International Journal of Business and Management; Vol. 16, No. 5; 2021
ISSN 1833-3850 E-ISSN 1833-8119
Published by Canadian Center of Science and Education

COVID-19's Impacts on the Kuwaiti Stock Market's Performance

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Received: January 20, 2021 Accepted: February 16, 2021 Online Published: April 17, 2021

doi:10.5539/ijbm.v16n5p122 URL: https://doi.org/10.5539/ijbm.v16n5p122

Abstract

This study investigates the impact of COVID-19 pandemic on daily stock returns in Kuwait Stock Market (KSE) over the period from 28 March to 20 April 2020. By applying the event study methodology (ESM) approach, the results reveal that the pandemic has positively impacted stocks of banks, consumer goods and telecommunications sectors. However, oil & gas, real estate, financial, basic materials, industrials, consumer services, and insurance stocks have been negatively impacted by the pandemic. The COVID-19 pandemic's most negatively affected are services and financial stocks. The cumulative average abnormal returns (CAAR) of all sectors were affected negatively by the COVID-19 pandemic.

Keywords: COVID-19, Sock Market, Event study methodology, Kuwait

1. Introduction

The COVID-19 first case was discovered in the Chinese city of Wuhan on 27th December 2019. The virus spread to all countries of the world, and on 11th March 2020, the World Health Organization (WHO) declared that the virus had become an epidemic and warned of dangerous repercussions on human health. The impact of this epidemic on the performance of the world's economies, after the means of transportation and the work of the government and private sector, was disrupted, as many countries-imposed curfews and breakdowns. However, the impacts of COVID-19 on the global economy have sparked one of the most massive recessions in history (IMF, June 2020). The rapid spread of COVID-19 has induced instability, a shortage of stock market liquidity, a loss of investor confidence and fear. As a result, the global stock markets, including emerging stock markets, crashed during the period of the early pandemic days. However, numerous studies have been examined the impact of COVID-19 pandemic on stock markets in various countries of the world, for example, Sansa (2020), Dey et al. (2020), Al-Awadhi et al. (2020), Anh and Gan (2020), Topcu and Gulal (2020), Ngwakwe (2020), Senol and Zeren (2020), Liu et al. (2020), Goker et al. (2020), Lee et al. (2020), Shen et al. (2020), Chowdhury et al. (2020) and there are more studies that are still going to be published on this topic.

This study investigates the impacts of the COVID-19 pandemic on the Kuwait stock market sectors by applying the event study methodology (ESM) approach. This paper proceeds as follows. Section 2 reviews the data and the Methodology, section 3 the empirical results discussions, while section 4 is the conclusion.

2. Literature Review

Early studies concerning the event study methodology started with works of Dolley (1933), Ball and Brown (1968), and Fama et al. (1969). Dolley (1933) was the first author who examined the event study on stock splits, both the Methodology and the application area of event studies have developed. Among several studies, early Ball and Brown (1968) investigated the impacts of announced accounting information on stock returns while Fama et al. (1969) examined the effects of 940 splits announcement of stocks that listed in New York stock exchange for monthly data over the period from January 1927 to December 1959. They introduced the earlier approach of the current event study methodology in finance and have the credited with giving importance to the event study methodology in the finance literature. Since the Fama et al. (1969) paper, the event study methodology has been used heavily in finance for measuring the stocks behaviour reaction to any announcement and events. Binder (1998) argued that reasons behind using the event study methodology in finance could be either testing the efficiency of

the stock market or examine the effects of the unanticipated event on the stock prices. (Binder, 1998, p., 111). More pioneers' studies that enrich the literature of the procedure for event studies where done by Brown and Warner (1980 and 1985), Armitage (1995), McWilliams and Siegel (1997), and MacKinlay (1997). Following the Methodology used in these papers, few papers were published in 2020 that examined the impact of COVID-19 on stock prices. The most important of these studies are done, for example, by Liu et al. (2020). They investigated the effects of the COVID-19 outbreak on 21 leading stock market indices for the period 21st February 2019, to 18th March 2020. They found that the COVID-19 outbreak has had a negative influence on all stock market returns of all 21 indices and that Asian countries reacted more quickly to the outbreak. Goker et al. (2020) examined the impact of the COVID-19 outbreak on the Istanbul Stock market sector indices for the period from 2nd January 2019, to 9th April 2020. This study applied the standard event study method, and the date of the event was considered to be 11th March 2020, which was the day on which the World Health Organization declared COVID-19 a pandemic. They implemented the market model for calculating the returns for 26 sector indices representing different industries listed on the Istanbul Stock Market. The study revealed that, on the event day (11th March 2020), the effects of the COVID-19 outbreak on the Istanbul Stock Exchange were uneven, depending on the sector. For example, the sectors that were most negatively affected and had a negative cumulative average abnormal return (CAAR) were the sport, tourism and investment trusts. In contrast, the food and beverages, wholesale and retail sectors had a positive CAAR. However, the three sectors which had a positive CAAR were banking, food and chemical sector. The authors believed that these sectors are crucial for consumption purposes.

