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THE IMPACT OF COVID-19, CRUDE OIL AND RAMADAN MONTH EFFECT ON STOCK MARKET RETURNS

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Abstract:
The purpose of this study is to investigate the effect of COVID-19, crude oil and Ramadan month effect on the stock market returns in manufacturing industry firm listed in the Indonesia Stock Exchange (IDX) in 2020. The sampling method used in this study is purposive sampling with predetermined criteria. The data is processed using Microsoft Excel and SPSS ver. 26.0. The result of this study shows that COVID-19 that is proxied by daily death case, COVID-19 that is proxied by confirmed case, and crude oil have a negative impact on stock market returns. Ramadan month effect have a positive impact on stock market returns.

Keywords: *COVID-19, crude oil, Ramadan month effect, stock market returns*

INTRODUCTION

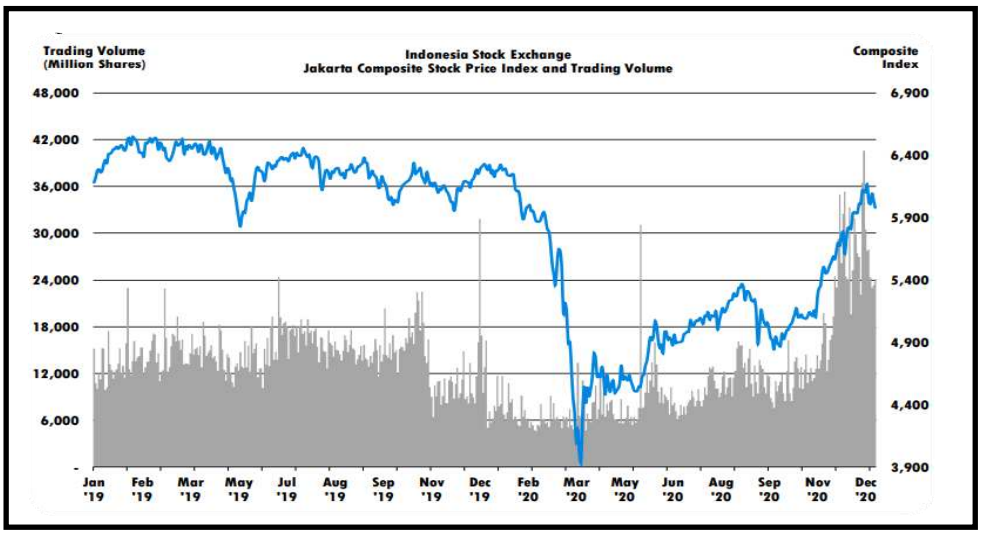
Investment is an act of investing money or capital which is usually long term by purchasing securities to earn profits (OJK, 2021). The securities can be in the form of debt acknowledgements, commercial securities, bonds, debt tokens, units of participation as evidence of collective investment contracts, future contracts for securities and any derivatives of securities (Tumanggor, 2021). Securities that are common among the public are shares capital or company stocks. Stocks are securities that are ownership and evidence of equity participation in the company. Securities transactions such as shares can be carried out on the capital market or stock exchange through public offerings and securities trading.

Capital market stock prices could be affected by many factors, including macroeconomic factors, abnormal events and so forth. Commodity market is an alternative investment that can be chosen by investors other than stocks, mutual funds and bonds. The commodity market can also affect capital market prices and the stock returns that received by the investors (Marwanti & Robiyanto, 2021). Crude oil and gold are examples of products traded on the commodity markets. volatility must be taken into account when investor make investment decisions. The higher the volatility, the faster the price will fluctuate and higher the risk. Some investors are attracted to high-volatility investments because they have the opportunity to earn high returns as well, this is usually called high-risk high-return.

Crude oil is one of the commodities that is often traded because it is considered to have a high risk. The global industry has a high level of demand for oil products because all global industries require fuel. This causes movements or fluctuations in crude oil prices to affect the capital market (Putra & Robiyanto, 2019 in Marwanti & Robiyanto, 2021).

In 2020, all nations within side the global are facing a pandemic originating from a brand new virus referred to as COVID-19. The spread of the COVID-19 pandemic virus is very fast and has a totally critical effect, particularly on the elderly and people who have chronic diseases. This pandemic has had an effect on the worldwide economy, especially the Indonesian economy, which incorporates the stock market. This is due to the fact investors' behavior changes based on the information they receive. Composite stock index price on the Indonesian Stock Exchange (IDX) in 2019-2020 can be seen in **Figure 1**

Figure 1. Composite stock index price on the IDX in 2019-2020



Source: www.idx.com

Based on **Figure 1** above. It can be seen that in 2020, or more precisely in March 2020, there was a significant decline in the position of the composite stock index price, consistent with the emergence of the first COVID-19 case in Indonesia. With the addition of COVID-19 cases, the government has issued various policies to control the spread of the COVID-19 virus to the general public, such as PSBB, work from home and so on, but these policies also hampered the performance of industries and companies in Indonesia, thus hampering the country's economy. Due to these economic problems, investors were frightened and anxious when they received negative information about the COVID-19, in short, COVID-19 caused negative sentiment among investors, which influenced investor decisions. Investor tend to avoid risk, so they switch to safer assets to invest, this will later lead to a decline in stock prices.

Ramadan is the most important month on the Islamic calendar and muslims are obliged to fast in the month of Ramadan (Munusamy, 2018). Ramadan month is an anomaly that can impact stock returns as the investors are more optimistic and willing to make risky investments in this month. During the month of Ramadan, generally there is an increase in consumption in the Food and Beverages industrial sector, thus allowing for an increase in stock returns in that sector.

The research conducted by (Mishra & Mishra, 2021) shows that the death and daily confirmed cases of COVID-19 have an adverse effect on the stock market. The results of the study conducted by (Herwany, Febrian, Anwar & Gunardi, 2021) shows that the COVID-19 pandemic is affecting Indonesia Stock Exchange stocks.

The results of the study conducted by (Okayre, Muoneke & Onuoha, 2021) show that crude oil prices have a positive relationship with the Nigerian stock market in the short and long term. The research conducted by (Dhaoui, Guesmi, Saidi & Bourouis, 2018) shows that fluctuations in oil prices have a significant negative impact on capital market.

