ICFBE 2021

The 5th International Conference on Family Business and Entrepreneurship

THE IMPACT OF COVID-19 AND GOVERNMENT POLICIES ON THE LIQUIDITY OF INDONESIA STOCK EXCHANGE

I Gede Reza Rizky Margana[1*], Buddi Wibowo[2]

[1,2]Faculty of Economy and Business, Universitas Indonesia,Corresponding author: i.gde91@ui.ac.id

ABSTRACT:

Generally, the main characteristics of emerging markets are low transparency, and the investors in emerging markets are more likely to be short-term oriented, where short-term investors are usually concerned about the liquidity of securities they will trade. These may imply liquidity has important role in emerging markets than in developed markets. Empirical studies have confirmed sporting events, exceptional events, political events, social media content, natural disasters, and religious events may affect the liquidities of capital market. This study aims to identify the effect of Covid-19 and government policies on the liquidity of the Indonesia Stock Exchange. Measurement of liquidity in this study using Amihud Illiquidity. The sample of this research is all stocks listed on the Indonesia Stock Exchange for the period 02 March – 02 June 2020. The results of this study indicate that the independent variables simultaneously affect the liquidity of the emerging stock market of the Indonesia Stock Exchange, while the independent variables that partially affect the liquidity of the Indonesia Stock Exchange are restrictions on the activities of educational institutions, restrictions on workplace activities, control of international travel, transaction volume, and BI rate.

Keywords: Amihud Illiquidity, Government Stringency Index, Emerging Market.

1. Introduction

In general, the main characteristics of emerging markets are low transparency and limited portfolio choices caused by the lack of diversity of available securities (Bekaert et al, 2007). Ahn et al (2018) stated that investors in emerging markets are more likely to be short-term oriented, where short-term investors are usually very concerned about the liquidity of the securities they will trade. This implies that liquidity has a more important role in emerging markets than in developed markets.

Liquidity of the capital market is one of the main concerns of investors, where it will affect the return of their portfolio because if the asset is illiquid then the asset will result in higher buying and selling costs and has a greater risk of loss (Zaremba et al. al, 2021). Liquidity also affects the expected holding period of investor's portfolio because according to Amihud and Mendelson (1986) assets which have low level of liquidity will be hold by investors for a longer period of time so that the returns from these assets will increase over time and can exceed the transaction costs of these assets. Kyle (1985) defines market liquidity as the ability of assets to be traded in the market in a short time with a minimum loss of value.

One of the measurement methods that can be used to measure liquidity is Amihud Illiquidity. The method was proposed by Yakov Amihud (2002) where the method uses the ratio between absolute stock returns to dollar volume of shares that have been averaged over a certain period. Amihud Illiquidity can be interpreted as a response to the daily price associated with 1-dollar of transaction volume so that it can serve as a rough measure of price impact. The advantage of this method is that the data used in the Amihud Illiquidity

method can be obtained easily and quickly and is available for a long period of time in almost all stock markets.

Ahn, et al (2018) conducted a study on the comparison between liquidity proxies in emerging markets, the study compared 6 proxies including 3 proxies that use spreads as a benchmark, and 3 proxies consisting of those using price impact as a benchmark, the study was conducted on 21 emerging stock markets in the world. The results of this study indicate that for measuring price impact proxies, Amihud Illiquidity is the most effective measurement, while for liquidity measurement using spreads as a benchmark, Lesmond, Ogden, and Trzcinka (LOT) measurements are used.

Liquidity of capital market can be influenced by many factors, one of which is government policies. Research on the effect of monetary policies on the stock market was conducted by Chen and Xie (2016). This study aims to measure the efficiency of the Chinese stock market against monetary policies. The results of this study indicate that there are various types of feedback shown by the Shanghai and Shenzhen stock markets when the policy is implemented, and the impact of each stimulation begins to disappear on the third trading day after the implementation of each monetary policy.

Empirical studies have confirmed sporting events, exceptional events, political events, social media content, natural disasters, and religious events may affect the liquidities of capital market. Zaremba et al (2021) state that there are at least three channels related to government policies during exceptional events that can affect stock market liquidity, these channels include infrastructure channels, portfolio channels, and behavioral and physiological factors. Research conducted by Zaremba et al (2021) to determine the effect of government response policy on stock market liquidity in the world. The study uses the turnover ratio as a proxy for stock market liquidity. The study was conducted to determine the impact of Covid-19 and government policy responses during the global pandemic Covid-19 on stock market liquidity in 49 developed and emerging countries around the world. The results of this study indicate that government policies such as restriction on workplace and education institution affect the liquidity of the stock market.

