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On The Consequence Of Covid-19 Pandemic On Stock Price: Indonesia Case

Putri Seila Perangin-angin, Minda Muliana Sebayang, & Linda Lores Purba

Faculty of Economics and Business, Universitas Medan Area, Indonesia

Abstract

This study aims to analyze the effect of PBV, inflation, exchange rates, interest rates and transaction volume on stock prices during the Covid-19 pandemic and identify differences in stock price and transaction volume before and after the Covid-19 pandemic (Case Study on Companies Listed in IDX for the 2019-2020 period). The independent variables used in this research are PBV, inflation, exchange rate, interest rate and transaction volume. The dependent variable used is the stock price. The population used in this study are companies listed on the Indonesia Stock Exchange in 2019-2020, totaling 716 companies. This study takes samples using purposive sampling method and there are 603 companies that are considered worthy of being the research criteria. The data analysis technique used is multiple linear regression and Wilcoxon Signed Rank Test. The results showed that partially the PBV variable had a positive and significant effect on stock prices and the exchange rate variable had a significant negative effect on stock prices during the Covid-19 pandemic. Meanwhile, inflation variables, interest rates and transaction volume have no effect on stock prices during the Covid-19 pandemic. There are differences in the price and volume of stock transactions before and after the Covid-19 pandemic.

Keywords: PBV, inflation, exchange rate, interest rate, transaction volume, stock price.

INTRODUCTION

The capital market is one of the important indicators in a country's economy because it can spur the growth rate of economic sectors to become more developed and will increase a country's income. The capital market in Indonesia has experienced significant development from the starting out. In line with these rapid developments, the need for relevant information in the making of proper investment decisions in the capital market also increased, the mistaken in decision making can cause investors into riot. (Silviani, I., Nisa, J., dkk 2022).

The worldwide circumstances crisis or disaster can affect stock market conditions, such as the Covid-19 pandemic which has spread throughout the world. WHO, on March 11th declared Covid-19 as a global pandemic (WHO, 2020). In this regard, WHO provides recommendations for implementing physical distancing, including in countries where there are no confirmed cases (Cucinotta & Vanelli, 2020). These prolonged restrictions have caused severe disruption in global supply chains. In relation to the recommendations from WHO, Indonesia implemented a lockdown policy, which closing access to entry and exit of people to the territory of the country affected by the pandemic. The Indonesian government also imposing a Large-Scale Social Restrictions (PSBB) where one of the contents of the regulation obliges people to limit activities in places public, schools, places of work and religion activities. (Government Regulation Number 21 of 2020).

The current COVID-19 has created imaginary in the mind of investors. One of the empirical facts of the impact of the surge in positive cases of Covid-19 that affected the capital market in Indonesia, the Indonesia Stock Exchange (IDX) was imposing a temporary trading halt (*market halt*). This is based on the decree of the Directors of Indonesia Stock Exchange Number: Kep-00024/BEI/03-2020 on 10 March 2020.

Table 1
***Market Halt* Listing**

No	Date	Implementation *of Market Halt*	Opening *Market Halt*	JCI position
1	March 12, 2020	15:33:58	16:05:58	JCI: 4,895.74; 5% decrease
2	March 13, 2020	09:15:33	09:45:33	JCI: 4,650.58; 5% decrease
3	March 17, 2020	15:02:44	15:32:44	JCI: 4,456.09; 5% decrease
4	March 19, 2020	09:37:18	10:07:18	JCI: 4,113.64; 5% decrease
5	23 March 2020	14;52:09	15:22:09	JCI: 3,985.07; 5% decrease
6	March 30, 2020	10:20:48	10:50:48	JCI: 4,318.29; 5% decrease
7	September 10, 2020	10:36:18	11:06:18	JCI: 4,891.87; 5% decrease

According to IDX records, there were seven *market halts* (a 30-minute stoppage of stock trading because the JCI experienced a decline). Based on the rules currently in force, a *market halt* is enforced if the JCI experiences a correction of up to 5% in one trading day (IDX, 2020). The Covid-19 pandemic also caused a change in trading time on the IDX which gave a negative signal to investors, where investors were more interested in selling their share ownership because they faced high uncertainty over the impact caused by Covid-19, both physically and financially

(Fadillah et al. ., 2021). Changes in trading time on the IDX are getting shorter, where trading time on the Regular Market, namely; Monday to Friday is carried out with the provisions; Session I from 09.00.00 to 11.30.00, Session II from 13.30.00 to 14.49.59, meaning that trading time on the stock market is not normal compared to before Covid-19 (IDX, 2020).

