The Impact of the COVID-19 Pandemic on the Malaysian Stock Market

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Abstract The COVID-19 pandemic has been shattering the world since the beginning of 2020 and has caused an enormous impact on the stock markets. Malaysia, a small and open economy, was equally affected by the pandemic. This is reflected in the Movement Control Order (MCO) implementation, which ceased most of the economic activities and consequently affected the Malaysian stock market. Therefore, this study aims to examine the impact of COVID-19 on the FTBM Kuala Lumpur Composite Index (KLCI) and 13 other sectoral indices using the Autoregressive Distributed Lag (ARDL) model. Using the sample period from 5 February 2020 to 31 December 2020, the main results showed that the increase in COVID-19 cases in Malaysia and globally still positively impacted the KLCI and all sectoral indices during this period. The findings of this study bring implications for investors, investment institutions, and policymakers in the following aspects. First, this study helps investors in determining strategies to manage their portfolios. This study also assists investment institutions in identifying risks in each sector during the pandemic. Finally, this study helps policymakers set policies to maintain stock market stability while facing market shocks like this pandemic. This study is relevant in increasing perspectives to help all stakeholders execute the best decisions, especially with the COVID-19 pandemic still active worldwide.

Keywords Stock market · Pandemic COVID-19 · Asset pricing · ARDL

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1   Introduction

Since COVID-19 was declared a pandemic by the World Health Organization (WHO) on 11 March 2020, this pandemic has profoundly impacted stock markets worldwide. As of March 2020, the U.S. stock market has experienced tremendous turmoil due to panic selling. The U.S. Securities Commission's circuit breaker system froze stock market trading when the price of the S&P 500 index fell more than 7% from the previous day's price. In addition, the Dow Jones Index experienced the most prominent daily decline in U.S. history on 12 March 2020 and 16 March 2020 (Funakoshi & Hartman, 2020). In Malaysia, as of 29 July 2022, the total number of COVID-19 cases was 4.67 million, with a total death toll of 35,956 (Ministry of Health Malaysia, 2020). Due to the worsening pandemic, the first Movement Control Order (MCO) was declared on 18 March 2020 to prevent the pandemic from spreading further in Malaysia. Then, MCO was extended and relaxed to a different phase in 2020 and 2021, including the Conditional Movement Control Order (CMCO) and Recovery Movement Control Order (RMCO). During MCO, all economic activities have been stopped except for essential services such as water, electricity, energy, telecommunications, postal, transportation, irrigation, oil, gas, fuel, lubricants, broadcasting, finance, banking, health, pharmacy, fire, prison, port, airport, security, defence, cleaning, retail and food supply. Besides that, the KLCI has experienced a downward trend and reached its lowest point of 1,219.71 on 19 March 2020.

In response to the economic downturn due to COVID-19, the Bank Negara Malaysia (BNM) has also lowered the Overnight Policy Rate (OPR) to stimulate the economy. The reduction in the OPR rate has caused market uncertainty and a reduction in the investment portfolio discount rate under the Capital Asset Pricing Model (CAPM) framework. To maintain the discount rate, the market will adjust the equity risk premium (ERP) to reflect increased market volatility, adjust debt costs to reflect increasing credit spreads and adjust company-specific risks to reflect credit risk, liquidity risk, and forecasting risk. The discount rate will increase again when risk and volatility have been adjusted according to market conditions (KPMG, 2020). Investors will most likely ask for higher returns to compensate for the higher uncertainties and risks they face to protect their portfolios.

As a small and open economy, the Malaysian stock market is also affected by the COVID-19 pandemic and stock market conditions of other countries, especially the large stock markets which dominate the global stock market. As of April 2020, the U.S. stock market accounted for 46% of the world, with the New York Stock Exchange (NYSE) and National Association of Securities Dealers Automated Quotations (NASDAQ) contributing 31.5% and 14.5% of the share, respectively. They are followed by the Chinese stock market, which accounts for 14.4% of the world stock market (World Federation of Exchanges, 2020). The US and China also contribute significantly to Foreign Direct Investment (FDI) in Malaysia. The US is the largest foreign investor in Malaysia after Singapore, with a total investment from the US of RM6.0 billion in 2020, which is 13.45% of total FDI inflows. China is the fourth FDI

contributing country after Singapore and Thailand in 2020, with a total of RM2.6 billion, 17.69% of total FDI flows (Department of Statistics Malaysia, 2020). While the US and China play an essential role in the global economy as well as the Malaysian economy, it is imperative to determine to what extent can large-capacity stock market conditions such as these countries be able to affect the stock market conditions in Malaysia.