Liu et al (2020) researched an event study on global equity markets using stock indexes in 21 leading countries affected by the global Covid-19 pandemic. The results of the study show that stock markets fell very sharply after the emergence of the pandemic and the results of the study also showed that there were persistent negative abnormal returns in Asian countries compared to other regions. Baig et al (2020) conducted a similar study on the effect of the global Covid-19 pandemic on stock market liquidity, the results of this study showed that there was a positive relationship to confirmed cases, lockdown and stock market liquidity.

Previous studies have tried to identify the effect of government policies on stock market liquidity but it have not fully explained the influence of government policies, especially during exceptional events, on emerging stock market liquidity, especially on the Indonesia Stock Exchange. In addition, previous studies mostly used general stock liquidity measurement methods, which are not necessarily appropriate for emerging markets.

With this research gap, researchers are interested in explaining the influence of Covid-19 and government policies on the liquidity of the Indonesia Stock Exchange, by measuring liquidity using Amihud Illiquidity. Ahn et al (2018) stated that the Amihud Illiquidity measurement has a high correlation to spread and price impact compared to the liquidity measurement method which is effective in measuring price impact on emerging markets.

2. Literature Review

Liquidity

Stock liquidity can simply be defined as the ability of shares to be traded quickly and does not incur high transaction costs and does not affect the market value of the stock. Liquidity in the capital market is essential for financial stability and economic growth, especially in exceptional events. The level of liquidity affects the time period for investors to realize their portfolio gain (loss) at the level they have set so it is very important for investors to be able to estimate the level of liquidity correctly, especially during extreme events (Zaremba et al, 2020).

Amihud and Mendelson (1986) state that there is an influence between stock returns and stock liquidity, where the higher stock return, it means the lower stock liquidity level (illiquid). Amihud (2002) states that illiquidity reflects the impact of order flow on the price discount given by the seller or is a premium paid by the buyer when carrying out market orders resulting from adverse selection costs and inventory costs. Stock illiquidity according to Amihud (2002) can be calculated using the average ratio between the daily

absolute return of a stock and the transaction volume in dollar terms of the stock, so the calculation of Amihud illiquidity is as follows:

$$\boldsymbol{ILLIQ_{iy}} = \boldsymbol{1/D_{iy}} \sum_{t=1}^{D_{iy}} \boldsymbol{|R_{iyd}| / VOLD_{iyd}} \quad (1)$$

$|R_{iyd}|$ is the *absolute return* of stock *i* on day *d* of period *y*, $VOLD_{iyd}$ is the daily dollar volume transaction of the stock, D_{iy} is the number of days for available data on stock *i* of period *y*. Amihud (2002) also mentions that the measurement of stock illiquidity can also be used to measure the illiquidity of the stock market, with the following formula:

$$\boldsymbol{AILLIQ_y} = \boldsymbol{1/N_y} \sum_{t=1}^{N_y} (\boldsymbol{ILLIQ_{iy}\, x\, 10^6}) \quad (2)$$

$ILLIQ_{iy}$ is the illiquidity ratio of each stocks listed on the stock market in period *y*, dan N_y is the number of shares listed on the stock market in period *y*.

The advantages of the illiquidity method are that the data used in this method are daily data returns and transaction volumes that can be immediately available for a long period of time in almost all stock markets, so the illiquidity method can be immediately used in time series effects of liquidity research.

Ahn, et al (2018) conducted a study on the comparison between liquidity proxies in emerging markets. The study compared 6 proxies including 3 proxies consisting of ROLL (Roll, 1984), HASB (Hasbrouck, 2009) and LOT (Lesmond, Ogden, and Trzcinka) (Lesmond et al, 1999) using spread as a benchmark, and 3 proxies consisting of AMIHUD (Amihud 2002), Amivest (Cooper et al, 1985), and PASTOR (Pastor and Stambaugh, 2003) which use price impact as a benchmark. The study was conducted on 21 emerging stock markets in the world. The results of this research show that for measuring price impact proxies, Amihud Illiquidity is the most effective measurement, while for liquidity measurement using spreads as a benchmark measurement using Lesmond, Ogden, and Trzcinka (LOT) is the most effective.

