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PANDEMIC'S IMPACT ON BURSA MALAYSIA SECTORS: A COMPREHENSIVE STUDY UTILISING OLSM AND ESM

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ABSTRACT

The pandemic has the potential to induce significant stock market volatility as a consequence of investor decisions, while movement restrictions may force the closure of many small and medium enterprises (SMEs). Despite this, there is a noticeable absence of comprehensive perspectives on the pandemic's impact across all sectors in Bursa Malaysia. Consequently, this paper endeavours to scrutinise the sectors within Bursa Malaysia most profoundly affected by COVID-19. Employing the Ordinary Least Squares method (OLSM) method and the Event Study Method (ESM), the study compares stock returns and risks. The independent variables encompass daily counts of COVID-19 cases and deaths in three countries — Malaysia, the United States, and China — as well as the Brent oil price. The study focuses on 13 sectorial indices, including construction, consumer products, energy, finance, healthcare, industrial products, plantations, property, real estate investment trusts, technology, telecommunications and media, transportation and logistics, and utilities. Utilising the ESM, the study investigates the daily average return, abnormal return, and expected return of each sector to gauge the impact of COVID-19. Historical data from March 18 to May 3 over three years (2019 to 2021) is employed. Results indicate that an increase in COVID-19 cases in Malaysia correlates with a decrease in the performance of these 13 sectors. Consequently, this study contributes to enhancing investor comprehension of sectorial indices' volatility and significance during the pandemic, aiding them in monitoring sectoral performance in the securities market.

2020 Mathematics Subject Classification: 62M10

Introduction

The pandemic caused by COVID-19, a novel disease primarily affecting the human respiratory system, has significantly impacted the financial market. The high infection rate of COVID-19 stands out when compared with other diseases, such as severe acute respiratory syndrome (SARS) and the Middle East respiratory syndrome (MERS) [1]. The pandemic has induced considerable volatility in the stock market, driven by investors' decisions. Global movement restrictions, a direct consequence of the pandemic, have led to the permanent closure of numerous small and medium enterprises (SMEs), exerting a profound influence on the financial market. Additionally, the currency exchange

rate in Malaysia has been affected by the pandemic, and this variable serves as a crucial indicator for assessing a country's relative economic health.

Nevertheless, there is a lack of comprehensive perspectives and conclusive findings regarding the impact of COVID-19 across various sectors, such as energy, property and technology, in specific markets. This study addresses this gap by undertaking an analysis of the pandemic's impact on Malaysia's sectors. Employing Ordinary Least Square (OLS) regression analysis and the event study method (ESM) with correlations, the study aims to compare stock returns and risks within the Malaysian sector. In the OLS analysis, independent variables include daily confirmed cases and deaths in Malaysia, China, and the United States, along with the Brent Oil price, offering insights into the overall impact of the COVID-19 pandemic on Malaysia's economy. The investigation explores the intricate relationship between the daily COVID-19 cases and deaths in the three countries and 13 sectorial indices within Bursa Malaysia. Furthermore, the study aims to identify the sectors in Malaysia bearing a negative impact from the COVID-19 pandemic and ascertain which specific sector was most adversely affected.

Literature Review

The impact of COVID-19 is significant since it not only affects the global economy, the disease also changed the way people live. Ramdhan *et al*. [2] studied the impact of COVID-19 outbreaks on the consumer product, financial and healthcare sectors in Malaysia during the enforcement of the Movement Control Order (MCO). This study used descriptive statistics to see the most volatile index, correlation matrix analysis was used to investigate the correlation, and OLS regression was used to examine the impact of COVID-19. They found that the consumer product, financial and healthcare sectors were not adversely affected by rising daily COVID-19 cases, which means the extension of the MCO period in Malaysia does not bring a negative impact. The healthcare sector performed the best and the Brent Crude Oil price only impacted the financial and healthcare services sectors.

Alam *et al*. [3] found a huge variation in performance among the sectors in Australia that were seriously impacted by the epidemic. Real estate is the exception that is not affected in the short-term, while all sectors' indices in Australia were seriously impacted by the epidemic. Jasuja and Shara [4] calculated the risk and returns as well as volatility of various sectoral indices of the Indian economy by using the analysis of variance (ANOVA), capital asset pricing model (CAPM), and generalised autoregressive conditional heteroskedasticity (GARCH) model. They found that COVID-19 had a negative impact on the Indian stock market due to the lockdown in the country. The loss of productivity and profitability of Indian companies led to a financial implication in the Indian stock market. The study found that all the sectoral indices had negative average returns, especially automobiles, metal industry, and capital goods industries.