This study examines the effect of COVID-19 on sectoral index returns in Malaysia, which has not been studied by Chia et al. (2020) and Gamal et al. (2021). Although studies on developing stock markets have been conducted by researchers such as Rabhi (2020), Mert and Omer (2020) and El-Khatib and Samet (2020), developing stock markets still receive less attention compared to advanced countries. Given this background, this study contributes to the literature on stock market studies in Malaysia from the following aspects. First, it fills the gap of the study in terms of population by covering a more comprehensive sample. This study also fills the research gap in terms of data analysis in which this study has a more extended study period compared to the study of Lee et al. (2020) and Saad et al. (2020). Finally, this study also fills in the study's gaps in methodology. It examines the effect of COVID-19 on the stock market using Autoregressive Distributed Lag (ARDL) analysis which has not been used by previous studies in Malaysia such as Chia et al. (2020), Lee et al. (2020) and Saad et al. (2020).

2 Stock Market and Pandemic COVID-19

Past studies have shown that stock markets worldwide performed poorly and experienced negative returns when COVID-19 started to spread (Hassan & Gavilanes, 2021). Liu et al. (2020) also showed that the impact of COVID-19 on traditional Chinese industries is negative and more serious. Studies in developing countries have also found that the growth of daily COVID-19 cases has negatively affected stock market performance (El-Khatib & Samet, 2020; Mert & Omer, 2020; Rabhi, 2020). Mert and Omer (2020) found that the negative impact of the COVID-19 outbreaks on developing stock markets started to diminish after the peak of this pandemic in March 2020. The effect of COVID-19 on developing stock markets in Asia is more significant than on developed stock markets in Europe. Although most studies in developed and developing countries have shown that COVID-19 negatively affects the stock markets, Onali (2020) showed that changes in the number of cases and deaths in the US and six other countries that suffered the worst COVID-19 crisis do not have an impact on the US stock market returns.

The Malaysian stock market was also affected by the COVID-19 pandemic. The number of COVID-19 cases harms the Malaysian stock market (Chia et al., 2020; Gamal et al., 2021; Lee et al., 2020; Saad et al., 2020). For example, Chia et al. (2020) showed that for each additional case of newly confirmed COVID-19, the index return decreased by 0.003–0.005%. Lee et al. (2020) showed that the plantation sector was less affected by the COVID-19 condition, while Saad et al. (2020)

showed that the health services and financial services sectors were less affected by the COVID-19 pandemic. According to Lee et al. (2020), the worsening COVID-19 epidemic in China tends to improve the performance of the health services, industrial services products, telecommunications and media and utilities sectors in Malaysia. On the contrary, the worsening COVID-19 outbreak in the US tends to improve the performance of the industrial products and services and utility sector but lower the performance of the telecommunications and media and transportation and logistics sectors in Malaysia.

Liu et al. (2020) showed that the COVID-19 pandemic also positively impacted the health services and information technology sectors in the case of China stock market. In contrast, the transport, accommodation and catering sectors have been severely affected during this pandemic. In addition, this pandemic also hurts the mining, electricity and heating sectors and the environment (Liu et al., 2020). Moreover, using Hang Seng Index and the Shanghai Stock Exchange Composite Index, Al-Awadhi et al. (2020) found that the pandemic negatively impacted the beverage sector more than the transportation sector. Meanwhile, Shen and Zhang (2021) divided the Chinese stock market into two groups which are "Stay at Home" and "Out of Home" stocks. The results show that, for "Out of Home" stocks, there was a significant negative impact of COVID-19 and the cumulative abnormalities continue to decline. For the "Stay at Home" stocks, there is no significant negative impact and the accumulated abnormal returns continue to increase. Studies by Liu et al. (2020) in China and Harjoto et al. (2021) in the US also showed that shares of large-capitalized companies experience more negative effects on their returns than shares of small-capitalized companies. Both studies also found that the impact of COVID-19 is more harmful to small-capitalized indices than to large-capitalized indexes in the stock market.

