

Examining Indonesian Stock Price Movement Amid COVID-19 Pandemic: Which Sectors that Underperformed the Most?

Faaza Fakhrunnas^{1*}, Almadita Ramadhani²

^{1,2}Department of Economics, Universitas Islam Indonesia, Yogyakarta, Indonesia

¹fakhrunnasfaaza@uii.ac.id, ²almadita.ramadhani@students.uii.ac.id

*Corresponding Author

Abstract

The stock market is a financial market that is highly responsive to changes in economic conditions. Therefore, the stock market normally reflects the current economic conditions. This study discusses the effect of the COVID-19 pandemic on the Indonesian stock exchange in several industrial sectors. Using the event study method, this study utilized a time-series data over a five-month period starting from December 2019 to April 2020. To examine the short-run and long-run impact among the observed variables, this study also applied the ARDL (Autoregressive Distributed Lag). The findings showed that the COVID-19 pandemic affected stock performance, particularly in trade, service and investments, and agricultural sectors, all of which experienced a negative return on the day of the first announcement of the COVID-19 positive cases. In addition, the outbreak evidently influenced the cumulative abnormal return in the short run, but not in the long run.

Keywords: Stock Market, COVID-19 pandemic, Event Study, ADRL, Cumulative Abnormal Return

Menilik Pergerakan Harga Saham Indonesia di Tengah Pandemi COVID-19: Sektor Mana yang Paling Banyak Berkinerja Buruk?

Abstrak

Pasar saham merupakan jenis pasar keuangan yang sangat responsif terhadap perubahan kondisi perekonomian. Oleh karena itu, pasar saham biasanya mencerminkan kondisi ekonomi saat ini. Penelitian ini membahas tentang pengaruh pandemi Covid-19 terhadap bursa efek Indonesia di beberapa sektor industri. Dengan menggunakan metode studi peristiwa, penelitian ini menggunakan data *time-series* selama periode lima bulan mulai dari Desember 2019 hingga April 2020. Untuk menguji dampak jangka pendek dan jangka panjang antar variabel yang diamati, penelitian ini juga menerapkan ARDL. (Autoregressive Distributed Lag). Hasil penelitian ini menunjukkan bahwa pandemi Covid-19 mempengaruhi kinerja saham di mana sektor perdagangan, jasa dan investasi, dan pertanian memiliki return negatif pada hari pertama pengumuman kasus positif Covid-19. Selain itu, wabah tersebut ternyata mempengaruhi abnormal return kumulatif dalam jangka pendek tetapi tidak dalam jangka panjang.

Kata kunci: Pasar Saham, Pandemi COVID-19, Studi Peristiwa, ADRL, Abnormal Return Kumulatif

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INTRODUCTION

The rising number of confirmed COVID-19 cases was directly linked to an increase in test capacity and the loosening of regulations on social activities, as reported by *Kompas* (2020).

Many countries in the world implemented lockdown policies to control the spread of COVID-19, especially since the emergence of a new variant of the virus. These policies have also affected global economic conditions, with the IMF (2020a) reporting a decline in global economic growth to -4.9% at the beginning of 2020.

Moreover, as indicated by the IMF (2020b), the world's economic conditions are currently being affected by the pandemic, both in the long and short run. In the short run, world economic growth returned to negative growth of up to 5.2%, and this was exacerbated by unstable exchange rate conditions in 2020. Meanwhile, in the long run, the pandemic could lead to a global recession that may persist due to low investment, a decrease in the quality of human resources resulting from an inadequate education system, and a decline in international trade between countries.

In the context of Indonesia, according to the Centre of Indonesian Statistics (2021), several sectors experienced shocks. The tourism sector witnessed a decrease in the number of local and international tourists, while the trade sector was hampered due to disrupted production activities. Likewise, export and import activities could not run properly due to restrictions imposed by many countries. Furthermore, the financial sector was also disrupted due to a decline in market performance, leading to difficulties in carrying out financing processes properly. Hence, this condition also had an impact on the stock market in Indonesia.

Theoretically, Fama (1970) explains that the current stock price reflects all available information. As a result, the level of stock market efficiency is measured by the market reaction to changes of all information. Therefore, market efficiency can be tested to examine abnormal returns that occur. A market is considered to be efficient if neither individual investors nor institutional investors can achieve abnormal returns, after adjusting for risk, using existing trading strategies. This indicates that the prices formed in the market reflect the available information.

