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The Effect of WHO COVID-19 Announcement on Asian Stock Markets Returns: An Event Study Analysis

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Abstract

This study aims to examine the effect of World Health Organization (WHO) declaring COVID-19 as a global pandemic on the stock market returns of the five largest Asian stock markets using event study analysis. Results obtained from this research shows that the WHO announcement had a significant negative effect on stock markets returns on major Asian stock markets.

Keywords: COVID-19, Asian Stock Markets, Event Study, Pandemic, Stock Markets Returns.

Introduction

The Covid-19 pandemic can be classified as a ‘black swan’ since it was a very unlikely event that has a severe unfavorable economic consequences. Taleb (2005) defined black swan as a random event satisfying the following three properties: large impact, incomputable probabilities, and surprise effect. Literature shows that there is a strong relation between stock market returns and pandemic outbreaks (Park et al. 2008; Pendell and Cho, 2013; Chen et al., 2009; Chen et al., 2007; Ichev and Marinč, 2018; Bash, 2020; AlAli, 2020).

The coronavirus first appeared in Wuhan, China on December 2019 and since then started spreading around the world. On March 11th, 2020 the World Health Organization (WHO) declared COVID-19 as a global pandemic. Since then, there has been 13.95 million confirmed cases and a death toll of 593 thousands as of July 17th, 2020. AlAli (2020) studied the effect of first reported case in 11 countries and its effect on their stock markets and concluded that the effect of WHO announcement had a much greater effect than the effect of first case reported. Baig et al. (2020) investigate the effect of COVID-19 on the United States (US) equity markets and found that COVID-19 has led to an increase in market illiquidity and volatility. Zhang et al. (2020) showed that both financial market risk and uncertainty increased following COVID-19 outbreak.
Data and Methodology

This research is based on the average daily returns of the five largest Asian stock markets which are Shanghai SE, Nikkei 225, Bombay SE, Hang Seng Index, and South Korea KOSPI Composite Index. In addition to Morgan Stanley all-country world equity index (MSCI), all data used cover the period March 4th, 2019 to April 22nd, 2020. The data for this research were downloaded from Yahoo-finance website.

Two methods are used in this research to determine abnormal returns. The first method is the mean-adjusted returns as conducted by Brown and Warner (1985) where;

\[ ABR_d = R_d - \bar{R}_n \]  
\[ \bar{R}_n = \frac{\sum_{d_{-257}}^{d_{-11}} R_d}{257} \]

Where \( R_d \) is the average return of the 5 indices under study at day \( d \), \( \bar{R}_n \) is the average return of the indices during the estimation window (-257,-11).

The second method is Dodd and Warner (1983) market model method where;

\[ ABR_d = R_d - (\alpha_d + \beta_d R_{MD}) \]

Where \( R_{MD} \) is the return of all-country world equity index (MSCI). \( \alpha_d \) and \( \beta_d \) are the coefficients obtained from OLS regression over the (-257,-11) estimation window.

Empirical Results

Mean abnormal returns (ABR) and cumulative abnormal returns (CABR) for both models used are illustrated in figure 1. It can be seen from the figure that CABR showed an accelerating decline after day 0 which is the WHO announcement date indicating the greater effect of the announcement on stock markets returns. In examining the mean difference between cumulative returns before and after WHO announcement date (event date) using event windows (-5,5), (-15,15), and (-30,30). Results presented in table 1 shows that there was a statistically significant difference in CABR mean returns at the 99% confident level except for (-5,5) event window for mean-adjusted return where the confident level was at 95%.

| Event Window | Mean-Adjusted Return Model | Before | After | After-Before | t-test  |
|--------------|---------------------------|--------|-------|-------------|--------|
| -5,5         | Mean-Adjusted Return Model | -2.29% | -14.61% | -12.32% | 14.62*** |
| -15,15       | Mean-Adjusted Return Model | -4.77% | -22.19% | -17.42% | 16.01*** |
| -30,30       | Mean-Adjusted Return Model | -0.91% | -18.61% | -17.70% | 13.22*** |
| -5,5         | Market Model              | -1.13% | -5.90% | -4.77% | 3.83**  |
| -15,15       | Market Model              | -1.03% | -10%  | -8.97% | 14.35*** |
| -30,30       | Market Model              | -0.58% | -9.49% | -8.91% | 13.81*** |

*, **, *** represent the confidence level at the 90%, 95, and 99% levels respectively.
**Conclusion**

This study was set to examine the effect of WHO announcement declaring COVID-19 as a global pandemic on stock market returns of the largest five Asian stock markets. Using mean-adjusted returns and market model methods, results show a negative effect of WHO announcement on market abnormal returns and there was a statistically significant difference between market returns before and after the announcement.

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