Similarly, Wong [5] and Siu and Wong [6] found that supply and demand were affected by the pandemic. The sharp fall and rise of demand in the automotive sector and fast-moving consumer goods sector in India led to oversupply and insufficient supply. Meanwhile, using the ESM, Mittal and Sharma [7] evaluated the effect of the COVID-19 pandemic on the stock prices of the healthcare and pharmaceutical sectors. Interestingly, healthcare and medicine companies saw significant abnormal returns and cumulative abnormal returns within the event window, which was in contrast with the results of Alam *et al*. [3] in Australia, where the test sector had favorable statistically significant significant returns during the post-event period.

Liew and Puah [8] examined the impact of a novel coronavirus outbreak on the performance of the Shanghai Stock Exchange Composite Index and 10 sectorial indices in China. The study applied

exponential generalised autoregressive conditional heteroscedasticity (E-GARCH) specification. They found that all sectors in China were significantly impacted negatively by the pandemic, especially the telecommunication sector, while the health sector was least impacted compared with others. Orhan and Tirman [9] as well as Ramdhan *et al*. [2] had the same findings.

Fernandes [10] analysed the economic effects of the COVID-19 outbreak for 20 countries under different scenarios by applying basic statistical methods and graphical analyses. The author mentioned that no one can predict the exact financial impact of the COVID-19 outbreak due to its severity, the duration of the lockdown, and the countries' policy response. Liu *et al*. [11] investigated the impact of the COVID-19 pandemic on 21 prominent stock market indices in major affected countries in the short run. The OLS regression analysis and the ESM were adopted. This study found that the stock market returns of all affected countries were severely impacted by the pandemic.

Recent research have examined the COVID-19 pandemic's impact on international stock market volatility [12], stock prices in specific sectors like pharmaceuticals and biotechnology [13] and stock market returns in countries such as the United States and China [14]. Additionally, researchers have investigated the pandemic's effects on mental health among academics [15], corporate financing decisions and firm value in the United States [16], and international financial market integration across stock and bond markets [17]. Studies have also explored how African stock markets have responded to the pandemic [18]. These findings highlight the multifaceted nature of the pandemic's impact on financial markets, encompassing both domestic and international dimensions and spanning various sectors and regions. Understanding these effects is crucial for policymakers, investors, and other stakeholders in navigating the challenges posed by the ongoing pandemic and its aftermath.

In conclusion, some of the previous studies only examined the impact of COVID-19 on selected sectors of a particular country. Although there are few studies investigating the stock market performance in Malaysia during the MCO period, the analysis can be conducted more comprehensively by comparing contemporary data with historical data to prove that there was more impact brought by COVID-19 in Malaysia.

Methodology

This study set the independent variables as daily cases and deaths of COVID-19 in Malaysia, China, and the United States as well as Brent crude oil (BCO) price. Thirteen sectors in Malaysia were set as dependent variables as shown in Table 1 below. The daily cases and death cases were obtained from the COVID-19 data repository by the Centre for Systems Science and Engineering (CSSE). Meanwhile, BCO prices were downloaded from www.investing.com for study period, which is from 2019 to 2021.

Table 1: Information of Malaysia sector indices

Indices	Symbol	Market Capitalisation (RM Billion)
Construction	CT	28.01
Consumer product	CP	254.70
Energy	EN	37.08
Finance	FI	378.01
Healthcare	HC	113.06
Industrial product	IP	243.89
Plantation	PL	120.64

Property	PR	57.12
Real estate investment trusts	REIT	37.56
Technology	IT	92.60
Telecommunication & media	TC	130.48
Transportation & logistics	TP	66.55
Utilities	UT	110.96

* As at 31 January 2022

Source: Bursa Malaysia

Event Study Method (ESM)

The Event Study Method (ESM) was employed to examine the impact of COVID-19 on Malaysia's stock exchange. ESM, a widely-utilised empirical analysis, is instrumental in gauging the impact of specific events on securities or stocks. In our investigation, we computed daily return, expected return, abnormal return, and cumulative abnormal return over a four-year period to probe sector performance and assess the correlation between each sector's stock price and the occurrences related to COVID-19.