Empirically, previous research conducted by Ashraf (2020) found that the stock market responded negatively and significantly to the increasing number of the COVID-19 cases, while the number of announcements of COVID-19 deaths did not have a significant impact. This suggests that the speed of the stock market's response to the COVID-19 depends on the escalation rate of COVID-19 cases in a country. In addition, Alam, Alam, and Chavali (2020) also investigated the effect of the COVID-19 on the stock market response by using the event study method and making observations in different regions in India. The results of this study indicate that the average abnormal return has a significant and positive value for the lockdown enforced. Cumulative average abnormal return also has a significant and positive relationship to the COVID-19 as proxies by news of the lockdown announcement made by the government. Furthermore, Alam, Alam, and Chavali (2020) also found that the average abnormal return during the lockdown period has a significant and positive relationship. Even though prior to the lockdown investors were believed to have experienced panic, by contrast, a significant and negative relationship was observed. These results are in line with those of He, Sun, Zhang, and Li (2020) in the context of the stock market in China.

Kumar, Hoang, Phan, and Liu (2020) conducted a broader study entitled “COVID-19 Lockdowns, Stimulus Packages, Travel Bans, and Stock Returns”. The results of this study indicate that the effect of lockdown on stock returns is positive. In Germany and Italy no significant effect on stock returns was observed, and the stimulus package did not have a positive impact on stock returns. Travel ban was not effective on stock returns in Germany and Italy. The impact on other sectors is shown in research conducted by Mazur, Dang, and Vega (2020). Their research found that the S&P1500 stocks in hotel, real estate, and entertainment sectors experienced a significant decline due to the impact of COVID-19. However, in some sectors, such as groceries, health care, food, natural gas, and software, the performance was found to be better. Finally, Sambuari, Saerang and Maramis (2020) conducted a study on stock price reactions in the food and beverages sectors, and the findings show that there are differences in abnormal returns before and after the announcement of the first case of the COVID-19 outbreak in Indonesia.

Therefore, referring to previous empirical literatures, it is necessary to carry out further studies to measure how the COVID-19 pandemic affects the level of stock returns of various industrial sectors in Indonesia. This study aims to extend the perspective on how the COVID-19 pandemic influences the level of stock returns in nine industrial sectors. Following the theory of efficient capital market proposed by Fama (1970), this study put forward several hypotheses:

- H1** : The COVID-19 pandemic has a significant relationship to the stocks’ return in the nine industrial sectors during the announcement period.
- H2** : The COVID-19 pandemic has a significant relationship in the short-run period of time to the stocks’ return in the nine industrial sectors.
- H2** : The COVID-19 pandemic has a significant relationship in the long-run period of time to the stocks’ return in the nine industrial sectors.

The contribution of this research is, firstly, to improve the existing research conducted by Kumar, Devpura, and Wang (2020) who examined the impact of COVID-19 on stock market reaction in Japan, Mazur et al. (2020) in the United Stated, Alam et al. (2020) in India, Sherif (2020) in the United Kingdom, Mirza et al. (2020) in Europe, Ashraf (2020), and Salisu and Vinh (2020) in multiple countries. Secondly, this study not only focuses on trading volume as studied by Siswantoro (2020), but also offers a new perspective on identifying the sectors hardest hit by the COVID-19 outbreak in Indonesia. In addition, this study also investigates whether the effects have short-term or long-term implications.

Regarding the structure of the paper, it begins with an introduction, followed by the methodology. Subsequently, the results and discussion are presented. Finally, this paper ends with conclusions and suggestions.

METHOD

This study adopted time-series data taken from December 2019 to April 2020. However, the utilization of the data in this approach depends on the method applied in the analysis. Following He, Sun, Zhang, and Li (2020), this study adopted an event study to examine

whether the COVID-19 pandemic had an effect on the Indonesian stock index in nine industrial sectors: agriculture (AGR), basic industry and chemical (BAS), consumer goods (CON), financial (FIN), infrastructure, utility and transportation (INF), mining (MIN), miscellaneous industry (MIS), property, real estate and building construction (PROP) and trade, service and investment (TRAD). The event study was used to analyze the effect of stock returns during the event period that occurred on 2nd March 2020. To examine it, the study considered three time periods: 30 days before the announcement of the event, the time of the announcement of the event, and 30 days after the announcement of the event. The data was retrieved from Yahoo Finance, Bank Indonesia, and Indonesian Statistics.