3 Research Methodology

3.1 Data and Variables Description

This study uses daily data from 5 February 2020 to 31 December 2020. The study uses data from the FTBM Kuala Lumpur Composite Index (KLCI) and 13 sectoral indices covering the consumer, construction, energy, financial, healthcare, industrial products, plantation, real estate, REIT, technology, telecommunications and media, transportation and logistics, and utility. Data are collected from various online sources. Data related to COVID-19 are extracted from a database on the official WHO website.

Daily stock returns as the dependent variable are calculated using the following formula:

$$R_t = \frac{I_t - I_{t-1}}{I_{t-1}} \times 100\% \tag{1}$$

In Eq. (1), R_t is the return for the KLCI index (or sectoral index) on day t, while I_t and I_{t-1} refer to the average index price for day t and t−1, respectively.

The independent variables of this study are the Malaysian new cases of COVID-19 (MC), world covid cases (WC), Shanghai Composite Index (SH) and NASDAQ Composite Index (NASDAQ). The Shanghai Composite Index and the NASDAQ Composite Index are considered international market benchmarks and are expected to influence the movement of the stock price in the Malaysian market.

3.2 Baseline Model

The baseline regression models of this study are:

$$R_{KLCI} = \alpha + \beta_1 Log MC_t + \beta_2 SH_t + \beta_3 NASDAQ_t + \in \tag{2}$$

$$R_I = \alpha + \beta_1 Log MC_t + \beta_2 SH_t + \beta_3 NASDAQ_t + \in \tag{3}$$

$$R_{KLCI} = \alpha + \beta_1 Log WC_t + \beta_2 SH_t + \beta_3 NASDAQ_t + \in \tag{4}$$

$$R_I = \alpha + \beta_1 Log WC_t + \beta_2 SH_t + \beta_3 NASDAQ_t + \in \tag{5}$$

The baseline model in Eq. (2)–(5) is used to estimate the determinants of stock return, return of KLCI (R_{KLCI}), and return of the sectoral index (R_I). Models (2) and (3) examine the impact of the Malaysian covid case (MC), while models (4) dan (5) investigate the effect of world covid cases (WC) on the Malaysian stock market. MC and WC will be regressed separately in the baseline model to avoid the correlation among these variables. The baseline model in Eqs. (2)–(5) will be estimated using Autoregressive Distributed Lag (ARDL) model by considering the lagged optimum for each model using Akaike information criteria.

4 Result and Discussions

4.1 Descriptive Statistics

Table 1 shows the descriptive statistics for the daily returns of the Malaysian stock sectoral indexes. The health services sector records the highest average daily returns at 0.49%, while the REIT sector records the lowest average daily returns at −0.049%. These findings indicate that during COVID-19, the demand for medical care products has increased. Therefore, the share price for medical care companies has increased

Table 1 Descriptive statistics of stock returns (%)

Sectoral Index	Mean	Minimum	Maximum	Median	SD
KLCI	0.0339	−5.2613	6.8508	0.0439	1.2714
Construction	−0.0073	−11.8395	8.5112	0.1116	2.0756
Consumer Products and Services	−0.0002	−5.7519	3.8626	0.0265	1.1935
Energy	−0.0270	−25.3943	14.2269	−0.1015	3.6258
Financial Services	0.0332	−7.2300	8.5992	0.0078	1.7034
Health Services	0.4889	−7.9797	9.8475	0.2855	2.7632
Industrial Products and Services	0.1150	−10.7373	7.8145	0.2393	1.9295
Plantation	0.0173	−6.5189	7.3318	−0.0150	1.3310
Property	0.0090	−7.4290	5.2403	0.0144	1.5505
REIT	−0.0492	−6.4731	2.9507	−0.0338	0.9656
Technology	0.2845	−12.0424	10.5838	0.2553	2.4820
Telecommunication and Media	0.0255	−6.2901	5.9313	0.0444	1.5317
Transportation and Logistics	0.0557	−7.0109	7.0521	0.0780	1.7070
Utilities	0.0187	−6.2563	3.9945	0.0306	1.2066

