| Ljung-Box Q^2 Statistic (<i>p</i> -value) | | | | | |
| 5 lags | 0.1890 | 0.0000 | 0.2090 | 0.0180 | 0.0000 |
| 10 lags | 0.3920 | 0.0000 | 0.5250 | 0.0290 | 0.0000 |
| Return Equation: Wald Test (<i>p</i> -value) | | | | | |
| <i>F</i> -stat | 0.3209 | 0.0806 | 0.6099 | 0.4005 | 0.5157 |
| Chi-Square | 0.3208 | 0.0805 | 0.6099 | 0.4004 | 0.5156 |
| Variance Equation: Wald Test (<i>p</i> -value) | | | | | |
| <i>F</i> -stat | 0.0258 | 0.0000 | 0.8671 | 0.0001 | 0.0098 |
| Chi-Square | 0.0256 | 0.0000 | 0.8671 | 0.0001 | 0.0097 |

Note: ***, ** and * denote significance at 1, 5 and 10% levels respectively. Numbers in parentheses depict *p*-value. The null hypothesis of the Wald Test is $H_0: \alpha_1 = \alpha_2 = 0$ (average daily returns (volatility) for the period of pre-general election and post-general election are significant different from zero).

TABLE 5(b). Threshold GARCH Results for Pre-General Election and Post-General Election (Sub-sample 1994 - 2005) - Controlled by World Market Effect

| Variables | Industrial Product | Mining | Plantation | Property | Trade and Services | Technology |
|-------------------------------------------------|------------------------|------------------------|-----------------------|------------------------|------------------------|------------------------|
| (<i>p, q</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>0, I</i>) | (<i>I, 0</i>) | (<i>I, I</i>) | (<i>I, I</i>) |
| Mean Equation | | | | | | |
| α_0 | -0.0333 (0.0275)** | -0.0161 (0.6811) | 0.0095 (0.6016) | -0.0716 (0.0039)*** | -0.0179 (0.3017) | -0.1027 (0.0015)*** |
| <i>PGE</i> | 0.2455 (0.0063)*** | 0.2758 (0.3284) | 0.1677 (0.2937) | 0.3339 (0.1204) | 0.2351 (0.1899) | 0.2444 (0.1025) |
| <i>PtGE</i> | -0.0793 (0.4388) | -0.3505 (0.1631) | -0.0831 (0.3978) | -0.0752 (0.7756) | -0.1272 (0.1648) | -0.3136 (0.0075)*** |
| R_{t-1} | 0.0922 (0.0000)*** | 0.0362 (0.0476)** | 0.1282 (0.0000)*** | 0.2193 (0.0000)*** | 0.0921 (0.0000)*** | 0.1384 (0.0000)*** |
| RWN_{t-1} | 0.2050 (0.0000)*** | 0.2401 (0.0000)*** | 0.1575 (0.0000)*** | 0.3476 (0.0000)*** | 0.2465 (0.0000)*** | 0.3884 (0.0000)*** |
| Variance Equation | | | | | | |
| β_0 | 0.0136 (0.0000)*** | 0.1604 (0.0000)*** | 0.0199 (0.0000)*** | 1.6640 (0.0000)*** | 0.0071 (0.0000)*** | -0.0003 (0.7331) |
| γ_1 | 0.0788 (0.0000)*** | 0.0953 (0.0000)*** | -- -- | 0.5432 (0.0000)*** | 0.0428 (0.0000)*** | 0.0045 (0.0826)* |
| ϕ_i | 0.1046 (0.0000)*** | 0.0845 (0.0000)*** | 0.1075 (0.0000)*** | 0.2151 (0.0002)*** | 0.0797 (0.0000)*** | 0.0233 (0.0000)*** |
| β_1 | 0.8742 (0.0000)*** | 0.8548 (0.0000)*** | 0.9320 (0.0000)*** | -- -- | 0.9204 (0.0000)*** | 0.9833 (0.0000)*** |
| <i>PGE</i> | -0.0630 (0.0000)*** | -0.3728 (0.0001)*** | -0.0409 (0.0556)* | -0.9755 (0.0000)*** | -0.0896 (0.0002)*** | -0.0296 (0.1211) |
| <i>PtGE</i> | 0.0646 (0.0021)*** | 0.2623 (0.0214)** | 0.0297 (0.0171)** | 0.9104 (0.0000)*** | 0.0332 (0.0152)** | 0.0174 (0.0017)*** |
| (Diagnostic Checking) | | | | | | |
| ARCH – LM Statistic (<i>p</i> -value) | | | | | | |
| 5 lags | 0.5556 | 0.3317 | 0.0000 | 0.0000 | 0.0869 | 0.0000 |
| 10 lags | 0.8104 | 0.5875 | 0.0000 | 0.0000 | 0.2191 | 0.0000 |
| Ljung-Box Q^2 Statistic (<i>p</i> -value) | | | | | | |
| 5 lags | 0.5390 | 0.3300 | 0.0000 | 0.0000 | 0.0940 | 0.0000 |
| 10 lags | 0.7900 | 0.5930 | 0.0000 | 0.0000 | 0.2200 | 0.0000 |
| Return Equation: Wald Test (<i>p</i> -value) | | | | | | |
| <i>F</i> -stat | 0.0096 | 0.2499 | 0.3937 | 0.2861 | 0.1627 | 0.0067 |
| Chi-Square | 0.0096 | 0.2497 | 0.3936 | 0.2859 | 0.1625 | 0.0066 |
| Variance Equation: Wald Test (<i>p</i> -value) | | | | | | |
| <i>F</i> -stat | 0.0000 | 0.0005 | 0.0352 | 0.0000 | 0.0004 | 0.0061 |
| Chi-Square | 0.0000 | 0.0005 | 0.0350 | 0.0000 | 0.0004 | 0.0060 |