Moreover, He, Sun, Zhang, and Li (2020) explain that the measurement in the event study can adopt several indicators, namely abnormal returns, actual returns, and expected returns. Normal calculations can be done using the following formula:

$$R_{i,t} = \alpha_i + \beta_i R_{i,Mi,t} \quad (1)$$

where:

- $R_{i,t}$ = the rate of return on stock i on day t
- α_i, β_i = regression coefficient of daily stock return i and market return
- $R_{i,Mi,t}$ = market rate of return on stock i on day t

Meanwhile, abnormal returns can be calculated using this formula:

$$AR_{i,t} = R_{i,t} - (\alpha_{i,t} + \beta_i R_{i,Mi,t}) \quad (2)$$

where:

- $AR_{i,t}$ = abnormal return for stock i on day t
- $R_{i,t}$ = actual return abnormal return for stock i on day t
- $\alpha_{i,t}, \beta_i$ = regression coefficient of daily stock return i and market return
- $R_{i,Mi,t}$ = market rate of return on stock i on day t

Then, the cumulative abnormal return can be measured by

$$CAR_{i(t1,t2)} = \sum_{t2}^{t=t1} AR_{i,t} \quad (3)$$

where:

- $CAR_{i(t1,t2)}$ = cumulative abnormal return for stock i on day t
- $AR_{i,t}$ = abnormal return for stock i on day t

To assess the impact of the COVID-19 on stock market performance in the short and long run, Auto Regressive Distributed Lag (ARDL) was used. This model was employed to

measure the effect of the number of the COVID-19 cases on stock returns. In general, the model used is as follows:

$$\begin{aligned} \Delta CAR_t = & \sum_{i=1}^n a_{1i} \Delta CAR_{t-1} + \sum_{i=1}^n a_{2i} \Delta COV_{t-1} + \sum_{i=1}^n a_{3i} \Delta ER_{t-1} \\ & + \sum_{i=1}^n a_{4i} \Delta INT_{t-1} + \sum_{i=1}^n a_{5i} \Delta DJIA_{t-1} + \theta_1 CAR_{t-1} + \theta_2 COV_{t-1} \\ & + \theta_3 ER_{t-1} + \theta_4 INT_{t-1} + \theta_5 DJIA_{t-1} + e_t \end{aligned} \quad (4)$$

Table 1. *Description of Variables*

Variables	Definition	Symbol
Cumulative abnormal return	Total abnormal return value per day in percentage	CAR
Number of COVID-19 cases	Number of COVID-19 cases per day in Indonesia	COV
Exchange rate	Exchange rate of the dollar against the rupiah in number	ER
Interest rate	The benchmark interest rate determined by Bank Indonesia is based on the BI-7 Days Repo Rate in percentage	INT
Dow Jones industrial averages	Share price per day on Dow Jones Industrial Averages in number	DJIA

As shown in Table 1, the dependent variable consists of CAR, and the main independent variable is only COV. ER, INT, and DJIA are also independent variables, but they are only considered as complementary variables. As suggested by Pesaran and Shin (1999 and 2001), to apply ARDL, it is necessary to follow several steps. These steps begin by conducting unit roots tests (Dickey and Fuller, 1981) and conclude with ARDL estimation. To analyze the impact of the COVID-19 pandemic in the short and long run, a longer period of observation is needed. Therefore, in applying ARDL analysis, this study used data spanning from December 2019 to April 2020 on a daily basis.

FINDING AND DISCUSSION

Table 2 displays the data description for the study period, which is divided into the period before and during the COVID-19 pandemic. Based on the table, generally the cumulative average return before and during the COVID-19 pandemic were different. Before the pandemic the cumulative average return of the stocks (CAR) was higher as opposed to during the outbreak. The data also indicate that the stock performance in Indonesia suffered during the COVID-19 pandemic. This trend mirrors the situation witnessed by the DJIA, which served as a benchmark for the global stock market and also experienced similar conditions before and during the pandemic.

The results of the event study test (Table 3), following the approach proposed by He, Sun, Zhang, and Li (2020), showed that the impact of the pandemic was observable in all of nine industries in the Indonesian Stock Exchange. However, the influence period of the outbreak to the CAR values in each industry varied. For instance, in consumer good sectors, CAR values were negative and significant on days 0, +5, +10, +15, +20, +25, and +30. This indicates that during the pandemic the CAR value was affected by the COVID-19 situation, resulting in a decrease in the percentage of CAR value. Consequently, shareholders of agriculture industry companies may face short-term losses. On the other hand, the financial sectors displayed a significant result of CAR value from day +5 to day +30. Notably only day +5 and day +20 exhibited negative and significant values. Other days demonstrated positive and significant CAR value. This indicates that during the pandemic (days +10, +15, +25 and +30), the CAR value increased, and it led to advantages for the shareholders. In other industrial sectors, the results may vary.