To implement the ESM in our dataset, the initial step involves calculating daily returns based on the closing price for each day, as per the equation below:

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

where R_t is daily stock return at time t, P_t is stock closing price for time t, and P_{t-1} is stock closing price for time $t-1$ [19].

The pivotal metric utilised by the ESM to measure the impact of an event on the stock market is the abnormal return. Calculated as the difference between the actual return (also known as the daily return) and the expected return, the abnormal return serves as a key indicator of the event's influence on stock performance. The expected return, representing the typical return of the stock in the absence of the event, is derived using the equation below:

$$E(R)_t = \alpha + \beta R_{mt} \tag{2}$$

where $E(R)_t$ is an expected stock return at time t, α is an intercept of regression equation, β is the slope of the stock value, and R_{mt} is the market return at time t [20].

Upon getting the daily return R_t and expected return $E(R)_t$, the calculation of abnormal return involves applying the equation provided below. A positive value in abnormal return indicates that daily stock returns exceed the expected returns, resulting in gains for investors. Conversely, negative abnormal returns denote losses, occurring when the daily stock return falls below the expected return:

$$AR_t = R_t - E(R)_t \tag{3}$$

where AR_t is an abnormal stock return at time t [21].

Ordinary Least Square Method (OLSM)

In this study, OLS regression analysis serves as a fundamental tool for investigating the impacts of the COVID-19 pandemic on Malaysia's sectors. The inclusion of daily cases and deaths in China as external variables is rooted in the fact that COVID-19 originated in China, and given that China is Malaysia's largest trading partner in foreign investments and the tourism sector, fluctuations in daily cases in China directly impact Malaysia's economy and the global economy at large.

Similarly, the United States was chosen as a focus due to its market influence, which tends to affect the Malaysian stock market. Additionally, BCO price is another independent variable integrated into the study. The rationale behind this inclusion lies in the direct impact of an increase in BCO prices on production costs, potentially leading to inflation and a reduction in economic growth. The regression models tested in this study encompass

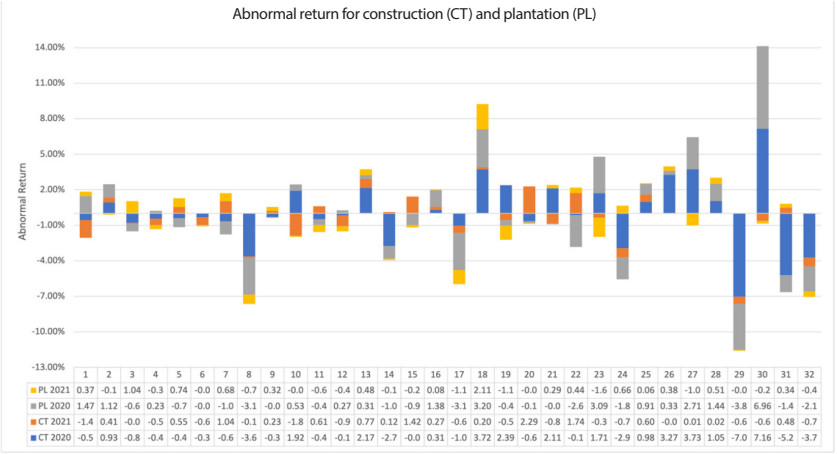
$$SI_{i,t} = \beta_0 + \beta_1 UC_t + \beta_2 UD_t + \beta_3 CC_t + \beta_4 CD_t + \beta_5 MC_t + \beta_6 MD_t + \beta_7 BRENT_t \quad (4)$$

where $SI_{i,t}$ is the stock indices from each sector at time t, UC_t is the number of COVID-19 cases in the US at time t, UD_t is the number of COVID-19 deaths in the US at time t, CC_t is the number of COVID-19 cases in China at time t, CD_t is the number of COVID-19 deaths in China at time t, MC_t is the number of COVID-19 cases in Malaysia at time t, MD_t is the number of COVID-19 deaths in Malaysia at time t, and $BRENT_t$ is BCO price at time t.