The impact of the Covid-19 pandemic on the capital market can be seen from the sectoral developments in stock prices listed on the IDX which are classified into eleven sectors. Monthly data on the Composite Stock Price Index (IHSG) before and after the Covid-19 pandemic, namely; Monthly data for the JCI stock price index for 2019, 2020 and 2021 up to the end of April can be seen in Table 2.

Table 2
Composite Stock Price Index Before and After the Covid 19 Pandemic

Index Code	Year (Rp)			Year (%)		
	2019	2020	2021	2019-2020	2019-2021	2020-2021
Composite	6455.4	4,716.4	5995.6	(36.9)	(7,7)	27,1
Agriculture	1.441,1	958,0	1.577,2	(50,4)	8,6	64,6
Mining	1.779,4	1.208,9	1.939,8	(47,2)	8,3	60,5
Basic industry & chemical	817,1	761,7	938,4	(7,3)	12,9	23,2
Miscellaneous industry	1.321,8	733,5	1.036,7	(80,2)	(27,5)	41,3
Consumer good industry	2.513,6	1.821,4	1.621,8	(38,0)	(55,0)	(11,0)
Property	486,6	293,1	351,5	(66,0)	(38,4)	20,0
Infrastructur & transportation	1.171,1	915,7	1.036,5	(27,9)	(13,0)	13,2
Finance	1.304,8	947,8	1.361,2	(37,7)	4,1	43,6
Trade	827,4	606,9	872,2	(36,3)	5,1	43,7
Manufacturing	1.565,5	1.176,1	1.250,9	(33,1)	(25,2)	6,4

Based on the table above, can be seen that the sectoral stock prices for 2019-2020 before and after the Covid-19 pandemic were declining, where the highest was found in the miscellaneous industry of 80.2% and the lowest in basic industry & chemical, about 7.3%. When compared to sectoral share prices before and after the Covid-19 pandemic for two years, namely 2019-2021, it is known that most sectoral share prices have continued to decline, the highest decline was in consumption sector shares, which amounted to 55.0% and the lowest in the composite, that is equal to 7.7%.

The decline in stock prices indicates that information from the Covid-19 pandemic event can be absorbed by the market. This capital market turmoil will have an impact on the domestic economy which affects stock trading in Indonesia (Khoiriah et al., 2020). Changes in stock prices that fluctuate in the capital market are influenced by internal and external factors. Internal factors are factors that are within the company and are directly related to the performance of the company itself such as; price changes, withdrawal of new products, funding, change of managers, mergers, factory expansion, labor strikes and the announcement of the company's financial statements while external factors are factors that are outside the company and related directly or indirectly to the company's performance, such as; economic conditions, domestic political turmoil, changes in interest rates, inflation, foreign exchange rates and various economic regulations and deregulations issued by the government (Tandelilin, 2010).

Based on the description above, researchers will conduct research with the title: Effects of PBV, Inflation, Exchange Rates, Interest Rates, and Transaction Volume on Stock Prices during the Covid-19 pandemic (Case studies on Companies Listed on the IDX for the 2019-2020 period). The objectives of this research include : (1) analyze the effect of PBV, inflation, exchange rates, interest rates and transaction volume partially and simultaneously on stock prices during the Covid -19 pandemic for companies listed on the IDX in 2020 . (2) Identify differences in share prices and volume before and during the Covid-19 pandemic in companies listed on the IDX for the 2019-2020 period. (Pratamaa, I., Che-Adamb, N., dkk 2020).

RESEARCH METHODS

This type of research is an empirical study with a quantitative approach. Quantitative data is data presented in the form of numbers or nominal. The type of data used in this research is secondary data. According to (Sugiyono, 2017) secondary data sources are obtained by reading, studying and understanding through other media sourced from literature, books, and documents. Sources of secondary data obtained through books, journals and websites. Data for interest rates, inflation and exchange rates were obtained from Bank Indonesia through the website www.bi.go.id. Meanwhile, stock data was obtained from the IDX's monthly reports through the website www.idx.co.id. The population used in this study is the financial statement data of 7 69 companies. The sample selection used was purposive sampling method and a sample of 603 companies was obtained . The data in this study were analyzed using multiple linear regression tests and paired t-test .