A similar study that investigated the impact of the COVID-19 pandemic on several Chinese industries was carried out by Liu et al. (2020). In their research, the event approach was used successfully. They revealed that the COVID-19 pandemic had negative effects on industries related to transportation, mining, electricity and heating and the environment. This study found that the pandemic has positive impacts on specific sectors, such as information technology, education, manufacturing, and health. The researchers argued that these positive impacts enhanced the confidence in the stock markets in China.

2.1 COVID-19 Cases in Kuwait

The COVID-19 first three cases were discovered in Kuwait on 24th February 2020, The first three confirmed cases of COVID-19 were announced by the ministry of health for passengers came from Iran. After cases increased, the government took several gradual actions. On 15th March, the government of Kuwait started her efforts by a suspension of the government business, commercial flights and cross-border travel. On 22nd March, the partial curfew was applied from 5 pm to 6 am. On 6th April, the curfew hours were extended from 4 am to 6 am. With the beginning of Ramadan on 24th April, the partial ban was amended to become from 4 pm to 8 am. On 10th May, a complete breakdown was imposed on the country until 31st May. Figure 1 shows the COVID-19 cases in Kuwait from 24th February to 30th September 2020. The same table shows that the COVID-19 cases reached its peaked during May.

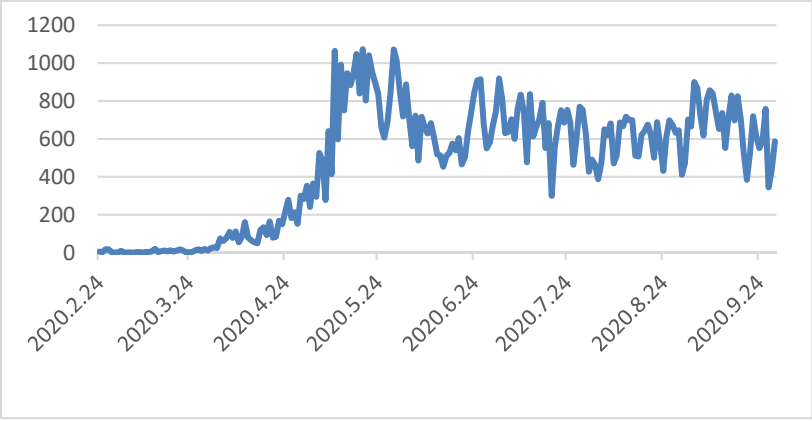

Figure 1. COVID-19 cases in Kuwait

2.2 Kuwait Stock Market

The Kuwaiti Stock Exchange (KSE, henceforth) established on 2nd April 1977. The total listed shareholding companies at the end of 2019 are 172 companies were distributed into 12 different sectors, the financial services sector contains 49 companies, followed by the real estate sector with 40 companies, and the industrial sector with

28 companies. Table 1 shows in detail the number of companies according to the different sectors. This table also indicates that the banking sector contributed about 61.4% of the total value of shares traded in 2019, followed by the financial services sector by 13%. It is noted from the data in this table that the technology and health sectors did not have any actual contribution in terms of the value of shares traded in 2019.

Table 1. Sectors values (2019)

No	Sector	No. of Companies	Proportion to the total value of trading (%)
1	Basic Materials	3	1.7
2	Banks	12	61.4
3	Oil & Gas	6	0.4
4	Technology	1	0.0
5	Financial Services	49	13.2
6	Real Estate	40	5.7
7	Consumer Services	14	0.8
8	Telecommunications	5	7.3
9	Health Care	3	0.0
10	Consumer Goods	3	0.3
11	Industrials	28	9.1
12	Insurance	8	0.1
	Total	172	100

Source: Kuwait Stock Exchange Report, 2019.