The Research conducted by (Akbar, Nurmatias & Triwahyuningtyas, 2021) shows that Ramadan month does not affect stock market returns in the food and beverage subsector. The research conducted by (Hijazi & Tabash, 2020) shows that Ramadan month have a significant positive impact on PEX stock market returns.

This study aims to investigate the effect of COVID-19, crude oil and Ramadan month effects on the stock market returns in manufacturing industry firms in Indonesia listed in the Indonesian Stock Exchange (IDX) for the period 2020.

THEORITICAL REVIEW

Behavioral Finance Theory. This theory is a theory that connects human psychology with economics. This theory explains the emotional process and its influence in decision making by investors. investor behavior changes based on the information received. Market psychology is the sentiment that comes from buyers and sellers in the capital market. Greed, fear, expectations and conditions are all contributing factors to the overall market psychology. In behavioral finance, investors become bearish as market trends decline (Burns et al., 2011 in Al-Qudah & Houcine, 2021). External events can negatively impact the economy and affect investor sentiment.

Arbitrage Pricing Theory (APT). This theory explains that asset returns can be predicted using a linear relationship between expected asset returns and relevant macroeconomic factors that capture systematic risk (Okayre, Muoneke & Onuoha, 2021), so it can be concluded that asset returns can be affected by various macroeconomic factors such as inflation, interest rates, crude oil, exchange rates, foreign investment and so on.

Efficient Market Hypothesis (EMH). This theory explains that stock prices reflect all the information, so stocks will always be traded at fair value and the market is always efficient. Fama (1970) classifies market efficiency into three different categories, that is weak form efficiency, semi strong form efficiency and strong form efficiency. The weak form efficiency explains that the stock price fully reflects all information regarding historical trading, semi strong efficiency explains that all commonly provided information to the public is fully reflected in stock prices, and in strong form efficiency it is explained that stock prices fully reflect all relevant information along with the information from within the

company (Shahid, Sattar, Aftab, Saeed & Abbas, 2020). These three categories illustrate that all available information has been reflected in equity prices so that it is impossible to predict future price changes.

Stock Market Returns. Shares are securities that are ownership and are evidence of equity participation in the company (Tumanggor, 2021). A stock return is a profit or loss obtained from a security over a period of time (Tahir, Gul & Qazi, 2019).

COVID-19. COVID-19 is associated with a family of viruses known as coronaviruses, which are related to MERS and SARS (Al-Qudah & Houcine, 2021). COVID-19 is a deadly infectious virus that emerged in late 2019 and resulted in a global socio-economic crisis (Anh & Gan, 2021). COVID-19 or known as coronavirus is one of the SARS virus family or severe acute respiratory syndrome (Herwany, Febrian, Anwar & Gunardi, 2021).

Crude Oil. Crude oil is the most volatile commodity (Okayre, Muoneke & Onuoha, 2021). Crude oil is one of the most traded products on the commodity market. Crude oil is in high demand in global industries because all global industries require fuel. (Marwanti & Robiyanto, 2018).

Ramadan Month Effect. Ramadan month effect is an anomaly that occurs during the month of Ramadan (Akbar, Nurmatias & Triwahyuningtyas, 2021). Ramadan is the most important month on the Islamic calendar and muslims are obliged to fast in the month of Ramadan (Munusamy, 2018).

The effect of COVID-19 on Stock Market Returns. In 2020, every country in the world are facing a new pandemic caused by a virus called COVID-19. Due to the rapid spread of the virus and the lack of treatment and vaccines to prevent it, the number of COVID-19 cases is exploding worldwide. this incident had a major effect on the global economy, including the Indonesian economy, including the stock market. This happens because investor behavior changes according to the information received, in other words, investor behavior in the stock market is influenced by investor sentiment. The pandemic caused additional costs related to health control, work productivity problems, hampered economic activities, foreign investment problems, and problems in the tourism sector. Economic problems from various sides caused by the COVID-19 pandemic caused negative sentiment among the public so that it affected the capital market and stock returns. The research conducted by (Mishra & Mishra, 2021) shows that the death and daily confirmed cases of COVID-19 have an adverse effect on the stock market. The results of the study conducted by (Herwany, Febrian, Anwar & Gunardi, 2021) shows that the COVID-19 pandemic is affecting Indonesia Stock Exchange stocks.

The effect of Crude Oil on Stock Market Returns. Commodity markets are alternative investments for investors other than stocks, bonds and mutual funds. Commodity market as alternative investments can affect capital market prices and the returns received by investors. Crude oil is one of the most traded products on the commodity market. Since all industries in the world need crude oil as fuel, crude oil is in very high demand in the global industries, that's why the fluctuations in crude oil prices can impact the capital markets. changes in the price of crude oil will affect the macroeconomic policies. Rising oil prices affect inflation, increasing risk and uncertainty. The results of the study conducted by (Okayre, Muoneke & Onuoha, 2021) show that crude oil prices have a positive relationship with the Nigerian stock market in the short and long term. The research conducted by (Dhaoui, Guesmi, Saidi & Bourouis, 2018) shows that fluctuations in oil prices have a significant negative impact on capital market.

The effect of Ramadan Month Effect on Stock Market Returns. The Ramadan month effect is an anomaly that occurs during the month of Ramadan. Ramadan month effect can also be referred to as a calendar anomaly, which is an abnormal condition. Religion is the main force in one's life. It can affect a person's moods, decisions and preferences. Mood and emotions play an important role in investor behavior as investors become more optimistic and willing to make risky investment decisions. During the month of Ramadan, generally there is an increase in consumption in the Food and Beverages industrial sector, thus allowing for an increase in stock returns in this sector. The Research conducted by (Akbar, Nurmatias & Triwahyuningtyas, 2021) shows that Ramadan month does not affect stock market returns in the food and beverage subsector. The research conducted by (Hijazi & Tabash, 2020) shows that Ramadan month have a significant positive impact on PEX stock market returns.