Note: ***, ** and * denote significance at 1, 5 and 10% levels respectively. Numbers in parentheses depict *p*-value. The null hypothesis of the Wald Test is $H_0: \alpha_1 = \alpha_2 = 0$ (average daily returns (volatility) for the period of pre-general election and post-general election are significant different from zero).

11th Malaysia general elections, where most of the sectoral indices recorded significant low volatility before general elections and significant high volatility after general elections.

The asymmetric effect of the general election is also reported in Table 6(a) and Table 6(b). The significant

asymmetry coefficient (ϕ) strongly supports the asymmetric effect in most of the indices. The leverage effect term, ϕ , is statistically different from zero for all the indices, indicating the existence of the asymmetrical stock returns in the Malaysian. Besides, the validity of the model is supported by the diagnostic test with no

remaining ARCH effect and serial correlation in all of the estimated models.

In order to test the robustness of the model, this study extends the analysis by using the lagged value of the MSCI Emerging Market Index () return as an alternative control variable to test the impact of the emerging market on Malaysian stock market returns

for all the three sample periods. Next, to consider the possibility of other effects, this study extends the analysis by using the control variables of VIX () to measure the market uncertainty and U.S. Federal Fund Rate () for interest rate differentials. Higher volatility in the U.S. stocks could affect the expectations about the future monetary policy stances of major central banks,

TABLE 6(a). Threshold GARCH Results for Pre-General Election and Post-General Election (Sub-sample 2006 - 2015) - Controlled by World Market Effect