Figure 2 shows the KSEI activity during the period from January to September 2020; it is clear from this figure that the Kuwait stock market index started its hard declining from 1st March 2020 till 18th March 2020.

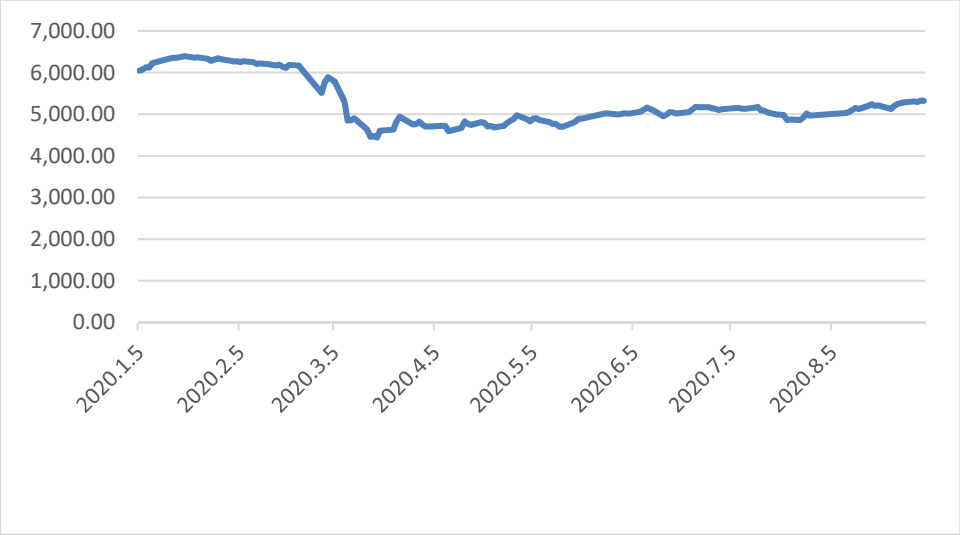

Figure 1. Kuwait stock exchange index (January – September 2020)

3. Data and Methodology

In this study we use the daily Kuwait stock market index (KSEI) and the sectorial indices of 10 out of 12 indices that represent the listed firms in Kuwait Stock Exchange over the period from 31 July 2019 to 2 September 2020. We removed 2 indices because they suffer from thin trading and not shown any trading during most of our investigated period. Since our study focused on short-term event study, we used the daily data rather than monthly data (Sitthipongpanich, 2011; Small et al., 2007). The daily return of each index calculated as follows:

$$R_{i,t} = \ln\left(\frac{P_t}{P_{t-1}}\right) \quad (1)$$

Where $R_{i,t}$ is the return of each index every day and P_t= Adjusted closing price index on day t, and P_{t-1}=

Adjusted closing price index on day t-1.

However, the Event Study Methodology (ESM) is widely used in finance to examine the impact of a particular event on stock prices. Early studies concerning the event study methodology started with works of Dolley (1933), Ball and Brown (1968), and Fama et al. (1969). The ESM methodology has been known as reasonable measures for estimated abnormal returns (Armitage, 1995). It emerged from the Efficient Hypothesis manly the semi-strong efficiency hypothesis, which states that stock market prices reflect all available information. Fama et al. (1969) were among the first authors who examine the behaviour of stock prices (abnormal returns) during splits, dividends and new information. The most effective methods of analysing the events influence on stock returns are the market model (Armitage, 1995). Numerous recent studies used the market model to create the expected return and calculating the abnormal return during the COVID-19 period. (For example, Skrinjaric (2019, Liu et al. 2020, Kim et al. (2020, and He et al.,2020). This study will follow the same Methodology that widely used in the existing literature, (Brown and Warner 1980, Brown and Warner 1985, Armitage 1995 and MacKinlay 1997). However, the first three cases of COVID-19 announced in Kuwait were on the evening of February 24, 2020 (after the official working hours of the Kuwait Stock Exchange). Given the fact that the following days from 24 to 29 February were an official holiday on the occasion of the National Day and Liberation Day, therefore, we used March 1 as the event day (t=0). The impacts of COVID-19 will be examined by setting up the event window over the period -20 to +20 around the event day of 1st March 2020. Figure 3 shows the timeline of the event study of this paper as follows:

- Estimation window: in this window, we examine the normal behaviour of the Kuwait stock market during the period from 31st July 2019 to 27th January 2020.
- Event window: started 20 days before the event day (28th January 2020) and ended in after 20 days (31st March 2020). The event day is 1st March, 2020. We set up the following windows; (-20,20), (-10,+10), (-5,+5), (-1,+1), (0, +10), and (0,+20).
- Post-event window from 1st April to 2nd September 2020.