Based on the explanation that has been described previously, a research model was formed which can be seen in **Figure 2.**

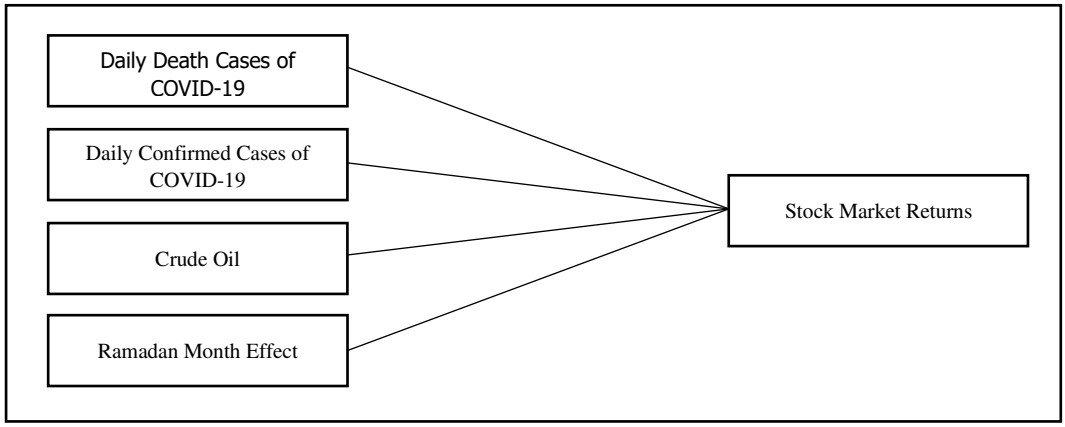


Figure 2. Research Framework

Source: Processed by the author (2021)

From the research framework above, the following hypotheses were formed:

H_1: Daily death cases of COVID-19 have a significant negative impact on stock market returns

H_2: Daily confirmed cases of COVID-19 have a significant negative impact on stock market returns

H_3: Crude oil has a significant negative impact on stock market returns.

H_4: Ramadan month effect has a significant positive impact on stock market returns.

METHODOLOGY

This study uses a descriptive research design and uses quantitative research methods. The data used in this study are numerical and the analysis used in this study are statistics, so this study use quantitative research methods. The independent variables in this study were COVID-19, crude oil and Ramadan month effect. The dependent variable in this study is stock market returns. The population used in this study are manufacturing industry firms in Indonesia and listed in the Indonesia Stock Exchange for the period 2020. The sample used in this study are a sample of stock market returns of manufacturing industry companies for 30 days, Sample of crude oil prices for 30 days, Sample of daily confirmed and death cases of COVID-19 for 30 days, as well as the date of the month of Ramadan.

The sample of manufacturing companies for stock market returns was collected using non-probability sampling method with purposive sampling technique. That is, the company data selected in this study was not done randomly and the company data selected in this study had criteria based on specific considerations that were in line with the research objectives. The criteria for sample companies are as follows: (1) Manufacturing industry firms in Indonesia and listed on the IDX for the period 2020. (2) Data on closing stock prices for manufacturing industry firms in the 2020 period are available to measure variables. (3) The company does not conduct an initial public offering in the 2020 period. (4) the company is not subject to suspension due to penalty and non-penalty reasons during the 2020 period.

Operationalization of variables is the process of defining variables in research. The operationalization that will be used in this study are the dependent and independent variable.

Dependent Variable. Dependent variables are often referred to as output variables, criteria, and results (Sugiyono, 2019). The dependent variable is the dependent variable that is affected by or results from the independent variable. The dependent variable in this study is stock market returns. The measurement scale for the stock market return variable is the ratio scale. The stock market return variable in this study was measured using an instrument adopted from the research of Hijazi & Tabash (2020):

$R_x = P_x - P_{x-1}$

Description:

R_x : Stock Market Return on day x

P_x : The closing price of the stock on day x

P_{x-1} : The closing price of shares on day x – 1

Independent Variable. Independent variables are often referred to as stimulus, predictor and antecedent variables (Sugiyono, 2019). The independent variable is the independent variable that affects or causes changes in the dependent variable. The independent variables in this study were COVID-19, crude oil and Ramadan month effect.

COVID-19. The measurement scale for the COVID-19 variable is a ratio scale. The COVID-19 variable in this study was measured using an instrument adopted from the research of Utomo & Hanggraeni (2021):

COV19 = Number of Death and Confirmed Cases

Description:

COV19 : COVID-19

Number of Death and Confirmed Cases : Total number of daily death and confirmed cases of COVID-19

Crude Oil. The measurement scale for the crude oil variable is a ratio scale. The crude oil variable in this study was measured using an instrument adopted from the research of Dhaoui, Guesmi, Saidi & Bourouis (2018):

ROP = Real National Oil Price

Description:

ROP = Crude Oil

Real National Oil Price = National crude oil price in US dollar per barrel

Ramadan month effect. The measurement scale for the Ramadan month effect variable is a interval scale. The Ramadan month effect variable in this study was measured using an instrument adopted from the research of Hijazi & Tabash (2020):

RME = Ramadan Month

Description:

RME = Ramadan Month Effect

Ramadan Month = Date on the month of Ramadan

The following is a table that contains a summary of the operationalization of the variables in this study.