| Variables | KLCI | Construction | Consumer Product | Finance | Industrial |
|-------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| (<i>p, q</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) |
| Mean Equation | | | | | |
| α_0 | 0.0216 (0.0429)** | 0.0227 (0.1886) | 0.0364 (0.0004)*** | 0.0282 (0.0232)** | 0.0145 (0.2494) |
| PGE | 0.1135 (0.5588) | -0.1558 (0.8012) | -0.0750 (0.4723) | 0.0221 (0.9340) | -0.0107 (0.9455) |
| $PtGE$ | -0.0542 (0.6658) | -0.1594 (0.3982) | 0.1355 (0.0356)** | -0.0131 (0.9162) | -0.0477 (0.7123) |
| R_{t-1} | 0.0567 (0.0052)*** | 0.0406 (0.0584)* | -0.0016 (0.9402) | 0.0683 (0.0011)*** | 0.0244 (0.2295) |
| RWN_{t-1} | 0.2230 (0.0000)*** | 0.2583 (0.0000)*** | 0.1620 (0.0000)*** | 0.2280 (0.0000)*** | 0.2046 (0.0000)*** |
| Variance Equation | | | | | |
| β_0 | 0.0120 (0.0000)*** | 0.0324 (0.0000)*** | 0.0209 (0.0000)*** | 0.0205 (0.0000)*** | 0.0141 (0.0000)*** |
| γ_1 | 0.0723 (0.0000)*** | 0.0977 (0.0000)*** | 0.0966 (0.0000)*** | 0.1086 (0.0000)*** | 0.0349 (0.0001)*** |
| ϕ_i | 0.0748 (0.0000)*** | 0.0697 (0.0000)*** | 0.0657 (0.0000)*** | 0.0652 (0.0001)*** | 0.0745 (0.0000)*** |
| β_1 | 0.8627 (0.0000)*** | 0.8454 (0.0000)*** | 0.8077 (0.0000)*** | 0.8233 (0.0000)*** | 0.9015 (0.0000)*** |
| PGE | 0.1139 (0.0092)*** | 0.9667 (0.0000)*** | 0.0179 (0.1869) | 0.1745 (0.0004)*** | 0.0898 (0.0015)*** |
| $PtGE$ | 0.0008 (0.9040) | -0.0365 (0.2144) | -0.0073 (0.1172) | 0.0048 (0.6069) | -0.0026 (0.6623) |
| (Diagnostic Checking) | | | | | |
| ARCH – LM Statistic (<i>p</i> -value) | | | | | |
| 5 lags | 0.9859 | 0.9655 | 0.7149 | 0.7217 | 0.9640 |
| 10 lags | 0.5712 | 0.9110 | 0.4356 | 0.7667 | 0.9958 |
| Ljung-Box Q^2 Statistic (<i>p</i> -value) | | | | | |
| 5 lags | 0.9870 | 0.9630 | 0.7010 | 0.7130 | 0.9640 |
| 10 lags | 0.5590 | 0.9060 | 0.4290 | 0.7370 | 0.9960 |
| Return Equation: Wald Test (<i>p</i> -value) | | | | | |
| <i>F</i> -stat | 0.6819 | 0.6947 | 0.0813 | 0.9870 | 0.9342 |
| Chi-Square | 0.6818 | 0.6947 | 0.0811 | 0.9870 | 0.9342 |
| Variance Equation: Wald Test (<i>p</i> -value) | | | | | |
| <i>F</i> -stat | 0.0300 | 0.0000 | 0.1166 | 0.0012 | 0.0064 |
| Chi-Square | 0.0298 | 0.0000 | 0.1164 | 0.0012 | 0.0063 |

Note: ***, ** and * denote significance at 1, 5 and 10% levels respectively. Numbers in parentheses depict *p*-value. The null hypothesis of the Wald Test is $H_0: \alpha_1 = \alpha_2 = 0$ (average daily returns (volatility) for the period of pre-general election and post-general election are significant different from zero).

TABLE 6(b). Threshold GARCH Results for Pre-General Election and Post-General Election (Sub-sample 2006 - 2015) - Controlled by World Market Effect