due to the bullish sentiment for the medical care shares. In contrast, during COVID-19, demand for real estate, investment, and trust has dropped, thus has affected the share prices of the REIT companies. The energy sector has the highest standard deviation of 3.63, while the REIT with the lowest standard deviation at 0.97, indicates that during COVID-19, the share prices of energy are highly volatile. In contrast, the share price of REITs is less volatile. Table 2 shows the correlations among index returns. All pairs recorded positive coefficients. However, the pairs of KLCI-Financial Services and KLCI -Industrial Product record the highest correlation at 0.82. The lowest correlation is among the pair REIT-Health Services at 0.21.

4.2 Empirical Results

Tables 3 and 4 show the estimation results of the baseline model in Eqs. (2)–(5) to examine the impact of COVID-19 on the Malaysian stock market using an ARDL model analysis. Specifically, Table 3 summarizes the impact of Malaysian COVID-19 cases, whereas Table 4 summarizes the impact of World COVID-19 cases on the Malaysian stock market return (aggregate return and sectoral return). The coefficients of the ARDL model for all sector indexes are significant at least at the 10% level. In addition, the F-statistics of all models are also significant at the 1% level. These

Table 2 Correlations between sectoral stock index returns

Indexes/Sectors	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)	(xi)	(xii)	(xiii)	(xiv)
(i)	1.0000													
(ii)	0.7100	1.0000												
(iii)	0.8100	0.7700	1.0000											
(iv)	0.6200	0.6900	0.6800	1.0000										
(v)	**0.8200**	0.6100	0.7300	0.5900	1.0000									
(vi)	0.4000	0.3400	0.2900	0.2500	0.1000	1.0000								
(vii)	**0.8200**	0.7400	0.8100	0.6800	0.7000	0.3300	1.0000							
(viii)	0.7200	0.6600	0.6900	0.5800	0.5800	0.2800	0.7600	1.0000						
(ix)	0.6700	0.7700	0.7300	0.6800	0.6300	0.3500	0.7300	0.5800	1.0000					
(x)	0.5800	0.5900	0.6800	0.5200	0.6000	**0.2100**	0.5700	0.4500	0.7000	1.0000				
(xi)	0.6400	0.6400	0.6500	0.6300	0.5100	0.4000	0.7000	0.5700	0.6400	0.4900	1.0000			
(xii)	0.6100	0.6400	0.6500	0.6300	0.5600	**0.2300**	0.6300	0.5300	0.6200	0.4900	0.5700	1.0000		
(xiii)	0.6800	0.6800	0.7100	0.6300	0.5900	0.3400	0.7100	0.6300	0.6800	0.5700	0.6300	0.6000	1.0000	
(xiv)	0.7200	0.7200	0.7500	0.6200	0.6100	0.3800	0.7300	0.6300	0.7600	0.6600	0.6900	0.5700	0.6600	1.0000

Notes (i) KLCI; (ii) Construction (iii) Consumer Products and Services; (iv) Energy; (v) Financial Services; (vi) Health Services; (vii) Industrial Products and Services; (viii) Plantation; (ix) Real Estate; (x) REIT; (xi) Technology; (xii) Telecommunications and Media; (xiii) Transportation and Logistics; and (xiv) Utilities

findings indicate that all explanatory used in the baseline model such as COVID-19 cases and movement of international stock market return are important in influencing the movement of Malaysian equity return (market return and sectoral return).

Based on the results in Table 3, COVID-19 new cases in Malaysia have a significant negative relationship with KLCI returns. Its coefficient indicates that a 1% change in the COVID-19 new cases in Malaysia leads to a 0.33% decline in the return of the KLCI index. The results of this study are in line with previous studies in Malaysia which show that the number of COVID-19 cases hurts the Malaysian stock market (Chia et al., 2020; Gamal et al., 2021; Lee et al., 2020; Saad et al., 2020). In addition, the returns of the Shanghai Composite Index and NASDAQ have a significantly positive relationship with the returns of the KLCI. This result is in line with those by Ramdhan et al. (2020) and Narayan et al. (2014). For example, Ramdhan et al. (2020) showed that China and Malaysian stock markets are strongly integrated.