To assess the short-run and long-run relationship between the observed variables, ARDL approach was applied. In accordance with Pesaran and Shin (1999 and 2001), several preliminary tests were conducted. The unit roots test (Table 4) revealed that most variables were stationary at level except ER, INT, and DJIM, which were stationary in the 1st difference. These results fulfilled the requirements to conduct ARDL approach. Moreover, the result of ARDL (Table 5) further indicated the value of F-statistics which reflected co-integration measurement. Based on the value of F-statistics, all sectors except mining industry were significant. If the F-statistic value is greater than alpha of upper bound, H₀ will not be accepted, indicating that ARDL-ECM is applicable (Pesaran, Shin, and Smith, 2001). The short-run relationship (Table 6) indicated that the COVID-19 influenced CAR value in consumer goods, financial, property, real estate and building construction and trade, service and investment sectors, but other sectors were not influenced by COVID-19 in the short run. Moreover, in the long-run relationship the CAR value remained unaffected by the pandemic.

Table 2. *Descriptive Statistics*

Variables	Before COVID-19				During COVID-19				Denomination
	Mean	Std. Dev	Max	Min	Mean	Std. Dev	Max	Min	
CAR_AGRI	0.58	0.14	0.79	0.33	0.15	0.07	0.28	0.02	In percentage
CAR_BAS	0.74	0.19	1.02	0.40	0.20	0.09	0.38	0.05	In percentage
CAR_CONS	-0.55	0.13	-0.32	-0.79	-0.21	0.10	-0.03	-0.38	In percentage
CAR_FIN	0.23	0.06	0.34	0.12	0.10	0.05	0.21	0.02	In percentage
CAR_NF	0.37	0.11	0.54	0.20	0.12	0.05	0.19	0.03	In percentage
CAR_MIN	0.03	0.01	0.07	0.02	-0.03	0.03	0.02	-0.12	In percentage
CAR_MISC	0.92	0.35	1.63	0.38	0.50	0.20	0.86	0.09	In percentage
CAR_PROP	0.18	0.05	0.28	0.11	0.06	0.05	0.16	-0.02	In percentage
CAR_TRAD	-0.45	0.10	-0.25	-0.62	-0.16	0.05	-0.05	-0.23	In percentage
COV	0.00	0.00	0.00	0.00	102.17	102.55	337.00	0.00	In Number
INT	0.05	0.00	0.05	0.05	0.05	0.00	0.05	0.05	In percentage
ER	13735.30	135.83	14234.00	13612.00	15523.93	946.91	16741.00	14168.00	In IDR
DJIA	28669.45	1048.17	29551.42	25409.36	22577.01	2250.74	27090.86	18591.93	In USD

Table 3. Results of Event Study

Days	Agriculture		Basic Industry and Chemical		Consumer Goods		Financial		Infrastructure, Utility and Transportation		Mining		Miscellaneous Industry		Property, Real Estate and Building Construction		Trade, Service and Investment	
	CAR	T-stat	CAR	T-stat	CAR	T-stat	CAR	T-stat	CAR	T-stat	CAR	T-stat	CAR	T-stat	CAR	T-stat	CAR	T-stat
-30	1.12*	2.30	1.43*	1.32	-1.09**	-1.29	0.46	0.65	0.78	1.17	0.08	0.36	2.81	2.91	0.38	0.36	-0.86	-0.73
-25	1.03**	0.86	1.27*	1.62	-0.99*	-2.60	0.42	0.72	0.71*	2.13	-0.06	-0.30	2.53*	3.81	0.35	0.64	-0.78*	-2.55
-20	0.98*	1.76	1.17*	1.98	-0.91*	-1.47	0.40	0.68	0.64	0.12	0.06	0.17	2.22*	1.53	0.31	0.37	-0.73*	-1.41
-15	0.85**	1.06	1.05**	0.80	-0.85*	-2.51	0.38	0.70	0.58*	3.34	0.07	0.36	1.90*	2.61	0.29	0.32	-0.67*	-1.83
-10	-0.77*	-2.05	-0.99*	-3.25	-0.77*	-2.32	0.33	0.58	-0.51*	-3.92	0.07	1.18	1.53*	3.90	0.27	0.58	-0.62	-1.20
-5	0.71**	0.99	0.93*	3.38	-0.68*	-2.24	0.28	0.64	0.48*	1.74	-0.02	-0.78	-1.10*	-1.95	-0.23	-0.45	-0.56*	-1.62
0	0.63*	1.66	0.80*	2.01	-0.58**	-1.23	0.24	0.84	0.41*	1.77	0.02	0.07	1.03	0.55	0.20	0.87	-0.47	-0.18
5	0.57**	0.87	0.71*	1.83	-0.52*	-1.52	-0.22*	-1.85	0.37*	1.33	-0.02	-0.38	-0.84	-0.25	0.17	0.08	-0.44	-0.81
10	0.48*	1.39	0.61	0.12	-0.46*	-1.48	0.19**	0.96	0.28**	0.81	-0.02	-0.33	0.62*	2.20	-0.15	-0.51	-0.38	-0.97
15	0.38**	0.81	0.52*	4.51	-0.38*	-1.75	0.15**	1.11	0.23*	1.37	0.03	0.25	0.43*	2.42	0.12	0.38	-0.33*	-1.41
20	0.27	0.58	0.35**	0.87	-0.28*	-1.86	-0.10*	-1.71	-0.17	-1.11	0.02	0.30	0.66	0.77	0.11	0.92	-0.20	-0.96
25	0.18*	2.18	0.25**	1.23	-0.17*	-1.88	0.05**	1.42	0.13*	2.14	0.01	0.54	0.37	1.24	0.06*	1.37	-0.14	-0.50
30	0.02*	1.37	0.05*	4.74	-0.03*	-3.22	0.02*	1.67	0.03*	3.94	-0.01*	-1.28	0.09*	4.75	-0.02*	-1.48	-0.05*	-4.64