Results and Discussions

ESM Results

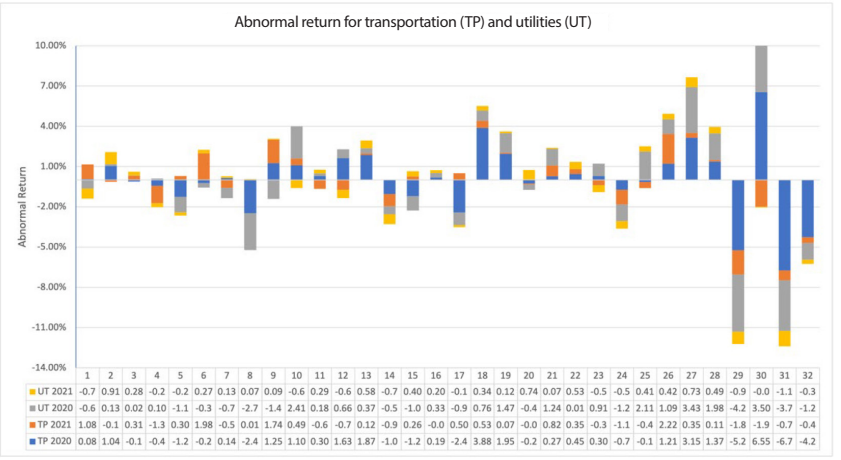
Upon examining the abnormal returns across all 13 sectors in 2020 and 2021, it is evident that the construction and plantation sectors were more impacted by COVID-19, as illustrated in Figure 1. Conversely, the transportation and utility sectors were relatively less impacted, as depicted in Figure 2. Specifically, for the construction sector, there were 19 instances of negative abnormal returns and 13 of positive abnormal returns over the 32 days study period in 2020. Notably, the final 4 days of the study period in 2020 had significant fluctuations in the construction sector. The abnormal return increased from -7.03% on day 29 to 7.16% on day 30, only to decline again to a negative abnormal return on days 31 and 32, with values of 5.23% and -3.73%, respectively.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
PL 2021	0.37	-0.1	1.04	-0.3	0.74	-0.0	0.68	-0.7	0.32	-0.0	-0.6	-0.4	0.48	-0.1	-0.2	0.08	-1.1	2.11	-1.1	-0.0	0.29	0.44	-1.6	0.66	0.06	0.38	-1.0	0.51	-0.0	-0.2	0.34	-0.4
PL 2020	1.47	1.12	-0.6	0.23	-0.7	-0.0	-1.0	-3.1	-0.0	0.53	-0.4	0.27	0.31	-1.0	-0.9	1.38	-3.1	3.20	-0.4	-0.1	-0.0	-2.6	3.09	-1.8	0.91	0.33	2.71	1.44	-3.8	6.96	-1.4	-2.1
CT 2021	-1.4	0.41	-0.0	-0.5	0.55	-0.6	1.04	-0.1	0.23	-1.8	0.61	-0.9	0.77	0.12	1.42	0.27	-0.6	0.20	-0.5	2.29	-0.8	1.74	-0.3	-0.7	0.60	-0.0	0.01	0.02	-0.6	-0.6	0.48	-0.7
CT 2020	-0.5	0.93	-0.8	-0.4	-0.4	-0.3	-0.6	-3.6	-0.3	1.92	-0.4	-0.1	2.17	-2.7	-0.0	0.31	-1.0	3.72	2.39	-0.6	2.11	-0.1	1.71	-2.9	0.98	3.27	3.73	1.05	-7.0	7.16	-5.2	-3.7

Figure 1: Abnormal return for construction (CT) and plantation (PL)

In 2021, the construction sector displayed a more stable performance, with 16 negative abnormal returns and 16 positive abnormal returns. The values of abnormal returns ranged from -1.89% to 2.29%, indicating a narrower fluctuation. Notably, negative abnormal returns were within the range of -1.89% to -0.07%, suggesting a closer alignment of daily returns with expected returns. This stability underscores the sector's adaptability and resilience during the period.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
UT 2021	-0.7	0.91	0.28	-0.2	-0.2	0.27	0.13	0.07	0.09	-0.6	0.29	-0.6	0.58	-0.7	0.40	0.20	-0.1	0.34	0.12	0.74	0.07	0.53	-0.5	-0.5	0.41	0.42	0.73	0.49	-0.9	-0.0	-1.1	-0.3
UT 2020	-0.6	0.13	0.02	0.10	-1.1	-0.3	-0.7	-2.7	-1.4	2.41	0.18	0.66	0.37	-0.5	-1.0	0.33	-0.9	0.76	1.47	-0.4	1.24	0.01	0.91	-1.2	2.11	1.09	3.43	1.98	-4.2	3.50	-3.7	-1.2
TP 2021	1.08	-0.1	0.31	-1.3	0.30	1.98	-0.5	0.01	1.74	0.49	-0.6	-0.7	0.12	-0.9	0.26	-0.0	0.50	0.53	0.07	-0.0	0.82	0.35	-0.3	-1.1	-0.4	2.22	0.35	0.11	-1.8	-1.9	-0.7	-0.4
TP 2020	0.08	1.04	-0.1	-0.4	-1.2	-0.2	0.14	-2.4	1.25	1.10	0.30	1.63	1.87	-1.0	-1.2	0.19	-2.4	3.88	1.95	-0.2	0.27	0.45	0.30	-0.7	-0.1	1.21	3.15	1.37	-5.2	6.55	-6.7	-4.2

