Thailand and The World Economy
P-ISSN: 2630-0931
E-ISSN: 2651-0529
Homepage : https://www.tci-thaijo.org/index.php/TER
Vol. 40, No.3, September - December 2022 Page [1-14]

The Effects of Myanmar's 2020 General Election and 2021 Military Coup on Stock Market Returns

*Anya Khanthavit**
Faculty of Commerce and Accountancy, Thammasat University, Thailand

Received 8 September 2021, Received in revised form 14 November 2021,
Accepted 24 November 2021, Available online 1 September 2022

Abstract

Stock market returns are driven by political events. Investors adjust their behavior and reallocate their investments with respect to them. This study examines the effects of Myanmar's 2020 general election and 2021 military coup on the Yangon Stock Exchange's (YSX) returns. Myanmar is one of the fastest growing economies in the world, whereas its stock market is young and very small. This study applies the event-conditioning Kalman-filter regression which allows the normal returns to move randomly. The data are returns on the Myanmar Stock Price Index portfolio. The sample period is from May 29, 2020 to February 18, 2021 (171 daily observations). This study finds significant effects of the election and the coup. The daily-average abnormal returns during the first and second five-day periods prior to the election day are 0.2129% and 0.5596%, respectively, and are significant. However, these returns are non-significant on or after the election day. The abnormal returns associated with the coup, at –7.1141%, is significant only on the day of the coup. Although the market is only six years old and lists just six stocks, the stock market price is still able to reflect information on these political events.

Keywords: Abnormal Return; Event-Study Analyses; Myanmar Stock market; Political Uncertainty

JEL Classifications: G10, G12, G14

*__Corresponding author:__ 2 Phrachan Road, Phra Nakhon, Bangkok 10200, Thailand
E-mail: akhantha@staff.tu.ac.th

1. Introduction

Political events are one of the leading factors that drive stock market returns (Alsharairi & Abubaker, 2016; Dai & Zhang, 2019; Wang & Lin, 2009). Investors receive new information about the events, revise their expectations and risk perception, and rebalance their portfolios accordingly. Stock prices and returns adjust to reflect the information (Hung, 2013; Pantzalis, Stangeland, & Turtle, 2000). For certain emerging markets, such as Egypt (Ahmed, 2017), Pakistan (Nazir, Younus, Kaleem, & Anwar, 2014), and Thailand (Khanthavit, 2020a), general elections and military coups are alternate political events.

General elections under a democratic regime can positively or negatively affect stock returns. Democracy causes economic growth (Acemoglu, Naidu, Restrepo, & Robinson, 2019). However, a high level of democracy does not necessarily promote stock prices. Lehkonen and Heimonen (2015) found a parabolic relationship between the level of democracy and political risk. After democracy reaches a threshold level, political risk will start increasing, and the stock market will start to fall.

Election outcomes can lead to changes in government policies and macroeconomic environments (Dai & Zhang, 2019). Furthermore, the market may prefer one political party over another (Oehler, Walker, & Wendt, 2013). Moreover, high uncertainty of the outcome generally raises market friction, investors' risk perception, and management's awareness of cash flow risks (Dai & Zhang, 2019). Stock prices fall and returns are negative. As the election date nears, the uncertainty gradually resolves. Prices increase and returns become positive (Pantzalis et al., 2000).

A military coup is a sudden violent or illegal seizure of power from the elected government by the military. In general, the coup suppresses economic growth and freedom (Civilize, Wongchoti, & Young, 2015). Stock markets react negatively to it. The military government is inexperienced in running the country and violence and chaos may follow (Duggan, 2004). Moreover, developed countries and international communities react negatively to most coups (Shannon, Thyne, Hayden, & Dugan, 2015).

However, in exceptional cases, a coup positively affects the stock market. If the elected government abuses its power, it upsets the public, which leads to unrest. A coup helps to end the abuse and restore order in the country (Ockey, 1994). In the case of Chile, the government was perceived as a threat to private ownership. Girardi and Bowles (2018) reported that the coup against a socialist government raised stock prices.

This study examines the effects of Myanmar's 2020 general election and 2021 military coup. The effects of coups have been studied extensively for emerging markets (Ahmed, 2017; Khanthavit, 2020a; Nazir et al., 2014). The results show that the effects for Myanmar are unique and interesting.

First, the country itself is an interesting case study. Myanmar, a lower-middle-income economy, is one of the fastest growing in the world (World Bank, 2021). The growth rates of gross domestic product (GDP) were 5.9%, 6.8%, and 6.5% in 2017, 2018, and 2019, respectively (Trading Economics, 2021). While the world's GDP fell by 4.36% in 2020 due to the COVID-19 pandemic (Plecher, 2021), Myanmar's growth rate was 2%.

Second, the Myanmar stock market, the Yangon Stock Exchange (YSX), is young and very small. The market was opened on March 25, 2016. Local and foreign investors could trade on it. As on March 26, 2021, the market listed six stocks. The aggregate market capitalization is 688.24 billion Myanmar kyat (approximately 0.49

billion U.S. dollars). Because of its young age and small size, the market has received little interest from researchers, and therefore, is under-researched. To the best of our knowledge, this study is among the first to study this market.