Note: The symbols of ***, ** and * denote the levels of significance in 1%, 5% and 10% respectively.

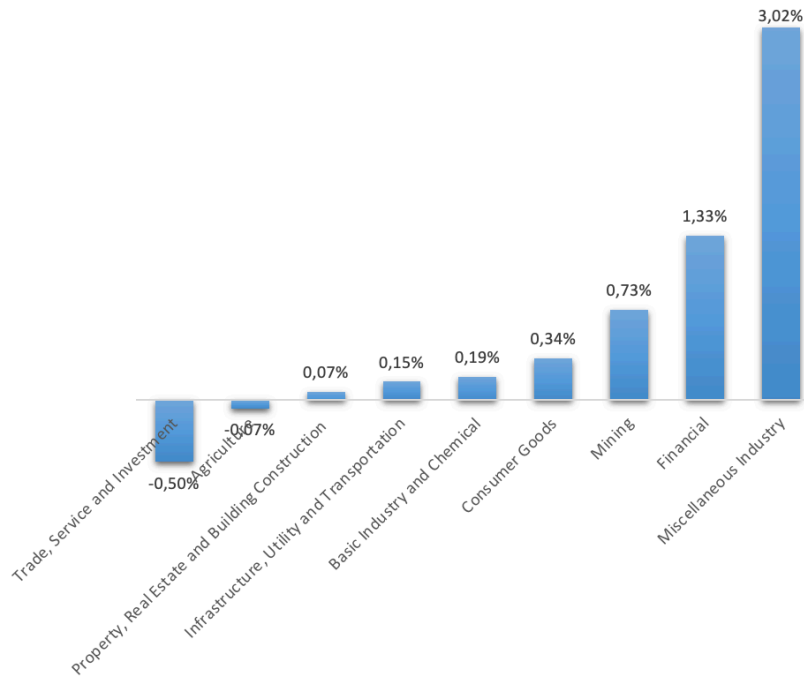


Figure 1. Price changes of Indonesian Stock Index during COVID-19 announcement

To assess the short-run and long-run relationship between the observed variables, ARDL approach was applied. In accordance with Pesaran and Shin (1999 and 2001), several preliminary tests were conducted. The unit roots test (Table 4) revealed that most variables were stationary at level except ER, INT, and DJIM, which were stationary in the 1st difference. These results fulfilled the requirements to conduct ARDL approach. Moreover, the result of ARDL (Table 5) further indicated the value of F-statistics which reflected co-integration measurement. Based on the value of F-statistics, all sectors except mining industry were significant. If the F-statistic value is greater than alpha of upper bound, H0 will not be accepted, indicating that ARDL-ECM is applicable (Pesaran, Shin, and Smith, 2001). The short-run relationship (Table 6) indicated that the COVID-19 influenced CAR value in consumer goods, financial, property, real estate and building construction and trade, service and investment sectors, but other sectors were not influenced by COVID-19 in the short run. Moreover, in the long-run relationship the CAR value remained unaffected by the pandemic.

The results from the event study or ARDL analysis provide several points for discussion in this study. Firstly, the finding of the study is theoretically in line with the conceptual framework proposed by Fama (1970). Information about suspected cases of COVID-19 influenced the stock performance in Indonesia in the short run, potentially affecting both shareholders and stakeholders' sentiments in the market. Such new information possibly impacted on the stock performance because the price reflected all information in the market. In addition, the findings also indicate that the Indonesian stock market is considered an efficient market based on Fama's (1970) criteria.