Table 1. Operationalization of the variables

Variables	Proxy	Scale	Source
Stock Market Returns	$R_x = P_x - P_{x-1}$	Ratio	Hijazi & Tabash (2020)
COVID-19	COVID-19 = *Number of Daily Death and Confirmed Cases*	Ratio	Utomo & Hanggraeni (2021)
Crude Oil	ROP = *Real National Oil Price*	Ratio	Okere, Muoneke & Onuoha (2021)
Ramadan Month Effect	*RME = Ramadan Month*	Interval	Hijazi & Tabash (2020)

Source: Processed by the author (2021)

The data analysis methods in this study are the classical assumption test consisting of heteroscedasticity test, normality test and multicollinearity test, descriptive statistics, multiple linear regression analysis, coefficient of determination test, F test and T test. The data used in this study will be processed using Microsoft Excel and SPSS Ver. 26.0. The period used in this study is one period that is 2020, that's why this study does not use the autocorrelation classical assumption test. Regression analysis was carried out to measure the strength of the relationship between two or more variables and also to indicate the direction of the relationship between the dependent and independent variable (Ghozali, 2018). The following is a multiple linear regression model that will be used in this study:

$Y = a + \beta_1 DX1 + \beta_2 CX1 + \beta_3 X2 + \beta_4 X3 + Ɛ$

Description:

Y = Stock Market Returns
a = Constants
β_1-β_4 = Variable regression Coefficient
DX1 = Daily death cases of COVID-19
RX1 = Daily confirmed cases of COVID-19
X2 = Crude oil
X3 = Ramadan month effect
Ɛ = *Error*

THE RESULTS OF STATISTICAL TESTS

This study was used to investigate the impact of the COVID-19 variable, crude oil and Ramadan month effect on the stock market return variables. The population used in this research are manufacturing industry firms in Indonesia and listed on the Indonesia Stock Exchange in the period of 2020. The total population of this study is 171 companies. The sample of manufacturing companies for stock market returns were collected using non-probability sampling method with purposive sampling technique. Based on the existing standards, the sample of manufacturing industry firms listed on the Indonesia Stock Exchange in the 2020 period used in this study included 153 companies. The following is a table outline the process of determining the sample for this study:

Table 2. Sample Criteria

No	Sample Description	Number of Company
1.	Manufacturing industry firmss in Indonesia and listed on the IDX for the period 2020	171
2.	The company conduct an initial public offering in the 2020 period	(2)
3.	the company is in subject to suspension due to penalty and non-penalty reasons during the 2020 period	(16)
Total		**153**

Source: www.idx.co.id, Processed by the author (2021)

This research uses quantitative data selection method by collecting secondary data or data from entity-issued publications. The data used in this research are as follows: (1) List of names of manufacturing industrial companies in Indonesia listed on the Indonesia Stock Exchange in 2020. This data was collected from the website www.ajaib.co.id. (2) Closing price data or closing prices of manufacturing industry firms listed on the Indonesia Stock Exchange in 2020. This data was collected from the website www.idx.co.id. (3) Daily death cases of COVID-19 and daily confirmed cases

of COVID-19. This data was collected from the website www.covid19.go.id. (4) Data on crude oil prices in Dollars per Barrel. This data was collected from the website www.migas.esdm.go.id. (5) Data for the month of Ramadan. This data was collected from the website www.al-habib.info.

Descriptive Statistics. Descriptive statistics are used to analyze the data by describing the collected data (Sugiyono, 2019). The descriptive statistical test used in this study uses information related to the minimum and maximum values, the mean value and standard deviation values. The mean value indicates the average value of the processed data. The minimum and maximum values indicate the lowest and highest values of the processed data. The standard deviation value indicates the deviation or spread of the data from its mean value. The following table contains the results of the descriptive statistical test for this study.

Table 3. Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
X1_D	30	8.00	59.00	23.4667	12.98204
X1_C	30	214.00	973.00	465.6667	181.98377
X2	30	20.66	25.67	24.5010	2.15522
X3	30	24-APR-2020	23-MAY-2020	08-MAY-2020	8 19:16:54.488
Y	30	-4888.00	4787.00	-30.7667	1976.15296
Valid N (listwise)	30				

Source: Processed by the author (2021)

The X1 variable in this study, namely COVID-19 which is proxied by the daily death cases of COVID-19 in Table 3 shows the mean value or average value of 23.4667. this value can be interpreted that during the study period, the average daily death cases due to COVID-19 was 24 people with a standard deviation value of 12,98204. The minimum value of 8.00 in Table 3 means that during the study period, the lowest number of daily death cases due to COVID-19 was 8 people. The maximum value of 59.00 in Table 3 can be interpreted that during the study period, the highest number of daily death cases due to COVID-19 was 59 people.

Variable X1 in this study, namely COVID-19 which is proxied by daily confirmed cases of COVID-19 in Table 3 shows the mean value or average value of 465.6667. This value means that during the study period, the average daily confirmed cases due to COVID-19 were 466 people with a standard deviation of 181,98377. The minimum value of 214.00 in Table 3 can be interpreted that during the study period, the lowest number of daily confirmed cases due to COVID-19 was 214 people. The maximum value of 973.00 in Table 3 can be interpreted that during the study period, the highest number of daily confirmed cases due to COVID-19 was 973 people.

The X2 variable in this study, namely crude oil in table 3 shows the mean value or average value of 24.5010. This value means that during the study period, the average price of crude oil was 24.50 dollars per barrel with a standard deviation of 2.15522. The minimum value of 20.66 in table 3 can be interpreted that during the study period, the lowest crude oil price was 20.66 dollars per barrel. The maximum value of 25.67 in table 3 can be interpreted that during the study period, the highest price of crude oil was 25.67 dollars per barrel.

The X3 variable in this study, namely Ramadan month effect in table 3 shows the mean or average value on May 8, 2020 with a standard deviation of 8 19:16:54:488. The minimum value, which is April 24, 2020 in table 3 means that during the study period, the first date of Ramadan month is April 24, 2020. The maximum value, which is May 23, 2020, in table 3 means that during the study period, the last date of Ramadan month is May 23, 2020.

Variable Y in this study, namely stock market returns in table 3 shows the mean value or average value of -30.7667. This value means that during the study period, the average stock market return of 153 manufacturing industrial companies is –Rp30.7667/share with a standard deviation of 1976,15296. The minimum value of -4888.00 in table 3 can be interpreted that during the study period, the lowest value of stock market returns from 153 manufacturing industrial companies was –Rp4,888/share. The maximum value of 4787.00 in table 3 can be interpreted that during the study period, the highest value of stock market returns from 153 manufacturing industrial companies was Rp.4.787/share.