Third, young stock markets tend to be informationally inefficient (Lim & Brooks, 2011). In these markets, it takes longer for stock prices to fully reveal new information. Moreover, the 2020 general election and 2021 military coup occurred during the COVID-19 pandemic. During this period, globally, stock markets experienced structural changes (Khanthavit, 2021a) and COVID-19-related events such as lockdowns (Alam, Alam, & Chavali, 2020). Therefore, it is methodologically challenging to model the price behavior and estimate the effects of the two events on stock returns.

Fourth, Myanmar's 2020 general election and the 2021 military coup attracted global attention (Marston, 2021). In the November 8, 2020 election, the National League for Democracy (NLD), led by Aung San Suu Kyi, won a majority of 258 seats in the House of Representatives and 138 in the House of Nationalities, 501 in the Regional or State Parliaments, and 23 ethnic minority seats in the Regional or State Parliaments. The Union Solidarity and Development Party (USDP), a party backed by the military, lost the election. It took 26 seats for the House of Representatives, 7 for the House of Nationalities, and 38 for the Regional or State Parliaments (IANS, 2020). It was conjectured that the election results brought an end to the military-backed rule (Fisher, 2020).

Despite the NLD's large winning margin, the military did not accept the results. It alleged election frauds and signaled a possible coup (Radio Free Asia, 2021). On February 1, 2021, Senior General Min Aung Hlaing staged a coup and invalidated the election results. The coup triggered nationwide protests to demand the restoration of a democratic government. Security forces suppressed the protests violently, leading to deaths and injuries ("Timeline of events", 2021a). The United Nations Security Council condemned the escalating violence ("UN condemns Myanmar violence", 2021b), whereas Western governments expanded their targeted sanctions against coup leaders and suspended military ties (Maung, 2021).

Table 1 summarizes the events, their occurrences, and event dates. Because the election and the coup occurred on non-trading days, the study set the trading days that followed the occurrence dates as the event dates.

Table 1: Event and Occurrence Date

Occurrence Date	Event Date	Event Description
November 8, 2020	November 9, 2020	2020 Myanmar general election.
February 1, 2021	February 3, 2021	Senior General Min Aung Hlaing led a military coup against the government.

Source: "Myanmar sets November 8" (2020), "Timeline of events" (2021a), and author's calculations.

This study is aware of the time-consuming vote counts. An official result would be announced much later than November 9, 2020; therefore, the market itself could not have known the result on that date . However, this study still chose November 9, 2020 for the event date. This is because the NLD was much more popular than its rivalry USDP. Furthermore, unofficial vote counts released on November 9, 2020 suggested that the NLD won over the USDP by a large margin ("Aung San Suu Kyi's ruling party", 2020).

This study applied the event-conditioning Kalman-filter regression (Khanthavit, 2021b) to estimate the effects of the two events. The model is general. It allows random

and autocorrelated normal returns. Because the estimation and event periods overlap with the time of COVID-19, exogenous events and structural changes are possible. A random normal return helps in managing these problems. In addition, an autocorrelated normal return describes an inefficient return in a young market.

To further mitigate both these problems, this study chose a short estimation period. The typical length of the estimation period ranges from 100 to 300 days (Peterson, 1989). This study used the return on the Myanmar Stock Price Index (MYANPIX) portfolio in the analysis. This index is constructed from a market capitalization-weighted portfolio of all listed stocks. The YSX has six listed stocks, whose descriptions are summarized in Table 2. Three firms—FMI, MCB, and FPB, are involved with the financial sector, whereas the remainders—MTSH, THM, and EFR, are in the non-financial sector. The aggregate market capitalization is 688.24 billion Myanmar kyat, to which FMI, MTSH, MCB, FPB, TMH, and EFR contribute 46.44%, 20.25%, 11.77%, 7.63%, 4.93%, and 8.98% shares, respectively. The sixth stock, EFR, was listed on May 28, 2020. This listing significantly altered the structure of the MYANPIX portfolio thereafter.

Table 2: Descriptions of Listed Stocks

Stock	Symbol	Date Listed	Business
First Myanmar Investment Public Co., Ltd.	FMI	March 25, 2016	Holding subsidiaries in the financial services, real estate, healthcare, and tourism sectors.
Myanmar Thilawa SEZ Holdings Public Co., Ltd	MTSH	May 20, 2016	Real estate development.
Myanmar Citizens Bank Ltd.	MCB	August 26, 2016	Banking services.
First Private Bank Ltd.	FPB	January 20, 2017	Banking services.
TMH Telecom Public Co., Ltd.	TMH	January 26, 2018	Manufacturing of quality automatic telephone exchanges and providing information and communication technology services.
Ever Flow River Group Public Co., Ltd.	EFR	May 28, 2020	Fully integrated total logistics services.

Source: Yangon Stock Exchange (2021).

Here, the estimation period was 99 days. It began on May 29, 2020 so that the full sample is within the COVID-19 period. The estimation is unaffected by the structural changes induced by COVID-19 (Khanthavit, 2021a); furthermore, the portfolio composition remains stable over the full sample period.

2. Methodology

2.1 The Model

This study applied the event-conditioning Kalman-filter regression model proposed by Khanthavit (2021b) to describe the random stock return $\tilde{r}_t$. In Equation (1), the model decomposes $\tilde{r}_t$ into three components: (i) the normal return $\tilde{\mu}_t$, (ii) the abnormal return $\tilde{u}_t$, and (iii) the error term $\tilde{\varepsilon}_t$.

$$\tilde{r}_t = \tilde{\mu}_t + \tilde{u}_t + \tilde{\varepsilon}_t. \quad (1)$$

The error term $\tilde{e}_t$ is normally distributed. It represents the unexpected return whose mean equals zero, and the standard deviation equals σ_ε.