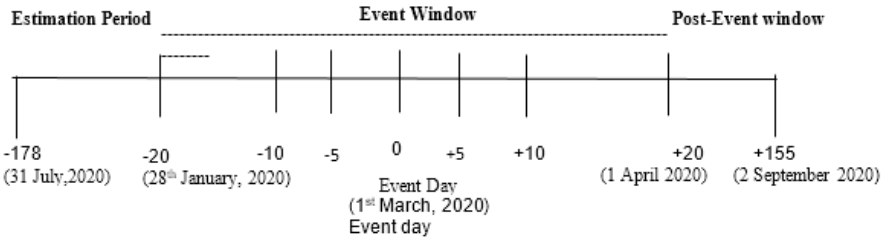

Figure 2. Event Study Timeline

We use market single-factor model to calculate the return for the estimation to determine the normal behaviour of each sectorial index by estimating the following equation by OLS;

$$R_{i,t} = \alpha_i + \beta_i R_{mt} \quad (2)$$

Where, α_i is the intercept, β_i beta coefficients (slope), and R_{mt} is the return of the Kuwait stock market general index (KSEI). From eq.2 we get $\widehat{\alpha_i}$ and $\widehat{\beta_i}$ and we use them to estimate the expected return and the abnormal return of each sector index as follows;

$$E(R_{i,t}) = \widehat{\alpha_i} + \widehat{\beta_i} R_{mt} \quad (3)$$

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) \quad (4)$$

Where

$E(R_{i,t})$ is the expected return and $AR_{i,t}$ is the abnormal return for each index; it is the difference between the sector's actual returns and predicted returns. To test the significance of the results the t-test has been used and it calculated by dividend the abnormal returns on standard error, as follows; t= $\frac{AR_{i,t}}{Standard\ error}$ and if the t >1.96, this means AR is statistically significant at 5%, and the COVID-19 has a significant effect on the price index of this sector. Moreover, we calculate the cumulative abnormal return (CAR) for each sector index for the event

window as follows;

$$CAR_i(t_{-20}, t_{20}) = \sum_{t=t_{-20}}^{t_{20}} AR_{i,t} \quad (5)$$

Where t_0 is the event day and t_1 is the number of days in the post event window. The average of abnormal return (AAR) for all sectors in the event window and the cumulative average abnormal return for all sectors (CAAR) in event window calculated as follows;

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t} \quad (6)$$

$$CAAR(t_{-20}, t_{20}) = \sum_{t=t_{-20}}^{t_{20}} AAR_t \quad (7)$$

Where the $CAR_i(t_{-20}, t_{20})$ is the cumulative abnormal returns for the event window (figure 1). However, AAR_t is the average of abnormal returns of all sectors while the CAAR is the cumulative average of abnormal returns of all sectors for the event window. The t-test will be calculated as follows:

T-statistics of CAAR= CAAR/(standard deviation of the estimation window *(number of days)^(1/2))

4. Empirical Results

Table A.1 shows the results of a market model for all 10 indices. Same table shows the obtained results included the intercept (αi), slope (β_i), R-square, St-error, and Standard Deviation. The impact of COVID-19 on the Kuwait stock market were examined through two main steps. First, we investigate the effects of the pandemic on each index by estimating the abnormal return ($AR_{i,t}$), and cumulative abnormal returns (CAR) for each index. The second step, we examine the impacts on the whole market by taken the average of abnormal return (AAR), and a cumulative average of abnormal returns (CAAR) around the event window for all indices. The impacts were tested for the following widows; (-20, +20), (-10, +10), (-5, +5), (-1, +1), (0, +20), and (0, +10).