Normality Test. The normality test is used to test whether the residual variable of the regression model have a normal distribution (Ghozali, 2018). The normality test can be performed using 3 methods, namely looking at the histogram, using the P-P Plot test and using the nonparametric Kolmogorov-Smirnov test. This study used a nonparametric Kolmogorov-Smirnov test with a 5% of significance level to test for normality. The basis for determining the normality testing is, if the Asymp Sig. value less than 0.05, it can be concluded that the data are not normally distributed. If the Asymp Sig. value greater than 0.05, it can be concluded that the data are normally distributed. The results of the normality classical assumption test in this study are shown in the following table.

Table 4. Normality Classical Assumption Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		30
	Mean	.0000000

Normal Parameters[a,b]	Std. Deviation	1568.30408354
Most Extreme Differences	Absolute	.089
	Positive	.067
	Negative	-.089
Test Statistic		.089
Asymp. Sig. (2-tailed)		.200[c,d]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Source: Processed by the author (2021)

The results in table 4 show the Asymp Sig. value of 0.200. based on the basis of decision making, it appears that the Asymp. Sig. value in table 4 is greater than the predetermined significance level of 5%. Asymp Sig. value greater than 0.05 indicate that the residual variables are normally distributed in the regression model.

Heteroscedasticity Test. Heteroscedasticity test is used to test if there is an inequality in the variance of the residual variables from one observation to another in the regression model (Ghozali, 2018). If the variance of the residual variable is fixed for each observation, it is said to be homoscedasticity, and if its different, it is said to be heteroscedasticity. A good regression model is a homoscedasticity regression model. Heteroscedasticity tests can be performed using several methods, including the Spearman correlation coefficient test, looking at the scatterplots pattern, the Park test, and the Glejser test. This study uses the glejser test with a significance level of 5% to perform heteroscedasticity testing. The basis for making decisions for heteroscedasticity testing is, if the value of Sig. less than 0.05, it can be concluded that there is a sign of heteroscedasticity. If the value of Sig. greater than 0.05, it can be concluded that there is no sign of heteroscedasticity. The results of heteroscedasticity classical assumption test in this research can be seen in the table below.

Table 5. Heteroscedasticity Classical Assumption Test

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8823883.384	6818593.064		1.294	.207
	X1_D	5.679	14.857	.081	.382	.706
	X1_C	.717	1.450	.143	.495	.625
	X2	131.589	127.815	.310	1.030	.313
	X3	-.001	.000	-.532	-1.294	.208
a. Dependent Variable: ABRESID						

Source: Processed by the author (2021)

The results in Table 5 above show the value of Sig. of 0.706 for the X1 variable, namely COVID-19 which is proxied by the daily death cases of COVID-19. Based on the basis of decision making, it appears that the value of Sig. in table 5 is greater than the predetermined significance level of 5%. Value of Sig. greater than 0.05 indicates that there are no signs of heteroscedasticity in the X1 variable, namely COVID-19 which is proxied by Daily death cases of COVID-19 during the study period.

The results in table 5 above show the value of Sig. of 0.625 for the X1 variable, namely COVID-19 which is proxied by the daily confirmed cases of COVID-19. Based on the basis of decision making, it appears that the value of Sig. in table 5 is greater than the predetermined significance level of 5%. Value of Sig. greater than 0.05 indicates that there are no signs of heteroscedasticity in the X1 variable, namely COVID-19 which is proxied by daily confirmed cases of COVID-19 during the study period.

The results in table 5 above show the value of Sig. of 0.313 for the X2 variable, namely crude oil. Based on the basis of decision making, it appears that the value of Sig. in table 5 is greater than the predetermined significance level of 5%. Value of Sig. greater than 0.05 indicates that there are no signs of heteroscedasticity in the X2 variable, namely crude oil during the study period.

The results in table 5 above show the value of Sig. of 0.208 for the X2 variable, namely Ramadan month effect. Based on the basis of decision making, it appears that the value of Sig. in table 5 is greater than the predetermined significance level of 5%. Value of Sig. greater than 0.05 indicates that there are no signs of heteroscedasticity in the X3 variable, namely Ramadan month effect during the study period.

Multicollinearity Test. Multicollinearity test is used to test whether there is a high or even complete correlation between the independent variables in the regression model. A good regression model is one in which there is no correlation between the independent variables. Multicollinearity tests can be performed by examining tolerance value and VIF (Variance Inflation Factor) value. The basis for determining the multicollinearity test is if the VIF value is less

than 10 and the tolerance value is greater than 0.1, it can be concluded that there is no correlation between the independent variables of the regression model. If the VIF value is greater than 10 and the tolerance value is less than 0.1, it can be concluded that there is a correlation between the independent variables in the regression model. The test results of the multicollinearity classical assumption test of this study are shown in the following table.

Table 6. Multicollinearity Classical Assumption Test

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	X1_D	.834	1.198
	X1_C	.446	2.242
	X2	.409	2.444
	X3	.220	4.548
a. Dependent Variable: Y			

Source: Processed by the author (2021)

The results in table 6 above show the tolerances and VIF values for the X1 variable, that is COVID-19 which is proxied by the daily COVID-19 death cases of 0.834 and 1.198, respectively. Based on the basis of decision making, it appears that the tolerance value is greater than 0.1 and the VIF value is less than 10. The tolerance value greater than 0.1 and the VIF value less than 10 indicates that the X1 variable is COVID-19 which is proxied by the daily death cases of COVID-19 death cases is uncorrelated with the other independent variables, namely COVID-19 proxied by the daily confirmed cases of COVID-19, crude oil and Ramadan month effect.

The results in table 6 above show the tolerances and the VIF values for the X1 variable, that is COVID-19 which is proxied by daily confirmed cases of COVID-19 of 0.446 and 2,242. Based on the basis of decision making, it appears that the tolerance value is greater than 0.1 and the VIF value is less than 10. The tolerance value greater than 0.1 and the VIF value less than 10 indicates that the X1 variable is COVID-19 which is proxied by daily confirmed cases of COVID-19 does is uncorrelated with the other independent variables, namely COVID-19 proxied by the daily death cases of COVID-19, crude oil and Ramadan month effect.