2.1.1 The Normal Return

This study modeled $\tilde{\mu}_t$ using a first-order autoregressive (AR(1)) process via Equation (2).

$$\tilde{\mu}_t = \rho_0 + \rho_1 \mu_{t-1} + \tilde{w}_t, \quad (2)$$

where ρ_0 is the intercept and ρ_1 is the AR(1) coefficient. This specification is intended to capture price inefficiency in the Myanmar market. The random normal return helps mitigate the effects of exogenous events, such as COVID-19 lockdowns (Alam et al., 2020).

The error term $\tilde{w}_t$ is a normal variable with a mean and standard deviation of zero and σ_w, respectively. The error terms $\tilde{\varepsilon}_t$ and $\tilde{w}_t$ are independent. This specification reflects the fact that the normal expected return is independent of the unexpected return.

The specification in Equation (2) is consistent with the mean-adjusted specification widely used in event study analyses (Brown & Warner, 1985) when $\rho_1 = \sigma_w = 0.00$. This is the specification in Khanthavit (2021b) when $\rho_0 = 0.00$ and $\rho_1 = 1.00$. However, this study did not choose the Khanthavit (2021b) specification because in most markets, returns are stationary variables.

2.1.2 The Abnormal Return

This study followed Khanthavit (2021b) to parameterize the abnormal return $\tilde{u}_t$ by $\sum_{a=-A_{Pre}^k}^{-1} \delta_a^k D_{a,t}^k + \delta_0^k D_{0,t}^k + \sum_{b=+1}^{+B_{Post}^k} \delta_b^k D_{b,t}^k$. The superscripts $k = E$ and $k = C$ indicate the terms for the general election and military coup, respectively. Subscript $\mathrm{t} = -\mathrm{N}, \ldots, -A_{Pre}^E, \ldots, +B_{Post}^C$. Following Fama, Fisher, Jensen, and Roll (1969), the period from $\mathrm{t} = -\mathrm{N}$ to $\mathrm{t} = -A_{Pre}^E - 1$ for the general election event E is set as the estimation window, the period from $\mathrm{t} = -A_{Pre}^k$ to $\mathrm{t} = +B_{Post}^k$, surrounding the event k is set as the event window and the period $\mathrm{t} = 0$ is the event date. The variable $D_{(m=a,0,b),t}^{k=E,C}$ is a dummy variable for event k. It is 1.00 if day t is during the event interval $m = a,\ b$, or on the event date $m = 0$. Otherwise, $D_{(m=a,0,b),t}^{k=E,C}$ is 0.00. Finally, the coefficient $\delta_{m=a,0,b}^{k=E,C}$ measures the daily average effect of the event on day t.

The specification for abnormal returns in this study is more restrictive than that in Khanthavit (2020b) who described the abnormal returns via AR(1) processes. This study did not choose such a specification. The resulting model is complicated and highly non-linear. Due to the limited number of return samples, parameter estimation is difficult and the estimates are potentially imprecise.

2.1.3 The Empirical Model

Regarding the specifications for abnormal returns, the empirical model is as follows:

$$\tilde{r}_t = \tilde{\mu}_t + \sum_{a=-A_{Pre}^E}^{-1} \delta_a^E D_{a,t}^E + \delta_0^E D_{0,t}^E + \sum_{b=+1}^{+B_{Post}^E} \delta_b^E D_{b,t}^E + \sum_{a=-A_{Pre}^C}^{-1} \delta_a^C D_{a,t}^C + \delta_0^C D_{0,t}^C + \sum_{b=+1}^{+B_{Post}^C} \delta_b^C D_{b,t}^C + \tilde{\varepsilon}_t. \quad (3)$$

2.2 Lengths of Windows

2.2.1 The Pre-event Window

Long pre-event windows tend to suffer from confounding event problems; therefore, long windows should be avoided (Nazir et al., 2014). In addition, this study is

aware of the small sample size of the Myanmar market. If the pre-event window is long, the sample left for the estimation window is small. Then, the estimates are imprecise. A window that is too short is not recommended either. If the market expects the effects of the event early, it cannot detect significant abnormal returns (Obradović & Tomić, 2017).

This study chose a 10-day pre-event window to balance the problems of the small sample size, confounding events, and early expectations. For example, Park (2004) also chose a 10-day window. The pre-event window covers days -10 to -1. The post-event window is also 10 days. Hence, the event window is 21 days, including the event date.

Following Khanthavit (2021b), the interval length for the pre- and post-event windows is 5 days, so that $A_{Pre} = B_{Post} = 2$. Intervals $a = -1$ to $b = +2$ are days $[-10, -6]$, $[-5, -1]$, $[+1, +5]$, and $[+6, +10]$, respectively.

2.2.2 The Estimation Window

The YSX listed the sixth stock on May 28, 2020. The return on the MYANPIX portfolio with all six stocks is available from May 29, 2020 onward. Therefore, the first day of the estimation window was May 29, 2020. Regarding the event date $t = 0$ for the general election on November 9, 2020, the first day of the estimation window is day -99.