RESULTS AND DISCUSSION
Descriptive Statistical Analysis

Table 3
Descriptive Statistical Test Results

Variable	Minimum	Maximum	Means	Standard Deviation
PBV	0.10	91.56	2.4440	6.34480
Inflation	1.32	2.98	2.0358	0.63318
Exchange rate	13612	16741	14576.81	672,112
Interest rate	3.75	5.00	4.2583	0.40499
Transaction volume	600	5500450000	195512570,48	520228184,417
Stock price	13	45904	1194.80	3037,691

Source: Results of data analysis (2022)

Based on the table above the dependent variable average stock price has a minimum value of 13 and a maximum of 445904 with an average value of 1194.80. The PBV independent variable has a minimum value of 0.10 and a maximum of 91.56, an average value of 2.4440. The inflation variable has a minimum value of 1.32 and a maximum of 2.98, with an average value of 2.0358. The exchange rate variable has a minimum value of 13612 and a maximum of 16741, with an average value of 14576.81. The interest rate variable has a minimum value of 3.75 and a maximum of 5.0, with an average value of 4.2583. The transaction volume variable has a minimum value of 600 and a maximum of 5,500,450,000, an average value of 195,512,570.48.

Classic assumption test
1. Normality Test

The use of the normality test in this study is to determine whether the research data is normally distributed or not. The normality test in this study used the Kolmogorov-Smirnov (KS) statistical test .

Table 4
Test Results Normality Test

Description		Unstandardized Residuals
N		603
Normal Parameters(a,b)	Means	0.0000000
	std. Deviation	0.59123831
Most Extreme Differences	absolute	0.052
	Positive	0.052
	Negative	-0.050
Kolmogorov-Smirnov Z		1.285
asymp. Sig. (2-tailed)		0.074

Source: Results of data analysis (2022)

Based on the table above it can be concluded that the data is normally distributed. Because, based on the normality test, a significance value of 0.074> α $_{0.05\ is\ obtained}$. These results prove that the data is normally distributed and the normality assumption is fulfilled.

2. Heteroscedasticity Test

The heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals between one observation and another. The heteroscedasticity test was carried out with the Glejser test.

Table 5
Heteroscedasticity Test Results with the Glejser Test

Description	t	Sig.
Constant	-1,110	0.267
PBV	0.841	0.401
Inflation	1,867	0.062
Exchange rate	1,479	0.140
Interest rate	-0.907	0.365
Transaction volume	-1,600	0.110

Source: Results of data analysis (2022

Based on the table above, the significant values of all independent variables have a significance value of $> \alpha_{0.05}$ or 5%, so it can be concluded that there are no symptoms of heteroscedasticity in the model.

3. Autocorrelation Test

The use of the autocorrelation test in this study is to determine whether or not there is an autocorrelation problem for each research variable. This study uses the Lagrange Multiplier (LM) statistical test

Table 6
Test Results Autocorrelation Test with LM Test

Description	t	Sig.
Constant	0.734	0.463
PBV	0.020	0.984
Inflation	-1,222	0.222
Exchange rate	-0.044	0.965
Interest rate	0.064	0.949
Transaction volume	-0.008	0.994
Res-2	1,269	0.205
Res-3	-0.927	0.354
Res-4	0.009	0.993
Res-5	-0.722	0.470
Res-6	-0.416	0.678

Source: Results of data analysis (2022)

Based on the table above it can be seen that Res_2 to Res-6 have a significance value $> \alpha_{0.05}$. This shows that there is no autocorrelation disorder in the research model.

4. Multicollinearity Test

The multicollinearity test aims to test whether the regression model found a correlation between the independent (independent) variables.

Table 7
Multicollinearity Test Results with Tolerance Test and VIF

Model	Collinearity Statistics	
	tolerance	VIF
PBV	0.998	1,002
Inflation	0.994	1.006
Exchange rate	0.999	1,001
Interest rate	0.995	1.005
Transaction volume	0.999	1,001

Source: Results of data analysis (2022)

Based on the results of the multicollinearity test that the tolerance value for each variable is above 0.1 and the VIF value for each variable is below 10, so it can be concluded that there are no symptoms of multicollinearity.

Hypothesis testing

Table 8
PBV Influence Test Results, Inflation, Exchange Rates, Interest Rates, Transaction Volume on Share Prices

Description	Regression Coefficient	t- count	Significance
Constant	467,714	,547	0.584
PBV (X_1)	0.021	5,468	0.000
Inflation (X_2)	-370,243	-1,491	0.136
Exchange rates (X_3)	-186,356	-2,043	0.042
Interest rate (X_4)	250,675	1,736	0.083
Transaction volume (X_5)	-0.003	-1.323	0.186
t - table ($0.05;597$)	=1.65		
F- count	=8.126		
F - table ($0.05;5;597$)	=2.23		
Sig. F	=0.000		
R- Square	=0.064		

Source: Results of data analysis (2022)

Based on the table above, the regression equation formed is:
$$Y= 467.714 + 0.021X_1 -370.243X_2 -186.356X_3 +250.675 X_4 - 0.003X_5$$