Liquidity and Exceptional Events

Liquidity in the capital market is essential for financial stability and economic growth, especially during exceptional events such as the Covid-19 global pandemic. Butler et al (2005) stated that a high level of capital market liquidity will reduce the cost of equity capital which in turn will ease the company's funding constraints and contribute to the company's financial resilience during exceptional events, especially during the Covid-19 pandemic which caused many disruptions in almost every sector of all human life with no exception to the financial industry.

In addition, the level of liquidity also affects the period for investors to realize their portfolio gain (loss) at the level they have set so it is very important for investors to be able to estimate the level of liquidity correctly, especially during exceptional events (Zaremba et al, 2020). Capital market liquidity is also monitored by decision-makers such as fund managers, policy makers and regulators who want to maintain their level of financial stability during the Covid-19 pandemic (Zaremba et al, 2021). Research conducted by McKibbin, and Fernando (2020) shows that the Covid-19 pandemic has affected stock market returns and the liquidity of stock markets since the pandemic took place, resulting in a significant economic slowdown.

Government Policy During Exceptional Events and Liquidity

Zaremba et al (2021) stated that there are at least three channels related to government policies during exceptional events that can affect stock market liquidity, these channels include infrastructure channels, portfolio channels, and behavioral and psychological factors.

Infrastructure Channels

Restrictions on activities in the workplace can disrupt the decision-making processes of financial institutions, hindering quick reactions and fast transactions. Some financial institutions may even be physically closed, so that if there is inadequate electronic infrastructure and policies that restrict activities in the workplace, investors may not be able to carry out transactions (Zaremba et al, 2021). Narayan et al (2020) conducted a study on the effects of government responses to Covid-19 in G7 countries. The result of study shows that lockdown measures, travel bans, and economic support positively affect stock markets.

Portfolio Channels

Zaremba et al (2020) stated that any government policy that has the potential to change economic conditions can result in portfolio restructuring, if economic conditions worsen then this will have a direct impact on the company's cash flow expectations so that companies tend to reallocate portfolios composition thus will

affect the liquidity of stock market. research conducted by Marozva (2020) aims to investigates the relationship between monetary policy and the stock market in South Africa. The results of this study indicate that the level of stock market liquidity is influenced by changes in the South African Benchmark Overnight Rate (SABOR).

Behavioral and Psychological Factors

Sicherman et al. (2016) document the "ostrich effect", which implies that investors are reluctant to monitor their portfolios when bad news is likely to occur. In other words, investors may prefer to "close their eyes" rather than make transactions when faced with a negative stream of news about government restrictions, this may also be amplified by the "information overload" effect (Agnew and Szykman, 2005). This statement underlies the idea that when problems arise it can lead to a lot of information that is likely to be difficult to understand for investors (Zaremba et al, 2021). This may cause investors to do nothing, in other words, not to carry out buying and selling transactions on the stock market, so this will have an impact on decreasing transaction volume, which in turn will reduce liquidity.

Research conducted by Chebbi et al (2021) on the stock liquidity of the S&P 500 index for the period January 1, 2020 to December 30, 2020. This research aims to identify the effect of the Covid-19 pandemic as measured using daily confirmed and daily death cases on stock liquidity included in the index S&P 500. The results of Chebbi et al (2021) research show that there is a significant negative relationship between the Covid-19 pandemic on stock liquidity. This implies that any news that shows an increase in daily confirmed and daily death cases of Covid-19 will reduce liquidity and volume stock transactions on the S&P 500 index.

3. Research Method

Sample, Research Data, and Method of Collecting Data

The study uses secondary data in the form of market-related variables report data such as absolute returns, trading volumes, and the daily closing spot rate of IDR/USD. The secondary data was obtained through the yahoo finance website. This study uses data obtained from the Oxford Covid-19 Government Response Tracker to explain the government policy response. As well as data on the number of cases and deaths due to the global Covid-19 pandemic obtained on the official website of the World Health Organization. The use of data in this study began on the first day when a confirmed case of Covid-19 occurred in Indonesia, namely on March 2, 2020 to avoid research arbitrariness. The observation period in this study began on March 02 to June 02, 2020.

The data used is in the form of time-series data where the secondary data for this research is data on market-related variables such as returns, trading volumes, from the Indonesia Stock Exchange. This study uses a purposive sampling method where this method is carried out if the researcher has special considerations in taking the sample. The considerations used in sampling in this research are:

1) Shares of companies that have been listed on the Indonesia Stock Exchange before 02 March 2020
2) Shares of companies that are not delisted after 02 March 2020
3) Company shares that are not included in the stock category that do not have absolute returns during the observation period (period 02 March 2020 – 02 June 2020)

Based on these considerations, 601 shares were obtained with the number of daily transactions for 59 trading days as many as 35,459 transactions, the next data is the daily closing spot rate of IDR/USD which is used in calculating Amihud Illiquidity which is a liquidity proxy for the Indonesia Stock Exchange in this study.