Table 4. Results of Unit Roots Test

Variables	Unit Roots Test (At Level)						Unit Roots Test (1st Difference)						Conclusion
	Intercept		Intercept and Trend		None		Intercept		Intercept and Trend		None		
	ADF	PP	ADF	PP	ADF	PP	ADF	PP	ADF	PP	ADF	PP	
CARAGRI	-2.31	-2.36	1.59	2.44	-3.83*	-4.47*	-6.42	-6.46	-6.46	-7.14	-5.5	-5.56	Stationary (0)
CARBAS	-2.47	-2.34	0.62	0.78	-5.14*	-5.83*	-7.98	-8.28	-8.59	-8.65	-2.88	-6.45	Stationary (0)
CARCON	-2.16	-2.38	0.96	1.78	-2.92**	-3.70*	-4.61*	-4.51*	-5.43*	-5.39*	-4.11*	-3.86*	Stationary (0)
CARFIN	-2.13	-2.27	1.19	2.22	-2.63**	-2.80**	-6.29*	-6.16*	-7.08*	-7.14*	-5.99*	-5.93*	Stationary (0)
CARINF	-2.74	-3.23	0.95	1.34	-3.88*	-6.64*	-3.42	-9.54*	-5.07*	-1.04*	-2.43	-7.96*	Stationary (0)
CARMIN	-1.24	-1.24	-1.66	-1.77	-1.70***	-1.70***	-1.00*	-1.00*	-10.05*	-1.00*	-9.98*	-9.96*	Stationary (0)
CARMIS	-2.88***	-2.67***	2.12	1.7	-4.18*	-4.08*	-5.10*	-8.48*	-9.18*	-9.40*	-3.27*	-7.89*	Stationary (0)
CARPROP	-1.88	-2.06	3.78	3.51	-1.52	-2.21**	-2.83***	-7.69*	-3.82**	-8.52*	-2.81**	-7.56*	Stationary (0)
CARTRAD	-2.24	-2.54	1.6	1.55	-3.96*	-5.07*	-8.01*	-7.94*	-8.58*	-8.49*	-7.08*	-7.07*	Stationary (0)
COVID	-1.79	-1.57	-2.19	-2.1	-1.72	0.06*	-2.06	-2.42	-1.49	-3.04	-1.91	-2.28	Stationary (0)
KURS	-0.71	-0.74	-1.69	-1.7	0.63	0.61	-7.40*	-7.40*	-7.41*	-7.34*	-7.38*	-7.38*	Stationary (1)
INT	-10.27	-1.02	-1.76	-1.78	-1.47	-1.51	-11.00*	-11.00*	-10.97*	-10.97*	-10.86*	-10.86*	Stationary (1)
DJIA	-1.2	-0.82	-2.14	-1.84	-0.62	-0.7	-7.03*	-14.89*	-7.03*	-14.88*	-4.72*	-1.49*	Stationary (1)