| Variables | Industrial Product | Mining | Plantation | Property | Trade and Services | Technology |
|-------------------------------------------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| (<i>p, q</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) | (<i>I, I</i>) |
| Mean Equation | | | | | | |
| α_0 | 0.0355 (0.0071)*** | 0.0867 (0.0719)* | 0.0199 (0.2303) | 0.0225 (0.1431) | 0.0170 (0.1217) | 0.0055 (0.7993) |
| PGE | -0.1005 (0.6673) | -0.8343 (0.0067)*** | 0.0062 (0.9701) | -0.3028 (0.4974) | 0.0897 (0.7309) | -0.2408 (0.3007) |
| $PtGE$ | 0.0651 (0.5884) | 0.0319 (0.9111) | 0.0137 (0.9108) | 0.0947 (0.6387) | -0.0687 (0.5838) | 0.2014 (0.2995) |
| R_{t-1} | 0.0395 (0.0607)* | -0.1900 (0.0000)*** | 0.0906 (0.0000)*** | 0.0922 (0.0000)*** | 0.0197 (0.2973) | 0.0869 (0.0000)*** |
| RWN_{t-1} | 0.2099 (0.0000)*** | 0.3426 (0.0000)*** | 0.2357 (0.0000)*** | 0.2151 (0.0000)*** | 0.2120 (0.0000)*** | 0.1726 (0.0000)*** |
| Variance Equation | | | | | | |
| β_0 | 0.0230 (0.0000)*** | 0.8847 (0.0000)*** | 0.0155 (0.0000)*** | 0.0215 (0.0000)*** | 0.0085 (0.0000)*** | 0.1596 (0.0000)*** |
| γ_1 | 0.0890 (0.0000)*** | 0.1666 (0.0000)*** | 0.0624 (0.0000)*** | 0.1260 (0.0000)*** | 0.0551 (0.0000)*** | 0.1349 (0.0000)*** |
| ϕ_i | 0.0488 (0.0000)*** | 0.2124 (0.0000)*** | 0.0301 (0.0001)*** | -0.0073 (0.5003) | 0.0726 (0.0000)*** | 0.0341 (0.0402)* |
| β_1 | 0.8459 (0.0000)*** | 0.6787 (0.0000)*** | 0.9084 (0.0000)*** | 0.8561 (0.0000)*** | 0.8907 (0.0000)*** | 0.7536 (0.0000)*** |
| PGE | 0.1322 (0.0000)*** | -0.3065 (0.0561)* | 0.0413 (0.1107) | 0.5704 (0.0000)*** | 0.1571 (0.0020)*** | 0.0502 (0.4033) |
| $PtGE$ | 0.0064 (0.4738) | -0.1674 (0.4616) | -0.0036 (0.8040) | -0.0255 (0.3699) | -0.0105 (0.1309) | 0.4001 (0.0000)*** |
| (Diagnostic Checking) | | | | | | |
| ARCH – LM Statistic (<i>p</i> -value) | | | | | | |
| 5 lags | 0.8076 | 0.9999 | 0.1851 | 0.7353 | 0.9263 | 0.8261 |
| 10 lags | 0.7050 | 1.0000 | 0.1459 | 0.8317 | 0.6053 | 0.9279 |
| Ljung-Box Q^2 Statistic (<i>p</i> -value) | | | | | | |
| 5 lags | 0.8080 | 1.0000 | 0.1990 | 0.7340 | 0.9320 | 0.8230 |
| 10 lags | 0.7030 | 1.0000 | 0.1410 | 0.8270 | 0.6000 | 0.9200 |
| Return Equation: Wald Test (<i>p</i> -value) | | | | | | |
| <i>F</i> -stat | 0.7755 | 0.0254 | 0.9933 | 0.6707 | 0.7595 | 0.4092 |
| Chi-Square | 0.7755 | 0.0252 | 0.9933 | 0.6706 | 0.7595 | 0.4091 |
| Variance Equation: Wald Test (<i>p</i> -value) | | | | | | |
| <i>F</i> -stat | 0.0000 | 0.1144 | 0.2801 | 0.0000 | 0.0054 | 0.0000 |
| Chi-Square | 0.0000 | 0.1142 | 0.2799 | 0.0000 | 0.0053 | 0.0000 |

Note: ***, ** and * denote significance at 1, 5 and 10% levels respectively. Numbers in parentheses depict *p*-value. The null hypothesis of the Wald Test is $H_0: \alpha_1 = \alpha_2 = 0$ (average daily returns (volatility) for the period of pre-general election and post-general election are significant different from zero).

resulting in shifts of capital out from the U.S. and into the Malaysia stock market. Furthermore, international investors might take the interest rate differentials opportunity, to borrow in currencies with low-interest rates and invest in a potential growth market, such as Malaysia, to gain some better returns. From the findings,

the VIX exhibits some degree of predictability in the sense that the lagged variable of VIX is statistically significant in the empirical analyses. However, both the control variables do not qualitatively change the main results.³