4.1 Results across Sector Indices

Table A.2 and figures 4 to 9 show that most of the sectoral indices have been affected significantly negative by COVID-19 except Consumer Goods Index, Telecommunications Index, which impacted significantly positive, and banks which shows insignificant results but positive CAR growth. Figure 2 illustrated that the cumulative effects on indices of Banks, Telecommunication, and Consumer Goods increased after the event day. However, table A.2 shows the impact of COVID-19 on CAR windows and the t-statistics for all sectors. The CAR of the Consumer Goods index affected positively and has significant t-statistics for the CAR windows of; (-10, +10), (0, +10) and (0, +20). The sales of these companies were active during the pandemic period, as people bought more than their needs and stored foodstuffs, disinfectants, soap and other items in anticipation of the shutdown. They also were selling food and consumer goods by delivering customers' orders during the lockdown days. The other similar sector is the Telecommunications which has positive impacts on their CAR and high significant t-statistics for all the windows except the window of (-1, +1) which affected negatively during these three days only and had insignificant CAR for (-10, +10). However, during the pandemic period, the demands for telecommunications companies' products such as internet services and smartphone subscriptions have a noticeable rise. As a result, the stock prices of these companies were positively affected by the COVID-19 pandemic. For, the Banks sector, the results show that the CAR during the event window was positive growth but was less than the growth of Consumer Goods and Telecommunications (Figure 2). Bank index has insignificant t-statistics for all investigated CAR windows. In contrast, the abnormal returns (AR) show that there were few days which has a significant positive effect in the event window around the event day. These days included t-1, t+1, t+4, t+5, t+6, and t+13, while the other 5 days included t+11, t+12, t+16, t+19 and t+20 were had a significant negative affect. However, the median for the abnormal returns of Banks sector for the window pre-event day (0, -20) is 0.000269, and the standard deviation is 0.001536 while during the window of the post-event day (0, +20) the median of the abnormal returns became less (0.000208), and the standard deviation is higher (0.004083). The Banks Index witnessed fluctuations "up and down" that can be explained by the fact that banks stock prices were volatile during the post-event day. The volatility in bank index which has a beta of 1.1986, could be described by the investor behaviour whom they use the news of COVID-19 to gain more profits by driving up the blue-chip stock prices and sell their stocks to gain fast profit.

Figure 3. CAR for banks, consumer goods and telecommunications

Figure 4. Abnormal return for banks,consumer goods and telecommunications

Figures 4 shows also the Telecommunication and Consumer Goods indices which both of them witnessed high positive returns during the post-event day with noticeable fluctuation of AR. The banks' index was less volatile than consumer goods and telecommunication indices. In contrast, the consumer goods index found to be positive significant in five days included t-8, t+1, t+5, t+10 and t+20, while the telecommunication index found to be significant in 26 days 9 out of them were found before the event day and 17 day were found in the post-event day. They contain negative and positive signs which indicates the high fluctuations in the returns of this index. This might be explained by the price pressure hypothesis (PPH) which argues that the positive (negative) news only causes temporary buying (selling) pressure and the changes in prices will return to the fundamental value. Our findings are similar to that been found by He et al. (2020) for Chinese Stock Market that found positive impacts of the COVID-19 pandemic on information technology, education and health industries sectors. Goker et al. (2020) also found positive impacts in Bursa of Istanbul for some sectors included food, chemistry, and banking.

As for the results of the other sectors, all of them have been negatively affected by the CVID-19 pandemic. Figures 4 and 6 indicate a sharp decline in CAR after event day for these indices; Real Estate, Financial, Oil & Gas, Basic Materials, Insurance, Industrial, and Consumer Services respectively. For example, the real estate sector has negative significant t-statistic for the CAR windows of (-10, +10), (0, +10) and (0, +20), and respectively. Financial and Consumers services indices witnessed negative affected for all investigated CAR windows and both indices show negative high significant t-statistics for all windows (Table A.2). These results reflect the reality of the components of these indices, as the financial index includes the companies that deal in money exchange and trading in shares, it is logically for their share prices to be affected negatively. The consumer services sector includes hotel and cinema companies which have been closed during the pandemic period. Table A.2 also shows that the Oil and Gas Index has significant negative t-statistic from the pandemic for CAR window of (0, +10) and (0, +20) only. These results reflect the impacts of the pandemic on the oil market, which affected badly during the COVID-19 period. Figures 5 illustrates the AR for other the Real Estate, Financial, and Oil & Gas indices that have negative effects from the COVID-19 pandemic. Same figure indicates a high fluctuation in these indices with more declines during post-event day. Oil and Gas index went through high volatility during the event window that reflected the Oil market developments which suffered from the COVID-19 pandemic, oil prices declined from 61.18 US dollars in 2nd of January to 30.39 US dollars in 14 of March 2020. The other indices also had negative return during the

post-event days (Figure 6). The insurance sector has negative significant t-statistics for the windows of (-10, +10), (-5, +5), and (-1,+1).