The measurement of government policy response in this study uses data 1 obtained from the Oxford Covid-19 Government Response Tracker, specifically regarding 4 different policy measures from government policies in order to limit the outbreak of the global Covid-19 pandemic. The 4 policies include: (1) Restrictions on the activities of educational institutions (PR1); (2) Restrictions on workplace activities (PR2); (3) Restriction of internal movement (PR3); (4) Control of international travel (PR4). Measurements of Covid-19 confirmed cases and Covid-19 death cases in this study used data on the number of infected cases and death rates due to the Covid-19 pandemic obtained through the World Health Organization website. The BI Rate measurement in this study uses the BI Rate 7-day Reverse Repo data obtained through the Bank Indonesia website.

Analysis Methods and Research Variables

The analysis methods used in this study is classical assumption test, and hypothesis test. The classical

assumption test aims to provide certainty that the regression model obtained in the study will be correct in making estimates, consistency, and unbiased. The classical assumption test used in this study are:

1) Multicollinearity test: multicollinearity test aims to determine whether there is a high correlation between independent variables. The multicollinearity test in this study will use the variance inflation factors (VIF) method.
2) Normality test: The normality test aims to test whether in the regression model the confounding or residual variables have a normal distribution or are close to normal.
3) Heteroskedasticities test: The heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another observation
4) Autocorrelation test: The autocorrelation test aims to test whether in a linear regression model there is a correlation between the confounding error in a certain period and the confounding error in the previous period.

Hypothesis testing was carried out to determine the significance of the independent variables both simultaneously and partially and to determine the magnitude of the influence of the independent variables on the dependent variable. The hypothesis test used in this study are:

1) Hypothesis test using coefficient of determination test (Adj R Square): The coefficient of determination test aims to measure the ability of the research model to explain variations in the dependent variable. The low R^2 value can be interpreted that the ability of the independent variables in the study to explain the dependent variables is very limited. If R^2 value close to one, this indicates that the independent variables in the study provide almost all of the information needed to predict the variation of the dependent variable
2) Hypothesis test using F-test: This test was conducted to determine the effect of all the independent variables contained in the model together (simultaneously) on the dependent variable. Simultaneous test hypothesis formulation (F test):

a) H_0: The independent variables have no effect on the liquidity of the Indonesia Stock Exchange simultaneously
b) H_1: The independent variables affect the liquidity of the Indonesia Stock Exchange simultaneously

Based on the hypothesis formulation, the decision-making criteria are as follows:

a) If F-Sig > α = 5% means H0 is accepted
b) If F-Sig < α = 5% means H0 is not accepted

3) Hypothesis test using t-test: This test was conducted to determine the partial significance of the role of the independent variable on the dependent variable by assuming that the other independent variables are considered constant. Partial test hypothesis formulation (t test):

a) H_0: The independent variables have no effect on the liquidity of the Indonesia Stock Exchange partially
b) H_1: The independent variables partially affect the liquidity of the Indonesia Stock Exchange

Based on the hypothesis formulation, the decision-making criteria are as follows:

a) If T-Sig > α = 5% means H0 is accepted
b) If T-Sig < α = 5% means H0 is not accepted

This study will use multiple linear regression analysis techniques using the type of time series data using the ordinary least square method. The multiple regression model in this study is as follows:

$$\boldsymbol{Amihud\ Illiquidity} = \boldsymbol{\alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \alpha_6 X_6 + \alpha_7 X_7 + \alpha_8 X_8 + \varepsilon} \quad (3)$$

Amihud Illiquidity in this study is the dependent variable which acted as a liquidity proxy for liquidity of the Indonesia Stock Exchange, α_0 represent constant, while the variables X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8 are the independent variable and ε represent error term.
The variables used in this study are as follows:

Dependent Variable (Y): Liquidity
This study uses Amihud Illiqudity as a proxy for stock market liquidity (Amihud, 2002) which is available in the form of daily frequency. To measure stock market liquidity using Amihud Illiquidity, first you must find the illiquidity value of all shares in the stock market using formula (1) so that after obtaining the

illiquidity value of all shares on the Indonesia Stock Exchange, stock market liquidity will be calculated using formula (2). The higher the Amihud Illiquidity value of a stock market, then the stock market has a low level of liquidity (illiquid).