CONCLUSION

This study empirically examines the behavior of the Malaysian stock return and volatility using the Threshold GARCH model for the period of 4 January 1994 to 31 December 2015. From the perspective of behavioral finance, it is worthwhile to analyze the investor's behavior before and after the general election in a socially collective market. Besides the full sample period, this study divides the five general election periods into two stages. The first sub-sample covers the 9th, 10th and 11th Malaysia general elections from 1994 to 2005. This period represents the general ups and downs periods where the existing parties continued to win 2/3 majority seats. The second sub-sample period represents drastic shock periods where the existing parties lost 2/3 majority seats during the 12th and 13th Malaysia general election, from 2006 to 2015. Interestingly, the finding of the first sub-sample period is obviously different from the second sub-sample period.

For the first sub-sample period of 1994 to 2005, there is an asymmetric effect of political elections on stock market volatility. Moreover, there is a significant pre-general election effect in the sectoral indices of Construction and Industrial Product. These two sectoral indices had a significant positive return associated with low volatility before the general election. Another five sectoral indices also recorded significant low stock volatility prior to the general election, but no significant election effect in terms of stock returns. The low volatility in the market before the election is a good sign to indicate that there is no uncertainty due to the general election. After the general election, there are seven sectoral indices encountered significant high volatility. Even though there were no unexpected outcomes as the coalition of Barisan Nasional won in the general elections, the stock market volatility increased significantly during the period of the post-general election. Looking at the stable political condition at that election year, the high volatility is not induced by the uncertainty of the general elections. Nevertheless, it is possibly due to active trading activity in the market right after the election. Investors were highly confident with the stable political condition in the country and they started to trade actively after the market reopened after election dates.

For the period of 2006 to 2015, the results of the second sub-sample confirm the asymmetric effect of pre-general election and post-general election periods on stock market volatility. Prior to the general election, most of the sectoral indices were highly volatile, except for the Mining sectoral index with low volatility. The pre-general election results are consistent with (Lean & Yeap 2017), who found that volatility of the FTSE KLCI index reacts positively before the election. According to the political condition during that period, the high volatility in the market was due to uncertainties

associated with the general election. However, after the election, most of the sectoral indices results are insignificant. The sectoral index of Technology is the only one that influences by the political uncertainties and shows significant high volatility in the post-general election periods.

The examination of the Malaysian stock market performance by sector illustrates the impact of general elections more precisely. Generally, the results of the selected sectoral indices are in line with the sensitivity of industry type as mentioned in (Tuyon & Ahmad 2016). The cyclical sector of Construction, Finance, Mining, and Property are more sensitive to the market condition with the significant results found in stock market volatility. While Consumer Product is a defensive sector and it is less sensitive to the market condition. Thus, the estimated results are mostly insignificant. Moreover, the results also show that the volatility of the Malaysian stock market during the 12th and 13th general election are different from the previous general election. Notably, while volatility on the stock market return is low during the pre-general election periods of 1994-2005, it did show its negative and significant influence in the 2008 and 2013 election years. The results of this study clearly show that the election effect is different in the two sub-sample periods. Therefore, future studies in this area should be caution in grouping the general election periods. Furthermore, the results of the extension by using the emerging market index as an alternative control variable, however, are very similar to the results of the main analysis. Hence, the findings imply that the Threshold GARCH model used in this study is completely robust after the model taking into consideration for few external factors.

Overall, the analysis results indicate that the Malaysian stock market volatility is associated with the investors' behaviour during the periods of the general election. The possible rationale is that whenever the political condition is stable in a country and investors feel optimistic about the future of the economy under the ruling politic party, willingness to trade in the stock market is higher. On the contrary, whenever there is political uncertainty, interest to trade is much lower in the market. Therefore, this study is of great importance to risk managers, portfolio managers, policymakers, and market participants to understand the volatility in the Malaysian stock market during general election years. Thus, the results of this study perhaps provide insight for investors in adjusting their portfolio around the next general election. Future work in this area can proceed in several directions. First, microdata on investors' personal investment choices can be used to study their influence on stock market performance during the general election. Second, a future study can be conducted to compare the market performance of different stocks characteristics to evaluate the volatility during the general election.