2.3 Model Estimation

Equations (2) and (3) can be jointly interpreted as a state-space model for stock returns. Equation (3) is the measurement equation where the observed return is related to the unobserved normal and abnormal returns. Equation (2) is the transition equation. It describes the stochastic behavior of the unobserved normal return, $\tilde{\mu}_t$. The state-space model is estimated using a Kalman filter regression (Harvey, 1990).

2.4 Hypothesis Tests

This study examined the effects of Myanmar's general election and military coup on stock market returns. Under the null hypothesis of no effects, the abnormal return must be zero. From Equation (3), the coefficient δ_m^k is the daily-average abnormal return. Then, for event $k = E, C$, the coefficients $\delta_a^k = \delta_0^k = \delta_b^k = 0.00$. If the effects are significant, the coefficient δ_m^k is different from 0.00 for some interval $m = a, 0, b$. The hypothesis tests are conducted based on Newey and West's (1987) heteroscedasticity and autocorrelation-consistent standard errors.

3. The Data

3.1 Return Sample

The sample returns are the daily logged returns scaled by 100. They are derived from the daily closing value of the MYANPIX indexes. These indexes were retrieved from the YSX database. The first return is available on May 29, 2020, whereas the event dates are November 9, 2020 and February 3, 2021 for the general election and the military coup, respectively. The 10-day pre-election window started on October 20, 2020, while the 10-day post-coup window ended on February 18, 2021. Hence, the full sample covers the period from May 29, 2020 to February 18, 2021 (171 daily observations).

3.2 Descriptive Statistics

Table 3 reports the descriptive statistics for the sample return. The skewness and excess kurtosis for the full sample suggest that the return distribution is skewed to the left and fat-tailed. The Jarque-Bera statistic rejects the normality hypothesis. Further, the return is autocorrelated. The AR(1) coefficient is negative and significant. Finally, the augmented Dickey-fuller test rejects the non-stationarity hypothesis for the sample return. The statistics for the estimation and event periods are similar to those for the full period, except for the fact that the normality hypothesis cannot be rejected for the estimation period.

Table 3: Descriptive Statistics

Statistic	Full Period (05/29/20 – 02/18/21)	Estimation Period (05/29/20 – 10/20/20)	Event Period (10/21/20 – 02/18/21)
Average	-0.0337	-0.0474	-0.0335
Standard Deviation	1.2306	1.2190	1.1739
Skewness	-0.2512	-0.1971	-0.2327
Excess Kurtosis	6.0297	0.3567	15.7302
AR(1) Coefficient	-0.4097***	-0.5671***	-0.2332**
Jarque-Bera Statistic	260.8433***	1.1661	846.1540***
Augmented Dickey-Fuller Statistic	-11.7184***	-11.3489***	-9.4655***
Number of Observations	171	99	82

*Note: ** and *** denote significance at the 95% and 99% confidence levels, respectively.*
Source: Author's calculations.

The assumption that the error terms $\tilde{\varepsilon}_t$ and $\tilde{w}_t$ are distributed normally is not supported by the data. Nevertheless, Kalman filtering is still usable. The filter is optimal and produces the minimum mean square linear estimates (Kellerhals, 2001).

Significant autocorrelation suggests informational inefficiency in the Myanmar market (Lim & Brooks, 2011). The return behavior is readily modeled by Equation (2). The fact that the autocorrelation coefficient ρ_1 is not restricted to 1.00 is supported by the non-stationarity test results.

4. Empirical Results

The parameter estimates are presented in Table 4. For the general election, the effects are significant on days $[-10,-6]$ and $[-5,-1]$ with daily-average abnormal returns of 0.2129% and 0.5596%, respectively. Abnormal returns are non-significant on the election date or in the post-election window. The effect of the military coup is also significant. The abnormal return on the coup date was –7.1141%. However, the abnormal returns in the pre- or post-coup windows are non-significant. Thus, both the 2020 general election and the 2021 military coup significantly affected the Myanmar stock-market's returns.

The intercept ρ_0 for normal returns is negative and non-significant. The sign and non-significance are consistent with the non-significant average returns in the full, estimation, and event periods in Table 3. The autocorrelation coefficient ρ_1 is –0.5609 and significant. The size and sign of ρ_1 are consistent and approximately the same as the AR(1) coefficients in Table 3. The standard deviation σ_w for the normal return is much larger than the standard deviation σ_ε for the sample return. The parameters ρ_1 and σ_w together suggest that the sample return is mostly explained by the normal return.

Table 4: Parameter Estimates

Parameters		Estimates
General-Election Dummy Variable	Days $[-10,-6]$ (δ^E_{-2})	0.2129*
	Days $[-5,-1]$ (δ^E_{-1})	0.5596***
	Day 0 (δ^E_0)	-0.1906
	Days $[+1,+5]$ (δ^E_{+1})	0.1130
	Days $[+6,+10]$ (δ^E_{+2})	-0.1041
Military-Coup Dummy Variable	Days $[-10,-6]$ (δ^C_{-2})	0.0264
	Days $[-5,-1]$ (δ^C_{-1})	0.1295
	Day 0 (δ^C_0)	-7.1141***
	Days $[+1,+5]$ (δ^C_{+1})	0.6058
	Days $[+6,+10]$ (δ^C_{+2})	0.2304
Constant (ρ_0)		-0.0702
AR(1) Coefficient (ρ_1)		-0.5609***
Standard Deviation of Normal Return (σ_w)		0.9325***
Standard Deviation of Sample Return (σ_ε)		6.65E-08

*Note: * and *** denote significance at the 90% and 99% confidence levels, respectively.*
Source: Author's calculations.