Independent Variables: Government Policy Responses
Government Policy Responses in this study is a proxy for infrastructure channels that can affect stock market liquidity (Zaremba et al, 2021). This study uses data obtained from the Oxford Covid-19 Government Response Tracker (Zaremba et al, 2021) to measure Government Policy Responses, specifically regarding 4 different policy measures from government policies in order to limit the outbreak of the global Covid-19 pandemic. Government policy variables are dummy variables. If the government stipulates a restrictive policy in the form of recommendations, partial restrictions or overall restrictions, the value of the X_1 to X_4 variables is one. On the other hand, if the government does not issue a restriction policy, the value of the X_1 to X_4 variables is zero. The four policies include:

a) Independent Variable X_1: Restrictions on Activities in Educational Institutions (PR1)
b) Independent Variable X_2: Limitation of workplace activities (PR2)
c) Independent Variable X_3: Internal movement restriction (PR3)
d) Independent Variable X_4: International travel control (PR4)

Independent Variable X_5: Covid-19 Confirmed Case
The Covid-19 confirmed case in this study is a proxy for behavioral and physiological factors as negative news that has the potential to affect the behavior and psychology of stock market investors so that it can affect stock market liquidity (Zaremba et al, 2021). Covid-19 confirmed case shows the number of cases infected with Covid-19 in Indonesia. This variable is measured daily during the study period. In this study the variable Covid-19 confirmed case is denoted as X_5.

Independent Variable X_6: Covid-19 Death Case
The Covid-19 death case in this study is a proxy for behavioral and physiological factors as negative news that has the potential to affect the behavior and psychology of stock market investors so that it can affect stock market liquidity (Zaremba et al, 2021). Covid-19 death case shows the number of deaths1 due to Covid-19 in Indonesia. This variable is measured daily during the study period. In this study the Covid-19 death case variable is denoted as X_6.

Independent Variable X_7: Volume Transaction
The transaction volume in this study is a proxy for behavioral and physiological factors as a reflection of the buying and selling behavior of stock market investors (Zaremba et al, 2021). Transaction volume is the total value of buying and selling activities that occur on the Indonesia Stock Exchange in units of shares. The smaller the value of the transaction volume can be indicated as a decrease in the buying and selling activities of investors in the stock market. This variable is measured daily during the study period. In this study, the transaction volume is denoted as X_7.

Independent Variable X_8: Monetary Policy (BI Rate)
Monetary policy in this study is a proxy for portfolio channels that can affect stock market liquidity (Zaremba et al, 2021). The BI Rate is the policy interest rate that reflects the monetary policy stance set by Bank Indonesia. BI rate measurement in this study uses a 7-day reverse repo BI rate. This study adjusted the BI rate 7-day reverse repo variable to make the variable in daily units of time during the study period. In this study the BI rate is denoted as X_8.

4. Results and Discussion

Classical Assumption Test
Multicollinearities Test
Decision making related to the multicollinearity test using the variance inflation factors (VIF) method is the research data can be said no multicollinearity problem between the independent variables if the VIF value is below 10. Based on table 1 the VIF value of all independents variables is below 10 so it can be said there is no multicollinearity problem between independent variables.

Table 1. Multicollinearities Test Result

Variables	VIF	Explanation
Restrictions on Activities of Educational Institutions	1,383	Non-Multicollinearities
Workplace Activity Restrictions	2,314	Non-Multicollinearities
Internal Movement Restriction	1,418	Non-Multicollinearities
International Travel Control	2,786	Non-Multicollinearities
Covid-19 Confirmed Case	1,745	Non-Multicollinearities
Covid-19 Death Case	1,881	Non-Multicollinearities
Volume Transaction	1,203	Non-Multicollinearities
BI *Rate*	1,930	Non-Multicollinearities

Source: Secondary Data, Processed with eViews 9, 2021

Normality Test

Variables is normally distributed or close to normal if the significant value is greater than 0,05.

Table 2. Normality Test Result

Jarque Bera	Significant Value	Explanation
2,031	0,362	Normally Distributed

Source: Secondary Data, Processed with eViews 9, 2021

The normality test result from table 2 shows the significant value is 0,365 which means variables in this study is normally distributed or close to normal.