The results in table 6 above show the tolerances and VIF values for the X2 variable, that is crude oil of 0.409 and 2.444. Based on the basis of decision making, it appears that the tolerance value is greater than 0.1 and the VIF value is less than 10. The tolerance value greater than 0.1 and the VIF value less than 10 indicates that the X2 variable, namely crude oil, is uncorrelated with the other independent variables, namely COVID-19 which is proxied by daily death cases of COVID-19, COVID-19 proxied by daily confirmed cases of COVID-19 and Ramadan month effect.

The results in table 6 above show the tolerances and VIF values for the X3 variable, that is Ramadan month effect of 0.220 and 4.548. Based on the basis of decision making, it appears that the tolerance value is greater than 0.1 and the VIF value is less than 10. The tolerance value greater than 0.1 and the VIF value less than 10 indicates that the X3 variable, namely Ramadan month effect, is uncorrelated with the other independent variables, namely COVID-19 proxied by daily death cases of COVID-19, COVID-19 proxied by daily confirmed cases of COVID-19 and crude oil.

Multiple Linear Regression Analysis. Multiple linear regression analysis is used to measure the strength of a relationship between two or more variables, and also indicates the direction of the relationship between the dependent and independent variable. The result of the regression analysis is in the form of the coefficients of each independent variable (Ghozali, 2018). The dependent variable in this study is stock market returns, while the independent variables in this study are COVID-19, crude oil and Ramadan month effect. The multiple linear regression model used in this study is as follows:

$Y = a + \beta_1 DX1 + \beta_2 CX1 + \beta_3 X2 + \beta_4 X3 + Ɛ$

Description:

Y = Stock Market Returns
a = Constants
β_1-β_4 = Variable regression Coefficient
DX1 = Daily death cases of COVID-19
RX1 = Daily confirmed cases of COVID-19
X2 = Crude oil
X3 = Ramadan month effect
Ɛ = *Error*

The results of the multiple linear regression analysis of this study are shown in the following table.

Table 7. Multiple Linear Regression Analysis

Coefficients[a]			
Model		Unstandardized Coefficients	
		B	Std. Error
1	(Constant)	-37960217.194	12138710.939
	X1_D	-59.414	26.449
	X1_C	-5.595	2.581
	X2	-736.220	227.542

	X3	.003	.001
a. Dependent Variable: return			

Source: Processed by the author (2021)

The results in table 7 form the basis for the formula of the regression model in this study. The regression model formed is as follows:

Y = -37960217.194 – 59.414DX1 – 5.5595CX1 – 736.220X2 + 0.003X3 + Ɛ

Based on the regression formula above which is formed from the results in table 7, it can be concluded that the constant value is -37960217.194. The meaning of this value is that the value of the stock market returns variable is -37960217,194 if the value of other variables, namely daily death cases of COVID-19, daily confirmed cases of COVID-19, crude oil and Ramadan month effect is 0 or constant.

Based on the regression formula above which is formed from the results in table 7, it can be concluded that the value of the regression coefficient for the X1 variable which is proxied by the daily death cases of COVID-19 is -59,414. The meaning of this value is that for every one increase in the X1 variable which is proxied by the daily death cases of COVID-19, the value of the stock market returns variable will change by -59,414 where it is assumed that the other variables which is the daily confirmed cases of COVID-19, crude oil and Ramadan month effect is constant.

Based on the regression formula above which is formed from the results in table 7, it can be concluded that the value of the regression coefficient for the X1 variable which is proxied by the daily confirmed cases of COVID-19 is -5.5595. The meaning of this value is that for every one increase in the X1 variable which is proxied by the daily confirmed cases of COVID-19, the value of the stock market returns variable will change by -5.5595 where it is assumed that the other variables which is the daily death cases of COVID-19, crude oil and Ramadan month effect is constant.

Based on the regression formula above which is formed from the results in table 7, it can be concluded that the value of the regression coefficient for the X2 variable which is crude oil is -736.220. The meaning of this value is that for every one increase in the X2 variable which is crude oil, the value of the stock market returns variable will change by -736.220 where it is assumed that the other variables which is the daily death cases of COVID-19, daily confirmed cases of COVID-19 and Ramadan month effect is constant.

Based on the regression formula above which is formed from the results in table 7, it can be concluded that the value of the regression coefficient for the X3 variable which is Ramadan month effect is 0.003. The meaning of this value is that for every one increase in the X3 variable which is Ramadan month effect, the value of the stock market returns variable will change by 0.003 where it is assumed that the other variables which is the daily death cases of COVID-19, daily confirmed cases of COVID-19 and Crude oil is constant.

Coefficient of Determination Test (R^2). The coefficient of determination test measures the ability of the model to explain the variation of the dependent variable. The coefficient of determination value ranges from 0 to 1. A small or close to 0 Adjusted R square value means that the independent variables has a very limited ability to explain the variation of the dependent variable. A large or close to 1 Adjusted R Square value means that the independent variables provide almost all the information needed to predict the variation of the dependent variable. The results of the coefficient of determination in this study can be seen in the following table.

Table 8. Coefficient of Determination Test (R^2)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.608[a]	.370	.269	1689.11519
a. Predictors: (Constant), X3, X1_D, X1_C, X2				

Source: Processed by the author (2021)

The results in table 8 above show the Adjusted R square value of 0.269 or 26.9%. The meaning of this value is that the dependent variable in this study, namely stock market returns can be explained by the independent variables in this study, namely COVID-19, crude oil and Ramadan month effect by 26.9% while the remaining value of 73.1% is explained by other variables that is not used or included in this study.

F Test. The F-test is often referred to as the overall significance test of the observed or estimated regression line. The F-test is used to test whether the independent variable affects the dependent variable at the same time. The significance level used in this study is 5%. The basis for determining the F test is, whether the value of Sig. less than 0.05, it is concluded that the independent variable in this study have an influence on the dependent variable at the same time. If the value of Sig. greater than 0.05, it can be concluded that the independent variables in this study does not affect the dependent variable at the same time. The results of the F test of this study can be seen in the following table

Table 9. F Test

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	41922482.112	4	10480620.528	3.673	.017[b]
	Residual	71327753.255	25	2853110.130		
	Total	113250235.367	29			
a. Dependent Variable: Y						
b. Predictors: (Constant), X3, X1_D, X1_C, X2						

Source: Processed by the author (2021)

The results in table 9 above show the F value of 3.673 and the value of Sig. of 0.017. Based on the basis of decision making, it appears that the value of Sig. in table 9 is smaller than the previously determined significance level of 5%. Value of Sig. less than 0.05 indicates that the independent variables in this study, namely COVID-19, crude oil and Ramadan month effect have an influence on the dependent variable in this study, namely stock market returns at the same time.