Table 5. *Results of ARDL Estimation*

Variable	AGR	BAS	CON	FIN	INF	MIN	MIS	PRO	TRA
CAR(-1)	1.19 (13.01)*	0.99 (93.02)*	1.2 (-1.09)	0.95 (-1.08)	0.86 (8.74)*	0.98 (2.62)*	1 (78.69)*	0.98 -1.05	1.13 (15.57)*
CAR(-2)	-0.31 (-2.21)*		-0.21 (-1.86)*	0.07 (-0.5)	-0.06 (-0.53)			-0.27 (-2.02)*	-0.55 (-4.68)*
CAR(-3)	-0.07 (-0.50)			-0.3 (-2.41)*	0.37 (-3.06)*			0.42 (-2.97)*	0.42 (-3.2)*
CAR(-4)	0.19 (-2.03)*			0.28 (-3.54)*	-0.19 (-1.99)*			-0.14 (-1.45)	
COVID	0.00 (-0.14)	0.00 -1.18	0.00 (-0.89)	0.00 -3.63	0.00 (-0.73)	0.00 (-0.09)	0.00 -1.27	0.00 (-1.03)	0.00 (-1.37)
COVID(-1)	0.00 (-1.9)		0.00 (-3.47)*	0.00 (-1.59)	0.00 (-2.44)*			0.00 (-1.07)	0.00 (-1.75)
COVID(-2)			0.00 (-4.45)**		0.00 (2.73)**			0.00 (-0.38)	0.00 (-2.98)*
COVID(-3)			0.00 (2.86)**					0.00 -0.08	0.00 (-0.67)
KURS	0.00 (-3.01)*	0.00 (-2.59)*	0.00 (-3.15)*	0.00 (4.70)*	0.00 (2.3)*	0.00 (-0.03)	0.00 -0.95	0.00 -0.63	0.00 (-1.67)
KURS(-1)	0.00 -	0.00 (-2.25)*	0.00 -1.39	0.00 -0.89	0.00 (-1.50)	0.00 (-2.60)*	0.00 -	0.00 -1.58	0.00 (-1.45)
INT	-3.53 (-0.78)	1.11 -0.44	0 (-0.15)	3.99 -1.97		-0.12 (-0.11)	1.19 -0.16	0.71 -0.58	-6.19 -1.52
INT(-1)	9.62 -1.59			-3.92 (-1.43)		0.00 -0.08	0.00 (-0.75)	0.00 (2.94)*	0.00 -0.12
INT(-2)	-8.87 (-1.45)			-3.75 (-1.34)					-1.44 -
INT(-3)	-1.24 (-2.02)*			4.59 (2.25)*					0.00 (3.8)*
INT(-4)	1.62 (3.59)*								0.00 -0.12
DJIA	0.00 (-1.7)	0.00 (2.15)*	0.22 (-2.32)*	0.00 (-0.28)	0.00 -1.48				0.00 (-1.45)
DJIA(-1)	0.00 (2.81)*	0.00 (2.66)*	0.00 (-18.63)*	0.00 (4.02)*	0.00 (2.36)*	0.98 0.00	0.99 0.00	0.99 0.00	0.99 0.00
DJIA(-2)		0.00 (-2.67)*	0.00 (3.00)*	0.00 (-0.97)	0.00 (-2.29)*				0.00 (3.80)*
DJIA(-3)		0.00 (-1.42)		0.00 (-1.53)					0.00 -0.12
R-square	0.9991	0.9991	0.9995	0.9987	0.999	0.9815	0.9983	0.9991	0.9987
F-statistic	7.62***	17.72***	7.54***	14.99***	5.16***	0.69	13.43***	8.09***	10.55***

Note: The symbols of ***, ** and * denote the levels of significance in 1%, 5% and 10% respectively.

Secondly, the result of the study is in line with those of Kumar, Devpura, and Wang (2020) which showed the impact of COVID-19 on stock market reaction in Japan. The result of this study is also consistent with those of Mazur et al. (2020) in the United States, Alam et al. (2020) in India, Sherif (2020) in the United Kingdom, Mirza et al. (2020) in Europe, and Ashraf (2020) and Salisu and Vinh (2020) in multiple countries. These studies confirm that the market reacts significantly to the information of COVID-19 pandemic. The current market situation can influence the performance of stock return, especially in the short run. In this condition, shareholders should carefully assess the stock performance after receiving new information about the presence of the COVID-19 pandemic, and companies listed in the stock market should respond accordingly to this new information. Referring to Figure 1, on the day when the first positive cases of the COVID-19 were announced in Indonesia, trade, service and investments and agricultural sectors experienced negative return, while other sectors maintained positive return.