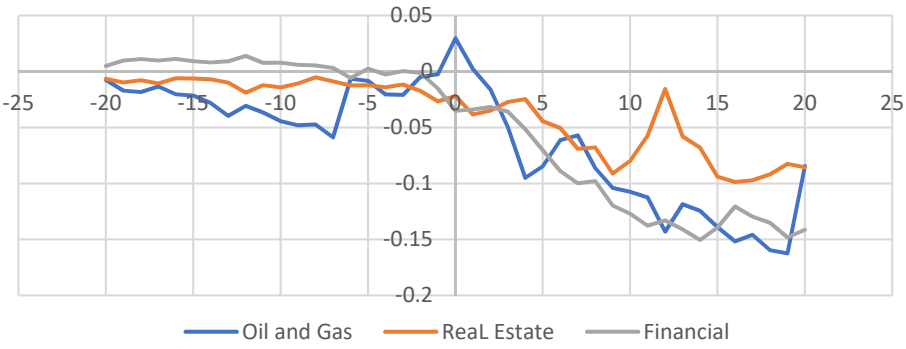

Figure 5. CAR for real estate, financial and oil & gas

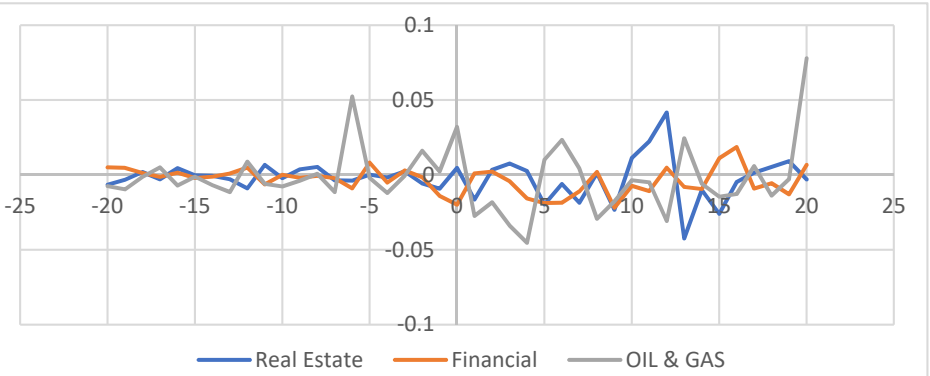

Figure 6. AR of real estate, financial, and oil & gas

Figures 7 and 8 show the CAR and AR for Basic Materials, Insurance, Industrials and Consumer Services indices. Figure 8 shows, the CAR of these indices were negative and witnessed high dropped after the event-day, while the basic material and the consumer services indices had the most negative CAR during the post-event day.