NOTES

- ¹ See Shaikh 2017; and Blanchard et al. 2018 for more interesting issues that related to presidential election and election uncertainty.
- ² According to (Bollerslev et al. 1992), in testing the GARCH models, $p = q = 1$ is sufficient for most financial series. Hence, the sufficient order of p and q considered in this study for the Threshold GARCH model, is $(1, 1)$.
- ³ The ruling Coalition Barisan Nasional (BN) only started to emphasize in this sector in the Ninth Malaysia Plan 2006 – 2010.
- ⁴ Results of the additional control variables (Emerging Market, VIX and US Federal Fund Rate) are not included for brevity. However, all results pertaining to this section are available upon request.

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REFERENCES

- Akerlof, G. A., & Shiller, R. J. 2009. *Animal Spirits: How Human Psychology Drives the Economy, and Why it Matters for Global Capitalism*. New Jersey: Princeton University Press.
- Allivine, F. D., & O'Neil, D. D. 1980. Stock Market Returns and the Presidential Election Cycle. *Financial Analysts Journal* 36(5): 49-56.
- Bekaert, G., & Harvey, C. R. 2002. Research in Emerging Markets Finance: Looking to the Future. *Emerging Markets Review* 3: 429-448.
- Bialkowski, J., Gottchalk, K., & Wisniewski, T. P. 2008. Stock Market Volatility around National Elections. *Journal of Banking and Finance* 32: 1941-1953.
- Bollerslev, T., Chou, R. Y., & Kroner, K. F. 1992. ARCH Modelling in Finance: A Selective Review of the Theory and Empirical Evidence. *Journal of Econometrics* 52: 5-59.
- Blanchard, O., Collins, C., Johan-Parvar, M., Pellet, T., & Wilson, B. 2018. A year of rising dangerously? The US Stock Market performance in the aftermath of the presidential election. *Journal of Policy Modelling* 489-502.
- Cao, D. M., Long, W., & Yang, W. N. 2013. Sector Indices Correlation Analysis in China's Stock Market. *Procedia Computer Science* 17: 1241-1249.
- Chen, M. P., Chen, P. F., & Lee, C. C. 2013. Asymmetric Effects of Investor Sentiment on Industry Stock Returns: Panel Data Evidence. *Emerging Markets Review* 14: 35-54.
- Dash, S. R., & Mahakud, J. 2013. Investor Sentiment and Stock Return: Do Industries Matter? *Journal of Applied Economic Research* 7(3): 315-349.
- Gemmill, G. 1992. Political Risk and Market Efficiency: Test Based in British Stock and Options Markets in the 1987 Election. *Journal of Banking and Finance* 16(1): 211-231.
- Glosten, L. R., Jagannathan, R., & Runkle, D. E. 1993. Relationship between the Expected Value and the Volatility of the Nominal Excess Return on Stocks. *The Journal of Finance* 48(5): 1779-1801.
- Huang, R. D. 1985. Common Stock Returns and Presidential Elections. *Financial Analysts Journal* 41(2): 58-65.
- Hung, L. C. 2011. The Presidential Election and the Stock Market in Taiwan. *Journal of Business and Policy Research* 6(2): 36-48.
- Hung, L. C. 2013. US Presidential Elections and the Taiwanese Stock Market. *Issues and Studies* 49(1): 71-97.
- Jones, S. T., & Banning, K. 2009. US Elections and Monthly Stock Market Returns. *Journal of Economics and Finance* 33(3): 273-287.
- Kaplanski, G., & Levy, H. 2010. Sentiment and Stock Prices: The Case of Aviation Disaster. *Journal of Financial Economics* 95: 174-201.
- Kearney, C. 2012. Emerging Markets Research: Trends, Issues and Future Directions. *Emerging markets Review* 13: 159-183.
- Lakshmi, S. P. 2013. Volatility Patterns in Various Sectoral Indices in Indian Stock Market. *Global Journal of Management and Business Studies* 3(8): 879-886.
- Lean, H. H. 2010. Political General Election and Stock Performance: The Malaysia Evidence. In M. Ismail, & A. Mustafa, *Research in Mathematics and Economics* (pp. 111-120). Penang: Universiti Sains Malaysia.
- Lean, H., & Yeap, G. 2017. Asymmetric Effect of Political Elections on Stock Returns and Volatility in Malaysia. In Q. Munir, & S. C. Kok, *Information Efficiency and Anomalies in Asian Equity Markets* (pp. 228-245). UK: Routledge, Taylor and Francis Group.
- Li, Q., Li, S., & Xu, L. 2018. National elections and tail risk: International evidence. *Journal of Banking and Finance* 113-128.
- Lin, C. T., & Wang, Y. H. 2007. The Impact of Party Alternative on the Stock Market: The Case of Japan. *Applied Economics* 39(1): 79-85.
- Lobo, B. 1999. Jump Risk in the US Stock Market: Evidence using Political Information. *Review of Financial Economics* 8: 149-163.
- Mei, J. P., & Guo, L. M. 2004. Political Uncertainty, Financial Crisis and Market Volatility. *European Financial Management* 10(4): 639-657.
- Mohamad, S., Hassan, T., & Ariff, M. 2007. Research in An Emerging Malaysian Capital Market: A Guide to Future Direction. *International Journal of Economics and Management* 1(2): 173-202.
- Niederhoffer, V., Gibbs, S., & Bullock, J. 1970. Presidential Elections and the Stock Market. *Financial Analysts Journal* 26(2): 111-113.