1. Partial Hypothesis Testing Results (t test)
a. *Price to Book Value* (PBV) (X_1)

The results of the estimation of the PBV variable obtained a t - count value of 5.468 with a significance of 0.000. The t - count value obtained is greater than the t -table value (0.05; 597) and the significance value is less than $\alpha_{0.05}$. This shows that PBV has a significant effect on stock prices during the Covid-19 pandemic. The results of data analysis are in accordance with *signaling theory* which explains the reasons for companies that emphasize the importance of information issued by companies for investment decisions of parties outside the company (Handini and Astawinetu , 2020) . The results of this research support the research results of Mawarni (2020) , Andamari (2021) , Siagian and Kasyat (2011) concluded that the PBV variable has a significant influence on stock prices.

b. Inflation (X_2)

The estimation results for the inflation variable obtained a t-value of -1.491 with a significance of 0.136. The t - count value obtained is smaller than the t -table value (0.05; 597) and the significance value is greater than $\alpha_{0.05}$. This shows that inflation has a negative and insignificant effect on stock prices during the Covid-19 pandemic. This research supports the results of research conducted by Kusumadewi (2021) , Agustin and Onasis (2021) , Devi (2021) , and Artha (2021) concluded that the inflation variable has no effect on stock prices. The results of the data analysis are not in accordance with the *signaling theory* which states that information such as inflation is a signal for the formulation of investment decisions in the stock market.

c. Exchange Rate (X_3)

The results of the estimation of the Exchange Rate variable obtained a t-value of -2.043 with a significance of 0.042. The t - count value obtained is greater than the t -table value (0.05; 597) and the significance value is less than $\alpha_{0.05}$. This shows that the exchange rate had a negative and significant effect on stock prices during the Covid-19 pandemic. This research supports the results of research conducted by Kusumadewi (2021) , Kartikaningsih (2020) , Devi (2021) and Nurmasari and Nur'aidawati (2021) who concluded that exchange rate variables affect stock prices. The results of data analysis are in accordance with the *signaling theory* which explains

information (exchange rate) as a signal for the formulation of investment decisions in the stock market.

d. Interest Rate (X_4)

The results of the estimation of the interest rate variable obtained a t - $_{count\ value}$ of 1.736 with a significance of 0.083. The t - $_{count}$ value obtained is smaller than the t $_{-table\ value\ (0.05;\ 597)}$ and the significance value is greater than α $_{0.05}$. This shows that interest rates did not have a significant effect on stock prices during the Covid-19 pandemic. This research supports the results of research conducted by Artha (2021) , Sebo and Nafi (2020) and Kusumadewi (2021) who concluded that the interest rate variable has no effect on stock prices. The results of data analysis are not in accordance with the *signaling theory* which explains information (interest rates) as a signal for the formulation of investment decisions in the stock market.

e.Volume Transaxle (X_5)

The results of the estimation of the Transaction Volume variable obtained a t - $_{count\ value}$ of - 1.323 with a significance of 0.186. The t - $_{count}$ value obtained is smaller than the t $_{-table\ value\ (0.05;\ 597)}$ and the significance value is greater than α $_{0.05}$. This shows that transaction volume has no significant effect on stock prices during the Covid-19 pandemic. This research supports the results of research conducted by Nurmasari (2020) who concluded that the volume of stock transactions during the pandemic increased due to cases caused by Covid-19. The results of data analysis are not in accordance with *signaling theory* which explains information (transaction volume) as a signal for the formulation of investment decisions in the stock market.

2. Simultaneous Hypothesis Testing Results (Test F)

Simultaneous testing to determine the effect of independent variables, namely PBV (X_1), inflation (X_2), exchange rates (X_3), interest rates (X_4) and transaction volume (X_5) together on variable Y (Stock price). Based on the test results, the $_{calculated\ F-value}$ was 8.126 with a significance of 0.000. The $_{calculated}$ F -value obtained is greater than the F - $_{table\ value\ (0.05;\ 5;\ 597)}$ and the significance value is less than α $_{0.05}$. This study supports the results of research conducted by Nurmasari and Nur'aidawati (2021) , Mawarni (2020) , Andamari (2021) , and Kusumadew i (2021) , Sebo and Nafi (2020) who concluded that the variables PBV, inflation, exchange rates, interest rates and transaction volume simultaneously effect on stock prices.

3. Identification of Differences in Stock Prices and Transaction Volume before and during the Covid-19 pandemic for the 2019-2020 period

The population used in this study are companies listed on the Indonesia Stock Exchange in 2019 and 2020, namely 671 companies and 716 companies respectively. The number of samples in accordance with the criteria amounted to 497 companies.