5. Discussion

5.1 Significant Effects

The effects δ^E_{-2} and δ^E_{-1} are positive and significant, suggesting that the market expected the NLD to win the election. Much earlier than the election date, it became clear to the market that the NLD had been more popular than the military-backed USDP. However, the NLD still risked disaffection, especially among minority ethnic communities ("Myanmar sets November 8", 2020). Nevertheless, the party's win would benefit the country. From a political perspective, the NLD promotes democracy. It would lead the country to becoming an electoral democracy state, away from the current electoral autocracy state (Bünte, Köllner, & Roewer, 2020). Electoral autocracies are the most common form of dictatorship (Lührmann & Lindberg, 2019). From an economic perspective, democracy is associated with economic growth (Acemoglu et al., 2019). If the NLD could form the next government, it was likely that western governments would ease the remaining sanctions, increase financial and non-financial assistance, and promote investment in Myanmar (Kucik, 2016; Takeyama, 2018). In addition, if the military were less influential after the new government, the military spending could be diverted to more productive spending and raising GDP (Ahmed, Alam, Rashid, & Gow, 2020).

The coefficient δ^E_{-1} is much larger than the coefficient δ^E_{-2}. The price rose as the election day approached. This finding can be explained by the uncertain information hypothesis (Brown, Harlow, & Tinic, 1988). The uncertainty about the election results was gradually resolved. The risks were lower, and the stock prices rose.

During the pre-election window, it was widely expected that the NLD would win the election (Ratcliffe, 2021). The non-significant coefficients δ^E_0, δ^E_{+1}, and δ^E_{+2} indicate that the market had fully absorbed the good news during that window.

The effects for the military coup were negative and significant on the coup day. This finding suggests that the military coup adversely affected the market. It destroyed the democracy and economy (Acemoglu et al., 2019; Civilize et al., 2015), led to violence and chaos (Duggan, 2004), drew sanctions from international communities (Shannon et al., 2015), and raised non-productive military expenditure (Ahmed et al., 2020).

The effects of the pre-coup window were non-significant. Although the military signaled a possible coup (Radio Free Asia, 2021), the market did not expect one or did

not believe the signal. On January 29, 2021, "Military coup fears" (2021) reported that Myanmar's members of the parliament were prepared to attend the parliament's opening session, scheduled for February 1, 2021, to elect the new government. January 29, 2021 was the last trading day before the parliament session and the military coup.

Protests began immediately on the day of the coup. At the time of writing, protests were still active. However, military suppression turned violent and deadly. Despite the outcomes, the effects of the post-coup window were not significant. This may be because the market expected the incident and fully priced it on the coup date. This finding is similar to that for the Pakistan market, in which information was absorbed quickly and the Pakistanis considered the event as their way of life (Nazir et al., 2014).

5.2 The Market's Ability to Absorb and Disseminate Information

The YSX is a young and very small market. Its informational efficiency is rejected by significant autocorrelation of the sample return. This study raised concerns about the market's ability to reflect information on events. From Table 4, the effects of the election and coup are significant. This finding is consistent with the theories and incidents surrounding the events. Thus, the study concludes that the YSX is able to absorb and disseminate the information.

5.3 Threat of Military Coup

Despite the threat of military coup during the pre-event window, abnormal returns are non-significant. This study is aware that the effects are the daily average abnormal returns. Even though the threat was significant, it could have been averaged out. This study checked for the significance for the threat day (January 26, 2021, or day -4 for the coup event) (Radio Free Asia, 2021) by constructing two dummy variables for days $[-5,-1]$. The first variable is for day -4, whereas the second variable is for days $[-5,-3,-2,-1]$. The variables are 1.00, if t is their corresponding day, and zero otherwise. The model was re-estimated by replacing the two variables for the $D^{C}_{-1,t}$ variable. The abnormal return on day -4 is 0.1655% and is non-significant. This shows that the market did not value the threat.

5.4 Confounding-Event Problem

On January 27, 2021, the COVID-19 vaccine was administered for the first time to health workers in Rakhine State (Wai, 2021). This was day -4 before the coup event. The market may have interpreted vaccination as good news. Therefore, this is a confounding event. The finding that the abnormal return for days $[-5,-1]$ is non-significant may be explained by the good news on vaccination canceling the bad news on the threat of the coup. This study checked for this possible explanation by constructing two dummy variables in a way similar to that of the threat. The abnormal return on the first vaccination day was –0.0486% and non-significant. Therefore, the confounding event cannot explain the non-significant results in the pre-coup window.

The COVID-19 situation should improve once vaccination started. If the vaccination affects stock returns, its effects are necessarily controlled in the analysis. The study constructed a vaccination dummy variable and adds it to Equation (1) as the control variable. The dummy is 1.00 if day t is from January 27, 2021 to February 18, 2021. Otherwise, it is 0.00. The model with the vaccination dummy is estimated. The study found that the coefficient for the vaccination dummy is -0.0839 and non-

significant. The vaccination has no effects on the stock returns. The resulting abnormal returns and their significance are very similar to those in Table 4.