Heteroskedasticities Test

Table 3: Heteroscedasticity Test Result

Obs*Rsquared	Sig.	Explanation
9,718	0,285	Non-Heteroskedasticities

Source: Secondary Data, Processed with eViews 9, 2021

The criterion is that there is no heteroscedasticity problem if the significance probability is above the 0.05 significance level. Based on the results of the heteroscedasticity test in table 3, the significance value of Obs*Rsquared is 0.285 so that the value is greater than 0.05 which can be said there is no heteroscedasticity problem.

Autocorrelation Test

The criterion is that there is no autocorrelation problem if the significance probability of the Breusch-Godfrey Serial Correlation LM Test is above the 0.05 significance level.

Table 4: Autocorrelation Test Result

Obs*Rsquared	Sig.	Explanation
0,099	0,951	Non-Autocorrelation

Source: Secondary Data, Processed with eViews 9, 2021

Based on the results of the Auto Correlation Test in table 4, the significance value of Obs*Rsquared is 0.951 so that the value is greater than 0.05, it can be said that there is no autocorrelation problem. These results can be interpreted that the regression model obtained does not have a correlation between the confounding error in a certain period and the confounding error in the previous period.

Hypothesis Test Result

Hypothesis testing in this study using multiple regression analysis. Regression analysis aims to examine whether there is an effect of government policy for the period of exceptional events on the liquidity of the emerging stock market of the Indonesia Stock Exchange. The hypothesis test consists of a partial test (t-test), simultaneous test (F-test), and the coefficient of determination.

Table 5: Multiple Regression Results

Variable	Coefficient	t	t-sig.
Restrictions on Activities of Educational Institutions (X_1)	329,35	2,302	0,025
Workplace Activity Restrictions (X_2)	366,77	4,806	0,000
Internal Movement Restriction (X_3)	-33,357	-0,581	0,564
International Travel Control (X_4)	199,13	2,656	0,010
Covid-19 Confirmed Case (X_5)	0,014	0,549	0,585
Covid-19 Death Case (X_6)	-0,349	-0,813	0,420
Volume Transaction (X_7)	-0,000008	-4,144	0,000
BI Rate (X_8)	314.773,4	2,710	0,009
Constant = -3215,46			
F; F-sig = 22,466; 0,000			
Adjusted R Square = 0,7475			

Source: Secondary Data, Processed with eViews 9, 2021

Based on the results of multiple regression in table 8 obtained the coefficients of the variables in this study, so that the regression model in this study:

$$\boldsymbol{Amihud\ Illiquidity = -3215,46 + 329,35X_1 + 366,77X_2 - 33,357X_3 + 199,13X_4 + 0,014X_5 - 0,349X_6 - 0,00008X_7 + 314.773,4X_8} \quad (4)$$

Hypothesis Test Using Coefficient of Determination Test (Adj R square)
The coefficient of determination aims to determine the magnitude of the influence of the independent variable on the dependent variable. Based on table 8, the coefficient of determination is 0.7475 so that it can be interpreted the variables limiting the activities of educational institutions, restrictions on workplace activities, restrictions on internal movement, control of international travel, Covid-19 confirmed case, Covid-19 death case, volume transaction , and the BI rate simultaneously can affect the liquidity of the Indonesia Stock Exchange by 74.75% and the rest is influenced by other variables that are not explained in this study.

Hypothesis Test Using F-Test
Based on the results of multiple regression in table 8, the F value is 21,657 and the significance is 0.000 so that the F value is greater than the F-table and the significance is less than 0.05, so a decision can be made not to accept H0.
The decision not to accept H0 states that there is a simultaneous effect of independent variables, namely Restrictions on Activities of Educational Agencies, Restrictions on Workplace Activities, Restrictions on Internal Movements, Control of International Travel, Covid-19 Confirmed Cases, Covid-19 Death Cases, Volume Transactions, and BI Rate on liquidity of the Indonesia Stock Exchange.

Hypothesis Test using t-test
Based on the results of multiple regression in table 8, the t-sig value of variables X_3; X_5; $X_6 > \alpha = 5\%$ so that a decision can be made to accept H0. The decision to accept H0 states that there is no partial effect of the independent variables, namely Internal Movement Restrictions, Covid-19 Confirmed Case, Covid-19 Death Case, on the liquidity of the Indonesia Stock Exchange.
Based on the results of multiple regression in table 8, the t-sig value of variables X_1; X_2; X_4; X_7; $X_8 > \alpha = 5\%$ so that a decision can be made to accept H0. The decision to accept H0 states that there is partial effect of the independent variables, namely Restrictions on Activities of Educational Agencies, Restrictions on Workplace Activities, Control of International Travel, Transaction Volume, and BI Rate on the liquidity of the Indonesia Stock Exchange.