Descriptive statistics

Table 9
Descriptive Statistics of Stock Price and Transaction Volume

Description	N	Minimum	Maximum	Means	std. Deviation
Stock Price Before Covid-19	497	32	70598	1679.00	4686,884
Stock Prices During the Covid-19 Pandemic	497	47	45904	1260.32	3247,670
Transaction Volume Before the Covid-19 Pandemic	497	500	2,605,195,10 0	117,656,922. 74	273,371,709,778
Transaction Volume During the Covid-19 Pandemic	497	600	5,500,450,00 0	220,411,766. 80	556,442,186.143
Valid N (listwise)	497				

Source: Data analysis results (2022)

Based on the table above, it can be seen that the average stock price before Covid-19 was 1,679.00. Meanwhile, the average stock price during the Covid-19 pandemic in Indonesia was 1,260.32. The results of the analysis show that the average stock price has decreased during the Covid-19 pandemic. The average transaction volume before the Covid-19 pandemic in Indonesia

was 117,656,922.74. Meanwhile, the average transaction volume during the Covid-19 pandemic in Indonesia was 220,411,766.80. The results of the analysis show that transaction volume has increased during the Covid-19 pandemic.

Hypothesis testing

To answer the hypothesis whether there were differences in price and transaction volume before and during the Covid-19 pandemic, a normality test was first carried out.

Table 10
Stock Price Normality test results and Transaction Volume

Description	Category	Kolmogorov-Smirnov(a)		
		Statistics	Df	Sig.
Stock price	Before the Covid-19 pandemic	0.363	497	0.000
	During the Covid-19 pandemic	0.354	497	0.000
Volume	Before the Covid-19 pandemic	0.333	497	0.000
	During the Covid-19 pandemic	0.346	497	0.000

Source: Results of data analysis (2022)

Based on the table above, it is known that the significance value for price and transaction volume before and during the Covid-19 pandemic was 0.000. From the test results it is known that the data is not normally distributed, because of the significance value (0.000 <0.05), so as an alternative it is continued with the Wilcoxon Signed Rank Test.

Table 11
Wilcoxon Signed Rank Test Results

Description	Stock Prices During the Covid-19 Pandemic - Stock Prices Before the Covid-19 Pandemic	Transaction Volume During the Covid-19 Pandemic - Transaction Volume Before the Covid-19 Pandemic
Z	-11,806(a)	-4,370(b)
asymp. Sig. (2-tailed)	0.000	0.000

Source: Results of data analysis (2022)

From the results of the *Wilcoxon signed test* it is known that:
1. The Z value for the stock price is -11.806 and the asymp. significance (2- *tailed*) 0.000 less than α 5% (0.000<α $_{0.05}$). This means that statistically there was a difference in stock prices before and during the Covid-19 pandemic for companies listed on the IDX for the 2019-2020 period.
2. The Z value for transaction volume is -4.370 and the asymp. significance value (2- *tailed*) 0.000 less than α 5% (0.000<α $_{0.05}$). This means that statistically there were differences in the volume of stock transactions before and during the Covid-19 pandemic for companies listed on the IDX for the 2019-2020 period.

This research supports the results of research conducted by Herninta and Rahayu (2020) , Ngaini and Tambunan (2020) who concluded that there were significant differences in stock price and transaction volume before and after the first positive case of Covid-19 was announced in Indonesia. Based on research data, out of 497 companies listed on the IDX, there were 380 companies (76.5%) that experienced a decline in their share prices during the Covid-19 pandemic. Meanwhile, based on the transaction volume of the 497 companies listed on the IDX, there were 288 companies (57.9%) that experienced an increase in transaction volume. However, this was not followed by an increase in share prices.

CONCLUSION
Based on the results of research and discussion, it can be concluded that :
1. PBV had a positive and significant effect on stock prices during the Covid-19 pandemic.
2. Inflation had a negative and insignificant effect on stock prices during the Covid-19 pandemic.
3. The exchange rate had a negative and significant effect on stock prices during the Covid-19 pandemic.

4. Interest rates did not have a significant effect on stock prices during the Covid-19 pandemic.
5. Transaction volume did not have a significant effect on stock prices during the Covid-19 pandemic.
6. PBV, inflation, exchange rates, interest rates and transaction volume simultaneously had a significant effect on stock prices during the Covid-19 pandemic.
7. There was a significant difference in stock prices before and during the Covid-19 pandemic.
8. There were significant differences in transaction volume before and during the Covid-19 pandemic.

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