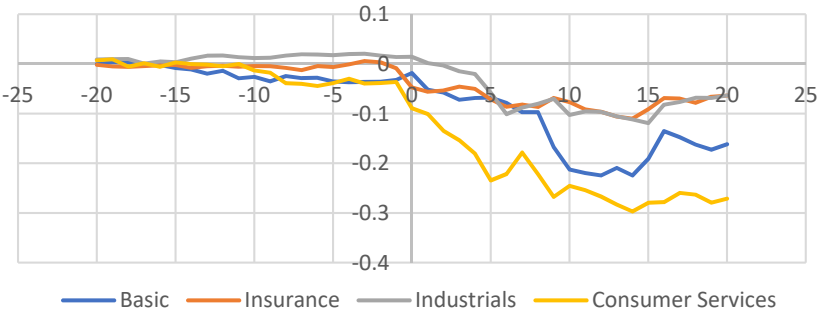

Figure 7. CAR for Basic Materials, Insurance, Industrials, and Consumer Services

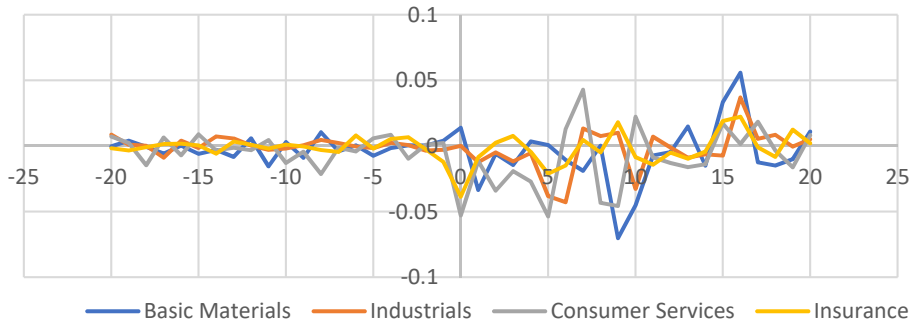

Figure 8. AR of basic materials, insurance, industrials and consumer services

The return trends before the event day were relatively stable for basic materials, insurance, industrials and consumer services indices, while after the event day, all of these indices fell till day 10, and they began to rise gradually. The t-statistics for basic materials index were negative and significant for days of; t-11, t+1, t+7, t+9, t+10, t+14, while the positive significant were for days of; t+15 and t+16 only. The consumer services index has negative significant t-statistics for days of; t-8, t 0, t+2, t+3, t+4, t+5, t+8, t+9, t+13, and t+19. While it has significant positive for days of; t+7, t+10, t+15, t+17 only.

4.2 Results of the Whole Market

The cumulative average of abnormal return (CAAR) of all indices is negative and significant for three event windows; (-10, +10), (-5, +5), and (0, +10) with t-statistics -2.488, -4.742, and -3.660 respectively. While for the other investigated widows such as (-20, +20), (0, +20), and (-1, +1) were found insignificant. This result indicates that the Kuwait Stock Market (KSE) was affected my COVID-19 badly around the event day. Figure 8 shows that the cumulative average abnormal returns (CAAR) of all indices through the event window (-20, +20) for all sectors decreased hardly during the post-event day. (Table 2).

Table 2. Cumulative average abnormal return (CAAR) for all indices

CAAR	t-statistics	Status
(-20,+20)	-1.322	Insignificant
(-10,+10)	-2.488	Significant at level of 5%
(-5,+5)	-4.742	Significant at level of 5%
(-1,1)	-0.446	Insignificant
(0,+10)	-3.66	Significant at level of 5%
(0,+20)	-1.346	Insignificant

Source: Authors calculations.

Figure 8 shows that the general trend of the AAR during the post-event day indicates hard volatile with more negative returns. The sharp fluctuation in stock prices during the pandemic period is due to the behaviour of investors in the Kuwait stock market, which is usually characterised by taking advantage of these fluctuations to achieve immediate and quick profits. They exploit such events by buying at the time of decline and move up the prices to resell their shares, making quick and rewarding profits. However, the cumulative abnormal return is negative, which gives us more evidence that the KSE negatively affected by COVID-19.