On the other hand, the COVID-19 new cases in Malaysia have a significant positive relationship with the index returns of all sectors except the Energy, Health Services, Industrial Products and Services, and Plantation and Technology sectors (Models 4, 6, 7, 8, and 11). The biggest positive change has been seen in the Telecommunications and Media sector where a 1% change in the COVID-19 new cases in Malaysia leads to a 10.77% increase in the Telecommunications and Media index return. The results of this study are consistent with the previous studies by Liu et al. (2020) and Al-Awadhi et al. (2020). Liu et al. (2020) noted that when travel bans are carried out, information technology plays an important role in the sharing of current information as well as the dissemination of COVID-19 pandemic prevention and control information. At the same time, face-to-face in-person classes have also been postponed and learning and teaching sessions have been moved to online. This move has gradually restored investor confidence in the Telecommunications and Media sector. In addition, the smallest positive change is seen in the REIT and Real Estate sector index returns where a 1% change in the COVID-19 new cases in Malaysia leads to a 0.44% increase in the REIT index return and 0.75% in the Real Estate index return respectively. As shown by Akinsomi (2020), COVID-19 only hurts REITs during travel bans. Thus, when the Movement Control Order expired in May 2020, the returns of the RIET sector index had risen steadily again.

The Shanghai Composite Index has a significant positive relationship with returns of all sectors in Malaysia except the Construction, Health Services, and Telecommunications and Media sectors (Models 2, 6, and 12). This finding indicates that the improvement in economic performance in China has a significant positive impact on all sector returns except the Construction, Health Services, and Telecommunications and Media. As for the NASDAQ index, the U.S. stock market has a significant positive impact on all sectoral returns in Malaysia except for Energy, and Telecommunications and Media sectors. These findings show that the Malaysian stock market is very sensitive to the development of the international stock market, in particular the movement of China and the U.S. stock market.

As shown in Table 5, the coefficients of the ARDL model for all sector indices are significant at least at the 10% significance level. Moreover, the F-statistics of all models are also significant at the 1% significance level. These findings indicate that,

Table 3 ARDL estimation results (Malaysian COVID-19 cases)

Model	1	2	3	4	5	6	7
Model Selected	ARDL (9, 8, 7, 5)	ARDL (9, 8, 5, 9)	ARDL (10, 5, 0, 9)	ARDL (8,10,10,10)	ARDL (8, 5, 2, 7)	ARDL (7, 9, 8, 5)	ARDL (9, 8, 8, 8)
C	0.1317 (0.6546)	−0.7189 (0.1366)	−0.3579 (0.1970)	1.1967 (0.4597)	−0.5904 (0.2008)	0.8749 (0.3878)	0.0867 (0.8477)
Ln(MC)	−0.0033 (0.0021)*	0.0572 (0.0005)*	0.0320 (0.0082)*	−0.0626 (0.0382)**	0.0882 (0.0064)*	−0.2011 (0.0829)***	−0.0683 (0.0494)**
SH	0.3723 (0.0079)*	−0.2442 (0.0008)*	0.4925 (0.0001)*	5.0170 (0.0063)*	0.1549 (0.0529)***	−3.5826 (0.0750)***	0.4599 (0.0381)**
NASDAQ	0.3463 (0.0004)*	2.3446 (0.0015)*	1.2144 (0.0156)**	-2.1455 (0.0713)***	0.6443 (0.0160)**	0.9350 (0.0894)***	1.7860 (0.0004)*
R-squared	0.8570	0.9021	0.8337	0.9207	0.6796	0.6435	0.8994
Durbin Watson	2.1440	1.5824	2.1859	1.5449	1.8782	2.0114	1.9642
F-Statistics	6.9302 (0.0000)*	7.5899 (0.0000)*	7.2439 (0.0000)*	3.6820 (0.0070)*	4.5820 (0.0000)*	2.3698 (0.0045)*	6.2138 (0.0000)*