Figure 2: Abnormal return for transportation (TP) and utilities (UT)

In the plantation sector, 2020 had 18 instances of negative abnormal returns and 14 instances of positive abnormal returns. The following year, 17 negative abnormal returns and 15 positive abnormal returns were found. In 2020, the sector experienced its most substantial negative abnormal return on day 29 (-3.86%) and day 8 (-3.10%). The highest positive abnormal return occurred on day 30, which is 6.96%. In the subsequent year, the plantation sector demonstrated increased stability, with positive abnormal returns ranging between 0.06% and 2.11%, and negative abnormal returns within the range of -0.08% to -1.61%. This improved stability suggests a more resilient and adaptable performance of the plantation sector in 2021.

The transportation and logistics sector exhibited a comparatively lower frequency of negative abnormal returns, totalling 14 in 2020 and 15 in 2021. The negative abnormal returns fluctuated within a range of -0.11% to -6.74% in 2020 and -0.02% to -1.99% in 2021. On the positive side, abnormal returns spanned from 0.08% to 6.55% in 2020 and 0.01% to 2.22% in 2021. The broader range of abnormal returns in 2020 suggests substantial stock price fluctuations, while the reduced frequency of negative abnormal returns indicates that daily stock prices predominantly aligned with expectations. This pattern implies a diminished impact of COVID-19 on the transportation and logistics sector, as the sector demonstrated a higher degree of resilience and adherence to expected market trends.

The utility sector has the lowest incidence of negative abnormal returns among the 13 sectors, recording only 14 negative values in 2020 and 13 negative values in 2021. The negative abnormal return exhibited a range of -0.35% to -4.25% in 2020 and -0.06% to -1.15% in 2021. The narrow range of negative abnormal returns indicates that, while the daily stock price occasionally deviates from the expected value, it does not entail significant losses for investors. On the positive side, the sector demonstrated positive abnormal returns ranging from 0.01% to 3.50% in 2020 and 0.07% to 0.74% in 2021. The presence of positive abnormal returns suggests that the utility sector is performing in line with expectations, thereby providing gains for investors.

OLSM Results

Tables 2 and 3 present the results of the regression analysis for the years 2020 and 2021. The findings for 2020 reveal that the R-squared values for most sectors exceed 0.8, indicating a high level of fit for the regression model. Conversely, in 2021, the presence of very small R-squared values suggests a lack of fit for variables in the regression model, notably observed in the construction and telecommunication and media sectors. Both tables show that the number of COVID-19 cases in the US has negligible impact on Malaysia's stock market. However, a noteworthy observation is that the number of COVID-19 deaths in the US exhibits a significant positive relationship with the finance and plantation sectors. This implies that an increase in the number of deaths in the US corresponds to improved performance in the finance and plantation sectorial indices, indicating a unique and noteworthy trend.

China's COVID-19 cases have a mixed relationship with Malaysia's sectors. In 2020, the number of cases in China displayed a positive correlation with the finance sector and a significant negative correlation with the healthcare sector. Simultaneously, the number of deaths in China exhibited a positive correlation with all sectors. This suggests that an increase in China cases corresponds to an enhanced performance in the finance index and a decreased performance in the healthcare index. Conversely, an increase in deaths in China is associated with an overall improvement in the performance of all sectors, indicating a distinctive pattern of influence.