Discussion of the Multiple Regression Results of the Indonesia Stock Exchange Liquidity Variable (Y).
This study uses Amihud Illiquidity as a proxy for the liquidity of the Indonesia Stock Exchange. The high value of Amihud Illiquidity can be interpreted as the low level of liquidity of the Indonesia Stock Exchange and vice versa, the lower the value of Amihud Illiquidity, the higher the level of liquidity of the Indonesia

Stock Exchange. Every increase in the value of Amihud Illiquidity indicates a decrease in the level of liquidity (Amihud, 2002).
Based on table 5 and the multiple regression equation model in formula (4), this study obtained a constant value of -3.215.46 assuming the value of all independent variables is equal to 0 then the Amihud Illiquidity value is the same as the constant value in the multiple regression equation in this study (-3,215.46). The low Amihud Illiquidity value indicates that the liquidity of the Indonesia Stock Exchange is included as a liquid stock market.

Discussion of Multiple Regression Results for Variable X1: Government Policy Regarding Restrictions Activities at Educational Institutions (PR1).
Based on the results of the partial test of government policy variables related to restrictions on teaching and learning activities in educational institutions (PR1), it is known that the PR1 government policy causes differences in the liquidity value of the Indonesia Stock Exchange. The multiple regression results in table 4.7 show the regression coefficient value of the PR1 government policy variable, which is 329.35.
The regression coefficient value of the government policy variable PR1 can be interpreted as when the government provides a policy to study from home (X1 = 1), the Amihud Illiquidity value increases by 329.35 with the assumption that the values of other independent variables are constant. If the government does not issue a policy related to restrictions on educational activities (X1 = 0) then there will be no change in the Amihud Illiquidity value assuming the values of the other independent variables are constant. So that it can be concluded that the government's policy on PR1 will partially reduce the liquidity level of the Indonesia Stock Exchange.
The results of this study are supported by the results of research conducted by Zaremba et al (2021) which states that the Government Stringency Index is a policy of limiting teaching and learning activities to limit the level of stock market liquidity and Narayan et al (2020) which states that lockdown measures affect stock markets.

Discussion of Multiple Regression Results for Variable X2: Government Policy Regarding Restrictions on Workplace Activities (PR2).
Based on the results of the partial test of government policy variables related to workplace activity restrictions (PR2), it is known that the PR2 government policy resulted in differences in the liquidity value of the Indonesia Stock Exchange. The multiple regression results in table 4.7 show the regression coefficient value of the PR2 government policy variable, which is 366.77.
The regression coefficient value of the PR2 government policy variable can be interpreted as when the government provides a policy to work from home (X2 = 1), the Amihud Illiquidity value increases by 366.77 with the assumption that the values of the other independent variables are constant. If the government does not issue a policy regarding restrictions on educational activities (X2 = 0) then there will be no change in the Amihud Illiquidity value assuming the values of the other independent variables are constant. So that it can be concluded that the partial determination of the PR2 government policy will reduce the liquidity level of the Indonesia Stock Exchange.
The results of this study are supported by the results of research conducted by Zaremba et al (2021) which states that the Government Stringency Index is in the form of a policy of limiting workplace activities to limit the level of stock market liquidity in emerging markets and Narayan et al (2020) which states that lockdown measures affect stock markets.

Discussion of Multiple Regression Results for Variable X3: Government Policy Regarding Restrictions on Internal Movement (PR3).
Based on the results of the partial test of government policy variables related to government policies that limit community mobilization activities (PR3), it is known that the PR3 government policy does not result in differences in the liquidity value of the Indonesia Stock Exchange. This is evidenced by the table 4.7 shows the significance value of the government policy variable PR3 (X3) 0.564 (significance greater than 0.05). The results of this study are different from the results obtained by Narayan et al (2020) and Mdaghri et al (2020). The results of this study indicate that there is no partial change in the liquidity value of the Indonesia Stock Exchange even though the PR3 government policy is set or not.