	8	9	10	11	12	13	14
Model Selected	ARDL (9, 7, 1, 8)	ARDL (8, 7, 7, 7)	ARDL (10, 10, 10, 8)	ARDL (10, 5, 5, 5)	ARDL (8, 7, 7, 4)	ARDL (4, 2, 1, 5)	ARDL (2, 9, 0, 1)
C	0.8591 (0.0850)***	−0.2140 (0.6246)	0.0829 (0.7479)	1.6136 (0.0130)**	−0.2916 (0.3997)	−0.2511 (0.4523)	0.0687 (0.7577)
Ln(MC)	−0.0176 (0.0865)***	0.0074 (0.0060)*	0.0044 (0.0344)**	−0.2262 (0.0070)*	0.1077 (0.0000)*	0.0479 (0.0552)***	0.0121 (0.0323)**
SH	0.2035 (0.0902)***	0.1666 (0.0892)***	2.7773 (0.0591)***	0.9089 (0.0247)**	-0.6244 (0.0094)*	0.4314 (0.0531)***	0.2170 (0.0245)**

Table 3 (continued)

8	9	10	11	12	13	14
1.1047 (0.0024)*	1.2094 (0.0026)*	1.4292 (0.0069)*	1.1562 (0.0000)*	-0.1813 (0.0131)**	0.7614 (0.0000)*	0.2573 (0.0013)*
0.8063	0.7606	0.9668	0.8338	0.7555	0.4510	0.3708
2.1452	1.8216	2.0435	2.5322	1.8701	2.1009	1.8881
6.2446 (0.0000)*	3.7728 (0.0000)*	6.3994 (0.0028)*	7.8862 (0.0000)*	5.2219 (0.0000)*	5.7510 (0.0000)*	4.4012 (0.0000)*

Notes The number affixed to the model refers to the number of lags used in the model for each variable; MC refers to the New Case of COVID-19 Malaysia; SH refers to the returns of the Shanghai Composite Index and NASDAQ refers to the returns of the NASDAQ Composite Index. Model 1 refers to the KLCI; Model 2 refers to Construction; Model 3 refers to Consumer Products and Services; Model 4 refers to Energy; Model 5 refers to Financial Services; Model 6 refers to Health Services; Model 7 refers to Industrial Products and Services; Model 8 refers to Plantation; Model 9 refers to Real Estate; Model 10 refers to REITs; Model 11 refers to Technology; Model 12 refers to Telecommunications and Media; Model 13 refers to Transportation and Logistics, and Model 14 refers to Utilities

Table 4 ARDL estimation results (World COVID-19 Cases)

Model	1	2	3	4	5	6	7
Selected Models	ARDL (3, 1, 7, 8)	ARDL (12, 8, 7, 8)	ARDL (1, 0, 0, 9)	ARDL (9, 8, 0, 2)	ARDL (1, 0, 0, 5)	ARDL (10, 7, 7, 7)	ARDL (12, 4, 8, 6)
C	−0.4461 (0.7107)	−1.3567 (0.5531)	−2.1162 (0.0622)***	−1.3973 (0.6025)	−0.7032 (0.5421)	5.6315 (0.0739)***	−0.5746 (0.7705)
Ln(WC)	0.0305 (0.0866)***	0.08117 (0.1030)	0.1648 (0.0698)***	0.1083 (0.0644)***	0.0593 (0.5452)	−0.4677 (0.0809)***	0.0707 (0.0281)**
SH	−0.1258 (0.0030) *	0.6181 (0.0001)*	0.3326 (0.0003)*	0.6552 (0.0371)**	0.3399 (0.0069)*	−1.1986 (0.0163)**	1.2541 (0.0082)*
NASDAQ	0.6642 (0.0000)*	3.3494 (0.0000)*	0.4445 (0.0000)*	1.2960 (0.0021)*	0.5141 (0.0009)*	2.5926 (0.0252)**	1.2021 (0.0000)*
R SQUARE	0.5233	0.9101	0.5743	0.5016	0.2643	0.6493	0.7994
Durbin Watson	1.9125	1.8049	1.9997	2.1720	1.9185	2.4184	2.0548
F-statistik	4.3919 (0.0000)*	7.4606 (0.0000)*	11.5189 (0.0000)*	4.0723 (0.0000)*	5.9486 (0.0000)*	2.2866 (0.0056)*	4.9512 (0.0000)*