Table 2: Regression analysis for 2020

	CT	CP	EN	FI	HC	IP	PL	PR	REIT	IT	TC	TP	UT
Intercept	126.12	495.60	395.95	11511.03	1282.99	105.61	5549.81	531.91	821.81	26.90	549.97	541.72	768.77
	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*
UC	-0.0004	-0.0007	-0.0011	0.0032	-0.0024	-0.0003	-0.0010	-0.0004	0.0002	-0.0001	-0.0009	-0.0017	-0.0012
	0.0287**	0.0569***	0.3181	0.7300	0.1500	0.0215**	0.8368	0.4947	0.7273	0.0534***	0.1578	0.0044*	0.1220
UD	0.0124	0.0217	0.0498	0.1408	0.0821	0.0073	0.1183	0.0215	0.0076	0.0032	0.0294	0.0444	0.0471
	0.000*	0.0001*	0.0019*	0.2471	0.0008*	0.000*	0.0625***	0.0054*	0.3115	0.000*	0.0016*	0.000*	0.0001*
CC	-0.0808	-0.2071	-0.4184	0.6225	-0.6870	-0.0543	-0.4262	-0.1913	-0.1279	-0.0311	-0.3013	-0.4063	-0.3681
	0.0726***	0.0210**	0.1338	0.7832	0.1020	0.0407**	0.7122	0.1610	0.3646	0.0174**	0.0659***	0.0063*	0.0656***
CD	0.0285	0.0642	0.1496	0.0866	0.2136	0.0197	0.2201	0.0587	0.0468	0.0097	0.0842	0.1269	0.1363
	0.0276**	0.0121**	0.0609***	0.8920	0.0733***	0.0102**	0.5012	0.1287	0.2428	0.0092*	0.0683***	0.0030*	0.0184**
MC	-0.0773	-0.1302	-0.2802	-3.6499	-0.6764	-0.0511	-1.9182	-0.2020	-0.1365	-0.0214	-0.2274	-0.1934	-0.3387
	0.0047*	0.0128**	0.0844***	0.0093*	0.0079*	0.0017*	-1.9182	-0.2020	-0.1365	-0.0214	-0.2274	-0.1934	-0.3387
MD	2.5949	4.8049	8.7702	79.0423	24.1536	1.8634	54.0070	5.5195	3.7052	0.7858	8.2233	8.7107	11.3579
	0.0015*	0.0023*	0.0648***	0.0462**	0.0016*	0.0002*	0.0096*	0.0204**	0.1243	0.0008*	0.0046*	0.0008*	0.0017*
BRENT	0.6488	0.5966	8.9095	22.3104	0.8404	0.0682	19.9884	0.9504	0.7294	0.1332	0.1475	0.4499	2.9616
	0.0313**	0.2917	0.000*	0.1437	0.7553	0.6840	0.0139**	0.2868	0.4322	0.1105	0.8874	0.6202	0.0272**
R-Square	0.8635	0.8499	0.7900	0.5682	0.7984	0.8755	0.6345	0.7788	0.5279	0.8549	0.7731	0.8750	0.8505

Notes: Notes:*p < 0.01, ** p < 0.05, *** p < 0.10.