- Nippani, S., & Arize, A. 2005. US Presidential Election Impact on Canadian and Mexican Stock Markets. *Journal of Economics and Finance* 29: 271-279.
- Nordhaus, W. 1975. The Political Business Cycle. *Review of Economic Studies* 42: 169-190.
- Peel, D., & Pope, P. 1983. General Election in the UK in the Post-1950 Period and the Behavior of the Stock Market. *Investment Analysis* 67: 4-10.
- Ritter, J. R. 2003. Behavioral Finance. *Pacific-Basin Finance Journal* 11: 429-437.
- Schmeling, M. 2009. Investor Sentiment and Stock Returns: Some International Evidence. *Journal of Empirical Finance* 16(3): 394-408.
- Shaikh, I. 2017. The 2016 US presidential election and the stock, FX and FIX markets. *North American Journal of Economics and Finance* 546-563.
- Shen, C-H, Bui, D., & Lin, C.Y. 2019. Do political factors affect stock returns during presidential elections? *Journal of International Money and Finance* 180-198.
- Statman, M., Fisher, K. L., & Anginer, D. 2008. Affect in a Behavioural Asset-Pricing Model. *Financial Analysts Journal* 64(2): 20-29.
- Tuyon, J., & Ahmad, Z. 2016. Behavioural Finance Perspectives on Malaysian Stock Market Efficiency. *Borsa Istanbul Review* 16(1): 43-61.
- Tuyon, J., Ahmad, Z., & Matahir, H. 2016. The Role of Investor Sentiment in Malaysian Stock Market. *Asian Academy of Management Journal of Accounting and Finance* 12: 43-75.
- Wang, Y. H., & Lin, C. T. 2009. The Political Uncertainty and Stock Market Behavior in Emerging Democracy: The Case of Taiwan. *Quality and Quantity* 43: 237-248.
- Wong, W., & McAleer, M. 2009. Mapping the Presidential Election Cycle in US Stock Market. *Mathematics and Computers in Simulation* 79: 3267-3277.

Ricky Chia Chee Jiun*
Graduate School of International Social Sciences
Yokohama National University

Labuan Faculty of International Finance
Universiti Malaysia Sabah
Labuan International Campus
Jalan Sungai Pagar
87000 Federal Territory of Labuan
MALAYSIA

Email: ricky_82@ums.edu.my; ricky_chia82@hotmail.com

Corresponding author*