	8	9	10	11	12	13	14
	ARDL (4, 1, 0, 1)	ARDL (1, 1, 0, 5)	ARDL (6, 1, 0, 7)	ARDL (1, 1, 7, 8)	ARDL (2, 1, 0, 1)	ARDL (10, 12, 12, 12)	ARDL (1, 1, 7, 8)
	−0.2506 (0.7643)	−0.6316 (0.4677)	0.7605 (0.3623)	1.2696 (0.5246)	0.4227 (0.6776)	28.2081 (0.0093)**	1.0978 (0.3074)
	0.0900 (0.0454)**	0.0395 (0.0737)***	−0.1087 (0.0212)**	−0.1128 (0.0276)**	0.0890 (0.0887)***	−1.9377 (0.0545)**	−0.0996 (0.0335)**
	0.2679 (0.0028)*	0.3430 (0.0004)*	0.1540 (0.0438)**	-0.5757 (0.0000)*	0.3814 (0.0002)*	−0.2625 (0.0490)**	−0.1116 (0.0001)*

Table 4 (continued)

8	9	10	11	12	13	14
0.3664 (0.0000)*	0.7752 (0.0000)*	0.7954 (0.0000)*	1.9939 (0.0000)*	0.3177 (0.0012)*	−7.8435 (0.0272)**	1.0473 (0.0002)*
0.3735	0.4701	0.5703	0.6229	0.2769	0.9957	0.5553
1.9869	2.2071	2.2142	1.9665	2.1678	2.0046	2.1079
9.8709 (0.0000)*	13.1319 (0.0000)*	7.2606 (0.0000)*	8.2622 (0.0000)*	9.3580 (0.0000)*	14.3031 (0.0242)**	6.2458 (0.0000)*

the world's COVID-19 new cases are significantly and positively related to KLCI returns. The return of the KLCI index will grow by 3.04% for every 1% change in the global COVID-19 new cases. This is somewhat consistent with the findings of the Onali (2020) study, which found that COVID-19 conditions in other countries had less of an impact on the local stock market and tended to have a positive impact. The NASDAQ Composite Index also has a substantial positive link with KLCI returns, despite the Shanghai Composite Index's significant negative relationship with the KLCI.

In addition, the global COVID-19 new cases have a significant positive relationship with the index returns of all sectors except the Financial Services, Health Services, REITs, Technology, Transport and Logistics, and Utilities sectors (Models 5, 6, 10, 11, 13, and 14). The most significant positive impact is seen in the returns of the Consumer Products and Services sector, where a 1% change in the world's COVID-19 new cases leads to a 16.48% increase in the returns of the Consumer Products and Services sector index. In addition, a 1% change in the world of COVID-19 new cases leads to a 10.835% increase in the returns of the Energy sector. Based on the report of Tenaga Nasional Berhad (2020), electricity consumption for the Residential sector has jumped between 20 and 50% during this pandemic period. This is because, during the MCO, the citizen just stays at home during this period, and therefore electricity consumption has increased significantly for their daily activities.

The relationship between the world's COVID-19 new cases and the returns of the Financial Services sector index is insignificant. This is in line with the study of Saad et al. (2020) which also shows that changes in the global COVID-19 cases do not significantly impact the returns of the Financial Services sector. Besides, except for the Health Services, Technology, Transport and Logistics, and Utilities sectors (Models 6, 11, 13, and 14), the Shanghai Composite Index has a significant positive relationship with all sector's returns. As for the NASDAQ, the returns of all sectors have a significant positive relationship except for the Transport and Logistics sector (Model 13). These findings indicate that the majority of sub-sector stock returns in the emerging market (i.e., Malaysia) are very responsive to the performance of the most influential international stock market. This signals to the stock market players to observe the international risk factors for their decision of investment in Malaysia equity market.

5   Summary and Conclusion

This study examines the impact of COVID-19 and the development of US and China stock market on the Malaysian stock market and its sectors. Daily data covering the period from 5 February 2020 to 31 December 2020 and ARDL model are used in this study. The results show that to a great extent COVID-19 cases in Malaysia and the world have a positive effect on Malaysian sectors, specifically Consumer Products, Financial Services, Real Estate, and Telecommunication and Media. However, the KLCI index is only affected by the local COVID-19 cases, not the world COVID