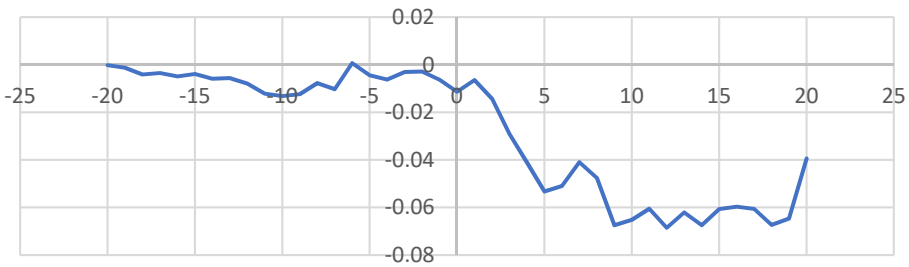

Figure 9. CAAR of all sectors

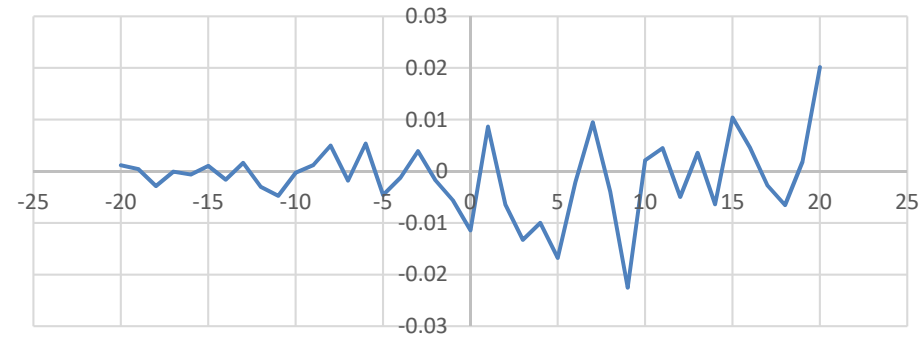

Figure 10. AAR of all sectors

5. The Conclusion and Recommendation

This study aims to examine the impacts of the COVID-19 pandemic on daily stock returns of 10 out of 12 sectors on Kuwait Stock Market for the period from 28 March to 20 April 2020. Two sectors were excluded because they suffer from thin trading and was no trading on their shares during most of the investigated period. The testing periods are divided into six windows of; (-20,+20), (-10,+10), (-5,+5), (-1,+1), (0, +10), and (0,+20). Where the results revealed that three stocks, namely, banks, telecommunications, and consumer goods, were positively affected by the pandemic, while the remaining stocks were negatively affected by the COVID-19 pandemic. The pandemic's most negatively affected stocks are the services and financial sectors. When the cumulative average abnormal returns (CAAR) for all sectors were examined, the results revealed that all sectors had been affected negatively. However, the limitations of this research that it is based on the ESM approach only. It would be helpful to conduct further research that using the panel regression analysis that examine the relationship between stock markets indices and other variables such as confirm and death COVID-19 cases. Other more studies can be done, such as the impact of COVID-19 on the volatility of the KSE.

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Appendix A

Table A.1. Results of market model

	Banks	Basic Material	Industrials	Consumer Goods	Consumer Services	Telecommunications	Oil & Gas	Real Estate	Financial	Insurance
Intercept	0.000114	-0.00164	-0.00043	-0.00175	0.000493	-0.000127959	0.000966	0.000698	-9.72162	0.000357
Slope	1.198614	0.462027	0.795605	0.266682	0.421224	1.062399475	0.488885	0.733165	0.55691245	-0.13942
R-square	0.963354	0.122006	0.651388	0.012124	0.129972	0.642981424	0.036309	0.526967	0.373157284	0.013663
St-Error	0.001685	0.008936	0.004196	0.017355	0.007857	0.005707622	0.018159	0.005008	0.005204049	0.00854
STDEV	0.007997	0.008448	0.007118	0.01335	0.007793	0.00841	0.013957	0.007208	0.006856	0.007885

Source: Authors calculations.

Table A.2: Cumulative abnormal return (CAR) results

CAR	BANKS	INSURANCE	FINANCIAL	Basic Material	Industrials	Consumer Goods	Consumer Services	Telecom.	Oil & Gas	Real Estate
(-20,20)	0.01905	-0.06362	-0.14126	-0.16141	-0.06341	0.14603	-0.271	0.19133	-0.08437	-0.08544
	(0.3720)	(-1.2600)	(-3.2176)*	(-2.9839)*	(-1.3912)	(1.7072)	(-5.4306)*	(3.5531)*	(-0.9440)	(-1.852)
(-10,10)	0.03376	-0.07133	-0.13458	-0.18332	-0.11655	0.12774	-0.24495	-0.01119	-0.07081	-0.06758
	(0.9214)	(-2.0228)*	(-4.2831)*	(-4.7354)*	(-3.573)*	(2.086)*	(-6.8586)*	(-0.2904)	(-1.1071)	(-2.09)*
(-5,5)	0.02627	-0.067	-0.06448	-0.03985	-0.07719	0.00025	-0.18994	0.13771	-0.0783	-0.0318
	(0.9907)	(-2.5618)*	(-2.8355)*	(-1.4223)	(-3.269)*	(0.0055)	(-7.3485)*	(5.1784)*	(-1.6916)	(-1.331)
(-1,1)	0.01248	-0.05927	-0.03275	-0.01556	-0.01509	-0.00009	-0.06195	-0.07103	0.007084	-0.02091
	(0.9012)	(-4.3397)*	(-2.7580)*	(-1.0632)	(-1.2239)	(-0.004)	(-4.5893)*	(-2.5466)*	(0.29303)	(-1.675)
(0,+20)	0.01633	-0.01628	-0.10623	-0.14332	-0.0776	0.13819	-0.18185	0.25998	-0.11401	-0.08544
	(0.4568)	(-0.4617)	(-3.4645)*	(-3.7936)*	(-2.439)*	(2.313)*	(-5.2177)*	(6.9126)*	(-1.827)*	(-2.65)*
(0,+10)	0.02976	-0.02955	-0.09185	-0.19422	-0.1169	0.09382	-0.15604	0.137718	-0.1371	-0.05791
	(1.1770)	(-1.1852)	(-4.2361)*	(-7.2703)*	(-5.196)*	(2.221)*	(-6.3313)*	(5.17848)*	(-3.106)*	(-2.54)*

Source: Authors calculations.

*Denotes significant at level 5% and 10%.