Table 3: Regression analysis for 2021

	CT	CP	EN	FI	HC	IP	PL	PR	REIT	IT	TC	TP	UT
Intercept	143.41	698.01	1182.46	17038.28	1482.72	149.22	8346.49	770.07	842.57	60.01	697.19	695.91	958.02
	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*
UC	0.0000	0.0001	0.0002	0.0016	-0.0020	0.0000	0.0004	0.0001	0.0000	0.0000	0.0001	-0.0002	0.0001
	0.2641	0.0512 ***	0.2673	0.1090	0.0060*	0.0496**	0.5932	0.4031	0.4244	0.8929	0.0830***	0.1148	0.0099*
UD	-0.0005	0.0023	0.0143	0.1340	-0.0144	0.0002	0.1089	-0.0008	-0.0003	-0.0015	-0.0032	0.0003	0.0043
	0.5916	0.2940	0.1082	-0.0263 **	0.7186	0.7170	0.0144 **	0.8966	0.9160	0.1243	0.4735	0.9578	0.1063
CC	0.0241	0.0152	-0.4138	-1.7965	-0.5859	0.0486	-1.4116	0.4407	0.1759	0.0694	-0.0893	0.1287	-0.0700
	0.5521	0.8631	0.2496	0.4461	0.7214	0.0940***	0.4126	0.0857 ***	0.1916	0.0805***	0.6277	0.5891	0.5132
CD	-1.0234	1.8526	21.2065	113.7294	-21.4865	-1.3081	81.4823	-6.5794	-1.4474	-2.1898	-6.9088	-8.7226	-4.0915
	0.6194	0.6799	0.2465	0.3449	0.7971	0.3656	0.3538	0.6040	0.8299	0.2691	0.4624	0.4730	0.4536
MC	-0.0001	-0.0041	-0.0010	-0.0455	0.0899	0.0005	-0.0248	-0.0087	-0.0041	-0.0001	-0.0001	0.0021	-0.0028
	0.7889	0.0018*	0.8380	0.1594	0.0004*	0.1863	0.2889	0.0149*	0.0301**	0.7880	0.9613	0.5234	0.0615 ***
MD	-0.0675	0.3924	-1.0657	-2.1826	-7.4156	-0.0122	1.1949	0.9518	0.4336	-0.0160	-0.2406	0.4703	0.0701
	0.5044	0.0835 ***	0.2349	0.7092	0.0795 ***	0.8624	0.7796	0.1338	0.1967	0.8677	0.6003	0.4303	0.7921
BRENT	0.6282	-0.9676	-4.1484	-30.3711	25.2319	0.6909		-0.1605	-0.1125	0.4133	0.4161	1.9940	-0.2808
	0.0137**	0.0724 ***	0.0567 ***	0.0364**		0.0003	0.0364 **	0.9130	0.8856	0.0783	0.7017	0.1640	0.6565
R-Square	0.2935	0.6913	0.6605	0.7344	0.7828	0.7561	0.6184	0.3863	0.3212	0.3689	0.1601	0.5496	0.5755

Notes:*p < 0.01, ** p < 0.05, *** p < 0.10.

In 2021, China's COVID-19 cases exhibit a great negative association with the finance and plantation sectors, contrasting with a positive impact on the property sector. The prevalence of COVID-19 cases in Malaysia, particularly in 2020, had an overall negative effect on most sectors, with the finance sector being notably impacted. Nevertheless, the sectors showed increased stability in 2021 compared with the preceding year. Additionally, the number of deaths in Malaysia demonstrated a significant positive relationship with all sectors in 2020. However, in 2021, an increase in deaths has a substantial adverse effect on the performance of the healthcare index.

In 2020, an increase in BCO prices had a positive influence on all sectorial indices in Malaysia, with the finance sector experiencing the most substantial enhancement, followed by the plantation and energy sectors. Interestingly, the healthcare sector also benefited from the rise in BCO prices during this period. However, a noteworthy shift occurred in 2021, when the finance and plantation sectors were adversely affected by fluctuations in BCO prices, presenting an interesting departure from the previous year's dynamics.

Conclusion

This study aims to examine the impacts of the COVID-19 pandemic on Malaysia's sectorial indices from 2019 to 2021, by employing the event study method to analyse abnormal returns. The findings indicate a substantial impact on the construction and plantation sectors, whereas the transportation and utilities sectors experienced comparatively less disruption. Notably, the finance, healthcare and plantation sectors the sectors most significantly affected by the pandemic. These insights can prove invaluable for investors and future researchers, offering a nuanced understanding of sectorial volatility and significance during the COVID-19 crisis. Armed with this knowledge, Malaysian investors can optimise their portfolio construction strategies by factoring in the performance of sectors listed on Bursa Malaysia and the associated pandemic-related risks. Moreover, it might be possible that the number of cases and deaths overlap. To manage this situation, appropriate statistical techniques to mitigate the potential effects of multicollinearity between variables should be utilised. In future, we could conduct diagnostic tests, such as variance inflation factor (VIF) analysis, to assess multicollinearity among the independent variables. Additionally, we might be able to employ techniques such as principal component analysis (PCA) if multicollinearity was found to be problematic, ensuring the robustness of our results.

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Conflict of Interest Statement

The authors declare that they have no conflict of interest.

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Nomenclature Table

Symbol	Meaning
R_t	Daily stock return at time, t
P_t	Stock closing price for time t
$E(R)_t$	Expected stock return at time t
α	Intercept of regression equation
β	The slope of the stock value
R_{mt}	Market return at time t
AR_t	Abnormal stock return at time t
$SI_{i,t}$	Stock indices from each sector at time t