Table 6. *Short-Run Relationship*

Variable	AGR	BAS	CON	FIN	INF	MIN	MIS	PRO	TRA
CAR	0.00 (-6.92)*	-0.01 (-10.55)*	0.00 (-6.89)*	-0.01 (-0.42)	-0.02 (-5.69)*	-0.02 (-2.08)*	0.00 (-9.17)*	-0.02 (-7.14)*	0.00 (-8.16)*
CAR(-1)	0.2 (-1.3)		0.21 (2.32)**	-0.05 (-0.55)	-0.12 (-1.3)			-0.01 (-0.08)	0.13 (-1.59)
CAR(-2)	-0.12 (-2.20)**			0.02 (0.19)	-0.18 (-2.09)**			-0.28 (-3.10)*	-0.42 (-5.26)*
CAR(-3)	-0.19 (-1.31)			-0.28 (-3.54)*	0.19 (2.11)**			0.14 (1.55)	
CAR(-4)	0.00 (-2.12)**							0.00 (-1.19)	0.00 (-1.15)
COVID	0.00 (-0.15)		0.00 (-1.02)	0.00 (3.63)*	0.00 (-0.84)			0.00 (-3.56)*	0.00 (-1.17)
COVID(-1)			0.00 (-3.37)*					0.00 (-3.89)*	0.00 (-3.25)*
COVID(-2)			0.00 (-6.96)*					0.00 (-3.71)*	0.00 (-3.54)*
COVID(-3)			0 (-3.35)*					0 -0.75	
KURS	0.00 (0.00)	0.00 (3.05)*	0.00 (-3.96)*	0.00 (4.70)*	0.00 (2.76)*	0.00 (-0.04)	0.00 (0.00)	0.00 (2.03)**	0.00 (-1.84)***
KURS(-1)			0.00 (-1.88)***	0.00 (5.12)*		0.00 (-4.50)*		0.00 (2.03)**	0.00 (-5.24)*
INT	-3.53 (-0.84)			3.99 (-1.97)					-6.19 (-1.66)***
INT(-1)	5.13 (-1.21)			-0.83 (-0.41)					0 (-0.09)
INT(-2)	-3.74 (-0.87)			-4.59 (-2.25)**		0.1752 (0.00)	0.3149 (0.00)	0.5619 (0.00)	0.536 (0.00)
INT(-3)	-16.18 (-3.75)*								
DJIA	0.00 (-1.80)***	0.00 (2.29)*	0.00 (-2.47)*	0.00 -0.28	0.00 (2.51)*				0.00 (-0.09)
DJIA(-1)		0.00 (4.38)*	0.00 (-3.31)*	0.00 (2.25)*	0.00 (2.56)*				
DJIA(-2)		0.00 (-1.64)		0.00 (-1.53)					
R-square	0.5117	0.345	0.7191	0.689	0.4515	0.1752	0.3149	0.5619	0.536

Note: The symbols of ***, ** and * denote the levels of significance in 1%, 5% and 10% respectively.

Thirdly, in the long run, the outbreak did not have a lasting impact on the CAR value. As stated by the IMF (2020), the COVID-19 hit both the real and financial sectors, thereby affecting company performance. However, over time, in the long run the companies are likely to adapt to the new normal condition despite the occurrence of economic shock in the short run. In the long run, the companies are anticipated to create much more

innovation to adapt to new circumstances. For example, in the financial sector, banks may accelerate the digitalization process to simplify financial transactions for individuals. Furthermore, in the trade sector, a new customer behavior may be created with an emphasis on more online-based trade transactions. It is certain that in the long run it is expected to have endless opportunities to innovate business model.

Table 7. *Long-Run Relationship*

Variable	AGR	BAS	CON	FIN	INF	MIS	PRO	TRA
COV	0.02 (-0.60)	0.01 (-0.53)	-0.02 (-0.74)	0.02 (-0.51)	0.00 (-0.64)	0.02 (-0.38)	0.01 (-0.47)	-0.05 (-0.76)
ER	0.01 (-0.56)	0.00 (-0.58)	0.00 (-0.74)	0.00 (-0.48)	0.00 (-0.61)	0.00 (-0.55)	0.00 (-0.47)	0.00 (-0.76)
INT	339.47 (-0.92)	160.56 (-0.96)	-8.63 (-0.8)	157.57 (-0.59)	101.83 (-0.12)	243.19 (0.00)	41.74 (-0.20)	-325.15 (-0.73)
DJIA	0.00 (-0.63)	0.00 (-0.51)	0.00 (-0.73)	0.00 (-0.51)	0.00 (-0.64)	0.00 (-0.55)	0.00 (-0.42)	0.00 (-0.76)

Note: The symbols of ***, ** and * denote the levels of significance in 1%, 5% and 10% respectively.

CONCLUSION

The stock performance in its efficient form certainly reflects the existing information in the market. The findings of this study showed that the presence of the COVID-19 pandemic influenced the stock performance in the short run but not in the long run. Therefore, hypotheses H1 and H2 were accepted but not for hypothesis H3. In general, these findings are in line with a theoretical framework proposed by Fama (1970) and several empirical findings in previous studies. The stakeholders in Indonesian stock market may gain significant benefits from these studies. For the financial authorities, the government needs to respond appropriately to the short-run impact of stock market performance. At the same time, it is necessary for the government to introduce several policies to help companies listed in the stock market adapt to the new normal era to mitigate potential future risks.

For shareholders, the research findings indicate that the long-run investment period remains profitable in the Indonesian stock exchange because the market is expected to be unaffected by the outbreak in the long run. This suggests that the companies listed in the market may be able to adapt properly in the long run. Lastly, for researchers, future studies need to be conducted to measure the impact of the COVID-19 on the performance of stock market in the perspective of shareholders. Future research could examine the behavior of shareholders in light of financial turmoil during the pandemic. This perspective is likely to contribute to the advancement of knowledge in stock market performance and in the industrial level.

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