5.5 Structural Changes

COVID-19 can cause structural changes in the market (Khanthavit, 2021a). The military government that replaced the democratically elected government may also cause structural changes due to continued protests, international economic sanctions, and government-spending preferences. If structural changes exist, the model is mis-specified. This study checked for structural changes using a cumulative-sum-control-chart (CUSUM) test for the sample return. The CUSUM test did not detect any changes. Thus, the model is well specified.

5.6 The Choice for Lag Number

In Equation (2), this study imposed a one-lag specification for the normal return. This specification is restrictive. If the optimum lag number is not one, the model is mis-specified. This study checked for the optimum lag number by estimating the model with two and three lags, and computed their Bayesian information criterion statistics. A small statistic suggests a preferred model. The statistics for the one-, two-, and three-lag specifications are 74.7370, 79.8403, and 84.9137, respectively. Thus, the optimum lag is one and the model is well specified.

5.7 Deadly Suppression

The post-coup window began on February 4, 2021 and ended on February 18, 2021. In this window, the suppression gradually became violent. The effects in this window were non-significant. The suppression became deadly on January 19, 2021, when a young protester was shot, and then died of the wounds ("Timeline of events", 2021a). From January 19, 2021 onward, the death toll escalated.

This study checked for the market's reactions to the deadly suppression of protests. It appended the sample for ten more trading days, added two dummy variables for days $[+11, +15]$ and $[+16, +20]$, and re-estimated the model with the appended data and added dummy variables. The daily average abnormal returns for days $[+11, +15]$ and $[+16, +20]$ are -0.1221% and 0.1062%, respectively. The effects were negative in the first five days of deadly suppression. However, it is non-significant.

This study further examined whether the effects for the day of the first death (January 19, 2021, or day $+11$ for the coup event) were significant. It constructed two dummy variables for days $+11$ and $[+12, +15]$, and then re-estimated the model. The abnormal return for the first death is –2.0985% and significant, whereas the abnormal return for days $[+12, +15]$ is 0.5474% and non-significant. Thus, the market showed significantly negative reactions to the first death.

5.8 Alternative Return Samples

The study noticed that EFR was recently listed. Its behavior may be different from the older firms—FMI, MTSH, MCB, FPB, and TMH, in the MYANPIX portfolio. In order to check whether the reactions to the general election and military coup change when EFR is excluded from the portfolio, this study constructed a market capitalization-weighted return series for the five older firms and uses the return series to re-estimate the model. The market capitalization-weighting methodology is chosen, because it is consistent with the way the MYANPIX portfolio is constructed. The result for the five-firm return is reported in Column 3 of Table 5. The study found that the abnormal return for the coup day is negative and significant. However, unlike the

MYANPIX portfolio, the reaction to the general election of the five-firm portfolio is non-significant.

Table 5: Abnormal Returns for Alternative Return Samples

Abnormal Return		Alternative Return Sample		
		Five Firms	Financial Firms	Non-financial Firms
General Election	Days $[-10,-6]$ (δ^E_{-2})	0.1300	0.1562	0.0022
	Days $[-5,-1]$ (δ^E_{-1})	-0.0241	0.0381	1.6332***
	Day 0 (δ^E_0)	-0.2065	-0.5644	0.0824
	Days $[+1,+5]$ (δ^E_{+1})	0.0716	0.0840	0.0697
	Days $[+6,+10]$ (δ^E_{+2})	-0.0133	0.0012	-0.4607
Military Coup	Days $[-10,-6]$ (δ^C_{-2})	0.0640	-0.1417	0.2137
	Days $[-5,-1]$ (δ^C_{-1})	0.0028	0.0005	0.2187
	Day 0 (δ^C_0)	-6.6355***	-5.6908**	-9.0103***
	Days $[+1,+5]$ (δ^C_{+1})	0.4489	0.7552	0.0395
	Days $[+6,+10]$ (δ^C_{+2})	0.1260	0.2031	-0.1472

Source: Author's calculations.

Avrutskya and Maricheva (2021) pointed out that financial and non-financial firms can react to political events in different ways. Among the six firms in the MYANPIX portfolio, FMI, MCB, and FPB are financial firms, whereas MTSH, TMH and EFR are non-financial firms. This study tested for effects of the two events on the firms in the two sectors. Market capitalization-weighted return series for the portfolios of financial and non-financial firms were constructed. The study re-estimated the model using the two return series and reports the results in Columns 4 and 5 of Table 5. The financial and non-financial firms reacted the same way to the military coup. Their abnormal returns are negative and significant on the coup day. However, their reactions to the general election are different. The reaction of financial firms is non-significant, whereas that of non-financial firms is positive and significant for days $[-5,-1]$.

The significant effect of the general election on the portfolios of non-financial firms is explained by the EFR return. EFR's core business is in the logistics industry. The firm would most benefit from the reforms and policy changes after the election (Kyaw Soe, 2021).

6. Conclusion

The Myanmar 2020 general election and the 2021 military coup drew global attention. This study examines the effects of these two events on the Myanmar stock market returns. The method used is the event-conditioning, Kalman filter regression. Using the daily return on the MYANPIX portfolio from May 29, 2020 to February 18, 2021, this study found significant effects for the two events. The effects of the general elections (military coup) are positive (negative). The market interpreted the general election and military coup as being good and bad, respectively, to the economy. It revealed the interpretation in the stock market returns. Despite its young age and small size, the YSX was able to absorb and disseminate political information.