T Test. The T test shows how much the independent variable has an individually effect in explaining the variation of the dependent variable. The significance level used in this study is 5%. The basis for determining the T test is, if the value of Sig. less than 0.05, it can be concluded that the independent variable can affect the dependent variable individually. If the value of Sig. greater than 0.05, it can be concluded that the independent variable cannot affect the dependent variable individually. The results of the T test of this study are shown in the following table.

Table 10. T Test

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-37960217.194	12138710.939		-3.127	.004
	X1_D	-59.414	26.449	-.390	-2.246	.034
	X1_C	-5.595	2.581	-.515	-2.168	.040
	X2	-736.220	227.542	-.803	-3.236	.003
	X3	.003	.001	1.059	3.128	.004
a. Dependent Variable: Y						

Source: Processed by the author (2021)

The results in table 10 above show the values of t and Sig. for the X1 variable, namely COVID-19 which is proxied by the daily death cases of COVID-19 is -2,246 and 0.034, respectively. Based on the basis of decision making, it appears that the value of Sig. in table 10 is smaller than the previously determined level of significance. Value of Sig. less than 0.05 indicates that the X1 variable, namely COVID-19 which is proxied by the daily death cases of COVID-19, has a significant negative impact on stock market returns.

The results in table 10 above show the values of t and Sig. for the X1 variable, namely COVID-19 which is proxied with daily confirmed cases of COVID-19 is -2.168 and 0.040. Based on the basis of decision making, it appears that the value of Sig. in table 10 is smaller than the previously determined level of significance. Value of Sig. less than 0.05 indicates that the X1 variable, namely COVID-19, which is proxied by daily confirmed cases of COVID-19, has a significant negative impact on stock market returns.

The results in table 10 above show the values of t and Sig. for the X2 variable, namely crude oil is -3.236 and 0.003. Based on the basis of decision making, it appears that the value of Sig. in table 10 is smaller than the previously determined level of significance. Value of Sig. less than 0.05 indicates that the X2 variable, namely crude oil, has a significant negative impact on stock market returns.

The results in table 10 above show the values of t and Sig. for the X3 variable, namely Ramadan month effect is 3.128 and 0.004. Based on the basis of decision making, it appears that the value of Sig. in table 10 is smaller than the previously determined level of significance. Value of Sig. less than 0.05 indicates that the X3 variable, namely Ramadan month effect, has a significant positive impact on stock market returns.

DISCUSSION

This purpose of this study is to investigate the effect of the COVID-19 variable, crude oil and Ramadan month effect on stock market returns. The samples used in this research is a sample of stock market returns for manufacturing industry firms for 30 days, a sample of crude oil prices for 30 days, a sample of daily death cases of COVID-19 and daily confirmed cases of COVID-19 for 30 days, and the date of the month of Ramadan. The population of the sample company data used in this study are manufacturing industry firms in Indonesia and listed on the IDX in the period of 2020. The results of previously performed hypothesis tests are summarized in the following table.

Table 11. Summary of Hypothesis Testing

Hypothesis	T	*Sig.*	Results
H_1: Daily death cases of COVID-19 have a significant negative impact on stock market returns.	-2.246	0.034	H_1 Accepted
H_2: Daily confirmed cases of COVID-19 have a significant negative impact on stock market returns.	-2.168	0.040	H_2 Accepted
H_3: Crude oil has a significant negative impact on stock market returns.	-3.236	0.003	H_3 Accepted
H_4: Ramadan month effect has a significant positive impact on stock market returns.	3.128	0.004	H_4 Accepted

Source: Processed by the author (2021)

Effect of COVID-19 on Stock Market Returns. Based on the results of the T-test in table 10, it appears that the X1 variable, namely COVID-19 represented by the daily death cases of COVID-19 and the daily confirmed cases of COVID-19, has a significant negative impact on stock market returns. This is in line with the first and second hypotheses, namely daily death cases of COVID-19 have a significant negative impact on stock market returns (H1) and daily confirmed cases of COVID–19 have significant negative impact on stock market returns (H2). The conclusion from the T-test results in table 10 is that the first and second hypotheses are acceptable. The results of this study are in line with the results of research conducted by (Herwany, Febrian, Anwar & Gunardi, 2021) where their research shows that the COVID-19 pandemic is affecting Indonesia Stock Exchange stocks. The results of this study are in contrast to research (Mishra & Mishra, 2021) where their research shows that the death and daily confirmed cases of COVID-19 have an adverse effect on the stock market.

Effect of Crude Oil on Stock Market Returns. Based on the results of the T test in table 10, it appears that the X2 variable, namely crude oil, has a significant negative impact on stock market returns. This is in line with the third hypothesis, namely crude oil has a significant negative impacton stock market returns (H3). The conclusion from the T test results in table 10 is that the third hypothesis is acceptable. The results of this study are in line with the results of research (Dhaoui, Guesmi, Saidi & Bourouis, 2018) where their research shows that fluctuations in oil prices have a significant negative impact on capital market. The results of this study contradict the results of research (Okere, Muoneke & Onuoha, 2021) where their research shows that crude oil prices have a positive relationship with the Nigerian stock market in the short and long term.

Effect of Ramadan Month Effect on Stock Market Returns. Based on the results of the T test in table 10, it appears that the X3 variable, namely Ramadan month effect, has a significant positive impact on stock market returns. This is in line with the fourth hypothesis, namely the Ramadan month effect has a significant positive impact on stock market returns (H4). The conclusion from the T test results in table 10 is that the fourth hypothesis is acceptable. The results of this study are in line with the results of research (Hijazi & Tabash, 2020) where their research shows that Ramadan month have a significant positive impact on PEX stock market returns. The results of this study contradict the results of research (Akbar, Nurmatias & Triwahyuningtyas, 2021) where their research shows that Ramadan month does not affect stock market returns in the food and beverage subsector.

CONCLUSION

This purpose of this study is to investigate the effect of the independent variable COVID-19, crude oil and Ramadan month effect on the dependent variable of stock market returns. The samples used in this study are a sample of stock market returns for manufacturing industry firms for 30 days, a sample of crude oil prices for 30 days, a sample of daily death cases of COVID-19 and daily confirmed cases of COVID-19 for 30 days, and the date of the month of Ramadan. The population used for company data samples in this study are manufacturing industry firms in Indonesia and listed on the Indonesia Stock Exchange for the period of 2020. The total population of manufacturing industry firms is 171 companies. Based on predetermined standards, 153 companies were selected and used in this study. This study uses a quantitative data selection method by collecting secondary data or data from entity-issued publications. The data used in this study are as follows: (1) List of names of manufacturing industry firms in Indonesia listed on the Indonesia Stock Exchange for the period of 2020. This data was collected from the website www.ajaib.co.id. (2) Closing price data or closing prices of manufacturing industry firms listed on the Indonesia Stock Exchange in 2020. This data was collected from the website www.idx.co.id. (3) Daily death cases of COVID-19 and daily confirmed cases of COVID-19. This data was collected from the website www.covid19.go.id. (4) Data on crude oil prices in Dollars per Barrel. This data was collected from the website www.migas.esdm.go.id. (5) Data for the month of Ramadan. This data was collected from the website www.al-habib.info. Data processing was carried out using Microsoft Excel and SPSS ver. 26.0.

Based on the results of the Coefficient of Determination test in table 8, it appears that the Adjusted R square value is 0.269 (26.9%). The meaning of this value is that the dependent variable in this study, namely stock market returns can be explained by the independent variables in this study, namely COVID-19, crude oil and Ramadan month effect by 26.9% while the remaining 73.1% is explained by other variables that is not used or included in this study. This is slightly contrary to the results of the F test and T test where all tests show that all independent variables in this study, namely COVID-19 proxied by daily death cases of COVID-19 and daily confirmed cases of COVID-19, crude oil and Ramadan month effect have a good influence individually. or jointly on the dependent variable in this study, namely stock market returns.

The explanation of the low Adjusted R Square test results can be related to the theoretical study used in this study. Based on the Arbitrage Pricing Theory, asset returns can be influenced by various macroeconomic factors such as inflation, interest rates, crude oil, exchange rates, foreign investment and so on. The macroeconomic variable used in this study is only one macroeconomic factor, so that this variable cannot fully explain the dependent variable used in this study. Based on Behavioral Finance Theory, investment decisions of investors in the stock market are influenced by psychological factors. The COVID-19 pandemic causes various socio-economic problems throughout the world as governments from each country issue various policies to reduce or suppress the development of COVID-19 cases. This resulted in the country's economy and the performance of industries and companies being hampered, therefore the development of the COVID-19 case could have an impact on investor sentiment so that it would later affect stock market returns. News about the development of COVID-19 cases will certainly not continue to have a negative impact on society because in the end people will get used to the news of additional cases and the government will continue to update its policies so that the country's economy can continue to run even in pandemic conditions, so the COVID-19 variable cannot be fully explained the dependent variable used in this study.

Based on the results of the F test in table 9, it appears that the F value is 3.673 and the Sig. of 0.017. Based on the basis of decision making, it appears that the value of Sig. in table 9 is smaller than the previously determined significance level of 5%. Value of Sig. less than 0.05 indicates that the independent variables in this study, namely COVID-19, crude oil and Ramadan month effect have an influence on the dependent variable in this study, namely stock market returns simultaneously.

Based on the results of the T test in table 10, it appears that the X1 variable, namely COVID-19 which is proxied by the daily death cases of COVID-19 and the daily confirmed cases of COVID-19, has a significant negative impact on stock market returns. The results of this study are in line with the results of research conducted by (Herwany, Febrian, Anwar & Gunardi, 2021) where their research shows that the COVID-19 pandemic is affecting Indonesia Stock Exchange stocks. The results of this study are in contrast to research (Mishra & Mishra, 2021) where their research shows that the death and daily confirmed cases of COVID-19 have an adverse effect on the stock market.

Based on the results of the T test in table 10, it appears that the X2 variable, namely crude oil, has a significant negative impact on stock market returns. The results of this study are in line with the results of research (Dhaoui, Guesmi, Saidi & Bourouis, 2018) where their research shows that fluctuations in oil prices have a significant negative impact on capital market. The results of this study contradict the results of research (Okere, Muoneke & Onuoha, 2021) where their research shows that crude oil prices have a positive relationship with the Nigerian stock market in the short and long term.

Based on the results of the T test in table 10, it appears that the X3 variable, namely Ramadan month effect, has a significant positive impact on stock market returns. The results of this study are in line with the results of research (Hijazi & Tabash, 2020) where their research shows that Ramadan month have a significant positive impact on PEX stock market returns. The results of this study contradict the results of research (Akbar, Nurmatias & Triwahyuningtyas, 2021) where their research shows that Ramadan month does not affect stock market returns in the food and beverage subsector.

This study has several limitations that can be developed in further research. The limitations of this study are summarized as follows: (1) The independent variables used in this study were only 3 independent variables, namely

COVID-19, crude oil and Ramadan month effect. (2) The research period is limited to one year, namely in 2020. (3) The population used for company data is limited to the manufacturing industry sector. (4) The results of the coefficient of determination test show a low value, which is 26.9%. This means that the independent variables used in this study are very limited in explaining the dependent variable.

Based on the limitations mentioned above, this study has several suggestions that can be carried out in further research. Suggestions for further research are summarized as follows: (1) Add or change independent variables that can affect stock market returns. (2) Extending the research period so that it is not limited to one year. (3) Expanding the population to be used in the research, not limited to the manufacturing industry sector. (4) using other independent variables that can explain the dependent variable.

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