Acknowledgments

The author thanks the Faculty of Commerce and Accountancy, Thammasat University, for the research grant, and Pittaya Akaravilas, Sorasit Limpipolpaibul, Thanit Pattanawong, and Chanya Siriarayaphan for their research assistance.

References

Ahmed, W. M. A. (2017). The impact of foreign equity flows on market volatility during politically tranquil and turbulent times: The Egyptian experience. *Research in International Business and Finance*, *40*, 61–77.

Ahmed, S., Alam, K., Rashid, A., & Gow, J. (2020). Militarisation, energy consumption, CO_2 emissions and economic growth in Myanmar. *Defence and Peace Economics*, *31* (6), 615–641.

Alam, M. N., Alam, M. S., & Chavali, K. (2020). Stock market response during COVID-19 lockdown period in India: An event study. *Journal of Asian Finance, Economics andBusiness*, *7* (7), 131–137.

Alsharairi, M., & Abubaker, W. (2016). Does Arab Spring have a spillover effect on Dubai financial market? *Journal of Developing Areas*, *50* (6), 319–331. Retrieved from https://www.jstor.org/stable/10.2307/26415669

Acemoglu, D., Naidu, S., Restrepo, P., & Robinson, J. A. (2019). Democracy does cause growth. *Journal of Political Economy*, *127* (1), 47–100.

Aung San Suu Kyi's ruling party claims resounding election win in Myanmar. (2020, November 10). *CNN*. Retrieved from https://edition.cnn.com/2020/11/09/asia/myanmar-election-results-nld-intl-hnk/index.html

Avrutskaya, S., & Maricheva, E. (2021). Testing Russian stock market efficiency using event studies: Impact of credit ratings changes. *Journal of Corporate Finance Research*, *15* (2), 42–54.

Brown, K. C., Harlow, W. V., & Tinic, S. M. (1988). Risk aversion, uncertain information, and market efficiency. *Journal of Financial Economics*, *22* (2), 355–385.

Brown, S. J., & Warner, J. B. (1985). Using daily stock returns: The case of event studies. *Journal of Financial Economics*, *14* (1), 3–31.

Bünte, M., Köllner, P., & Roewer, R. (2020). Taking stock of Myanmar's political transformation since 2011. *Journal of Current Southeast Asian Affairs*, *38* (3), 249–264.

Civilize, S., Wongchoti, U., & Young, M. (2015). Military regimes and stock market performance. *Emerging Markets Review*, *22*, 76–95.

Dai, L., & Zhang, B. (2019). Political uncertainty and finance: A survey. *Asia-Pacific Journal of Financial Studies*, *48* (3), 307–333.

Duggan, C. S. M. (2004). Do different coups have different implications for investment? Some intuitions and a test with a new dataset (*Working Paper*). California: Stanford University. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.406.5882&rep=rep1&type=pdf

Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The adjustment of stock prices to new information. *International Economic Review*, *10* (1), 1–21.

Fisher, J. (2020, November 13). Myanmar election: Suu Kyi's NLD wins landslide victory. BBC News. Retrieved from https://www.bbc.com/news/av/world-asia-34806439

Girardi, D., & Bowles, S. (2018). Institutional shocks and economic outcomes: Allende's election, Pinochet's coup and the Santiago stock market. *Journal of Development Economics*, *134*, 16–27.

Harvey, A. C. (1990). *Forecasting, structural time series models and the Kalman Filter*. New York: Cambridge University Press.

Hung, L. C. (2013). U.S. presidential elections and the Taiwanese stock market. *Issues and Studies, 49 (1)*, 71–97. Retrieved from https://www.scopus.com/orderdocument/form.uri?origin=recordpage&eid=2-s2.0-84879896290

IANS. (2020, November 15). Myanmar's ruling NLD party grabs majority of parliamentary seats. New Indian Express. Retrieved from https://www.newindianexpress.com/world/2020/nov/15/myanmars-ruling-nld-party-grabs-majority-of-parliamentary-seats-2223813.html

Kellerhals, B. P. (2001). *Financial pricing models in continuous time and Kalman Filtering*. New York: Springer-Verlag.

Khanthavit, A. (2020a). An event study analysis of Thailand's 2019 general election: A long window of multiple sub-events. *International Journal of Financial Research, 11* (4), 502–514.

Khanthavit, A. (2020b). Foreign investors' abnormal trading behavior in the time of COVID-19. *Journal of Asian Finance, Economics and Business, 7* (9), 63–74.

Khanthavit, A. (2021a). Measuring COVID-19 effects on world and national stock market returns. *Journal of Asian Finance, Economics and Business, 8* (2), 1–13.

Khanthavit, A. (2021b). A Kalman filtering approach to event study analysis when performance variables are nonstationary. *Thailand Statistician, 19* (1), 178–194. Retrieved from https://ph02.tci-thaijo.org/index.php/thaistat/article/view/242824

Kyaw Soe, H. (2021, January 18). Business positive of reform, policy change in post-election Myanmar. Myanmar Times. Retrieved from https://www.mmtimes.com/news/businesses-positive-reform-policy-change-post-election-myanmar.html

Kucik, P. (2016). Difficulties in easing sanctions on Myanmar. April 2016. Retrieved from Center on Energy Policy, Columbia University websitehttps://energypolicy.columbia.edu/sites/default/files/CGEP_Difficulties%20in%20Easing%20Sanctions%20on%20Myanmar_April%202016.pdf

Lehkonen, H., & Heimonen, K. (2015). Democracy, political risks and stock market performance. *Journal of International Money and Finance, 59*, 77–99.

Lim, K. P., & Brooks, R. (2011). The evolution of stock market efficiency over time: A survey of the empirical literature. *Journal of Economic Surveys, 25* (1), 69–108.

Lührmann, A., & Lindberg, S. I. (2019). A third wave of autocratization is here: What is new about it? *Democratization, 26* (7), 1095–1113.

Marston, H. (2021, February 3). Myanmar grabs global attention, again. *East Asia Forum*. Retrieved from https://www.eastasiaforum.org/2021/02/03/myanmar-grabs-global-attention-again/

Maung, M. (2021, March 14). Targeted sanctions needed against Myanmar's coup leaders. *Human Rights Watch*. Retrieved from https://www.hrw.org/news/2021/03/15/targeted-sanctions-needed-against-myanmars-coup-leaders

Military coup fears overshadow Myanmar parliament opening. (2021, January 29). *China Daily*. Retrieved from https://www.chinadailyasia.com/article/156405

Myanmar sets November 8 date for general election. (2020, July 2). *Al Jazeera*. Retrieved from https://www.aljazeera.com/news/2020/7/2/myanmar-sets-november-8-date-for-general-election

Nazir, M. S., Younus, H., Kaleem, A., & Anwar, Z. (2014). Impact of political events on stock market returns: Empirical evidence from Pakistan. *Journal of Economic and Administrative Sciences, 30* (1), 60–78.

Newey, W. K., & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica, 55* (3), 703–708.

Obradović, S., & Tomić, N. (2017). The effect of presidential election in the USA on stock return flow—A study of a political event. *Economic Research-Ekonomska Istraživanja, 30* (1), 112–124.

Ockey, J. (1994). Political parties, factions, and corruption in Thailand. *Modern Asian Studies, 28* (2), 251–277.

Oehler, A., Walker, T. J., & Wendt, S. (2013). Effects of election results on stock price performance: Evidence from 1980 to 2008. *Managerial Finance, 39* (8), 714–736.

Pantzalis, C., Stangeland, D. A., & Turtle, H. J. (2000). Political elections and the resolution of uncertainty: The international evidence. *Journal of Banking and Finance*, *24* (10), 1575–1604.

Park, N. K. (2004). A guide to using event study methods in multi-country settings. *Strategic Management Journal, 25* (7), 655–668.

Peterson, P. P. (1989). Event studies: A review of issues and methodology. *Quarterly Journal of Business and Economics*, *28* (3), 36–66. Retrieved from https://www.jstor.org/stable/40472954?seq=1

Plecher, H. (2021, February 10). Growth of the global gross domestic product (GDP) 2025. Retrieved from https://www.statista.com/statistics/273951/growth-of-the-global-gross-domestic-product-gdp/

Radio Free Asia. (2021, January 28). Myanmar's military refuses to rule out coup over election fraud claims. VOA News. Retrieved from https://www.voanews.com/east-asia-pacific/myanmars-military-refuses-rule-out-coup-over-election-fraud-claims

Ratcliffe, R. (2021, November 6). Myanmar minorities, including Rohingya, excluded from voting in election. Guardian. Retrieved from https://www.theguardian.com/world/2020/nov/06/myanmar-minorities-rohingya-excluded-voting-election-poll-aung-san-suu-kyi-rights

Shannon, M., Thyne, C., Hayden, S., & Dugan, A. (2015). The international community's reaction to coups. *Foreign Policy Analysis*, *11* (4), 363–376.

Takeyama, Y. (2018). Recent developments of the Myanmar economy. May 2018. Tokyo: Institute for International Monetary Affairs. Retrieved from https://www.iima.or.jp/en/docs/newsletter/2018/NL2018No_6_e.pdf

Timeline of events in Myanmar since February 1 coup. (2021a, February 21). *Al Jazeera*. Retrieved from https://www.aljazeera.com/news/2021/2/23/timeline-of-events-in-myanmar-since-february-1-coup

Trading Economics. (2021). Myanmar GDP annual growth rate. Retrieved from https://tradingeconomics.com/myanmar/gdp-growth-annual

UN condemns Myanmar violence as US sanctions general's children. (2021b, March 10). *Al Jazeera*. Retrieved from https://www.aljazeera.com/news/2021/3/10/us-imposes-sanctions-on-children-of-myanmar-military-leader

Wai, K. S. (2021, January 25). Rakhine to start immunization of health workers on January 27. Myanmar Times. Retrieved from https://www.mmtimes.com/news/rakhine-start-immunisation-health-workers-january-27.html

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* (2), 237–248.

World Bank. (2021). The World Bank in Myanmar. Washington, DC: World Bank. Retrieved from http://ida.worldbank.org/results/myanmar#:~:text=Myanmar%2C%20a%20lower%2Dmiddle%20income,and%20Pacific%20region%20and%20globally.

Yangon Stock Exchange. (2021). Company list. Retrieved from https://ysx-mm.com/main-board/listing/company/