Discussion of Multiple Regression Results for Variable X4: Government Policy Regarding International Travel Control (PR4).
Based on the results of the partial test of government policy variables related to international travel control (PR4), it is known that the PR4 government policy resulted in differences in the liquidity value of the Indonesia Stock Exchange. The multiple regression results in table 4.7 show the regression coefficient value of the PR4 government policy variable, which is 199.13.
The regression coefficient value of the government policy variable PR4 can be interpreted as when the government provides a policy for international travel bans (X4 = 1), it causes the Amihud Illiquidity value to increase by 199.13 assuming the values of other independent variables are constant. If the government does not issue a policy regarding restrictions on educational activities (X4 = 0) then there will be no change in the value of Amihud Illiquidity assuming the values of other independent variables are constant. So that it can be concluded that the partial determination of the PR4 government policy will reduce the liquidity level of the Indonesia Stock Exchange.
The results of this study are supported by the results of research conducted by Mdaghri et al (2020) which states that the Government Stringency Index is positively related to the depth liquidity measure which indicates the government's response to the pandemic outbreak caused a liquidity shock to stock markets.

Discussion of the Results of Multiple Regression Variable X5: Covid-19 Confirmed Case.
Based on the results of the partial test, the Covid-19 confirmed case variable has no partial effect on the liquidity of the Indonesia Stock Exchange. This is evidenced by table 4.7 which shows the significance value of the Covid-19 confirmed case (X5) variable of 0.585 (significance greater than 0.05). The results of this study are different from the results obtained by Chebbi et al (2021). The results of this study indicate that the number of positive cases of Covid-19 does not have a partial effect on the liquidity level of the Indonesia Stock Exchange.

Discussion on the results of the X6 Variable Multiple Regression: Covid-19 Death Case.
Based on the results of the partial test, the Covid-19 death case variable has no partial effect on the liquidity of the Indonesia Stock Exchange. This is evidenced by the table 4.7 showing the significance value of the Covid-19 death case variable (X6) 0.420 (significance greater than 0.05). The results of this study are different from the results obtained by Chebbi et al (2021). The results of this study indicate that the number of Covid-19 deaths does not have a partial effect on the liquidity level of the Indonesia Stock Exchange.

Discussion of Multiple Regression Results for Variable X7: Transaction Volume.
Based on the results of the partial test of the transaction volume variable, it is known that the transaction volume has a partial effect on the liquidity of the Indonesia Stock Exchange. The multiple regression results in table 4.7 show the regression coefficient value for the transaction volume variable, which is -0.000008.
The regression coefficient value of the transaction volume variable can be interpreted as every increase of 1 share in the transaction volume will reduce the value of Amihud Illiquidity by 0.000008 assuming the value of other independent variables is constant, and vice versa for every decrease in units of shares in the transaction volume, there will be the increase in the value of Amihud Illiquidity is 0.000008 with the assumption that the values of the other independent variables are constant. So it can be concluded that every 1 share increase in transaction volume will increase the liquidity of the Indonesia Stock Exchange.
The transaction volume in this study is a proxy for behavioral and physiological factors as a reflection of the buying and selling behavior of stock market investors. According to Galai and Sade (2006); Karlsson et al. (2009), and Sicherman et al. (2016) the decrease in transaction volume can be caused by a combination of “ostrich effect” and “information overload” events (Agnew and Skyman, 2005).
The combination of the "ostrich effect" and "information overload" events has the potential to generate a lot of information that may be difficult to understand for investors, causing investors not to carry out buying and selling transactions in the stock market, resulting in a decrease in transaction volume, which in turn will reduce stock market liquidity.

Discussion of Multiple Regression Results for Variable X8: BI Rate.
Based on the results of the partial test of the BI rate variable, it is known that the BI rate has a partial effect on the liquidity of the Indonesia Stock Exchange. The multiple regression results in table 4.7 show the regression coefficient value of the BI Rate variable, which is 314.773.
The regression coefficient value of the BI rate variable can be interpreted as every one-unit increase in the BI rate will increase the Amihud Illiquidity value by 314.773 with the assumption that the values of other

independent variables are constant, and vice versa for every one-unit decrease in the BI rate there is a decrease in the Amihud Illiquidity value by 314.773 with the assumption that the values of the other independent variables are constant. So, it can be concluded that each increase in the BI rate will decrease the liquidity level of the Indonesia Stock Exchange.

The results of this study are supported by the results of research conducted by Marozva (2020). The results of Marozva's research (2020) state that there is a negative relationship between monetary policy that uses the South African Benchmark Overnight Rate (SABOR) on the liquidity of the Johannesburg Stock Exchange (JSE) All-Share Index and the Johannesburg Stock Exchange Top 40 Share Index which uses the adjusted illiquidity measure as liquidity measurement. Marozva's research results indicate that each increase in SABOR will decrease the liquidity level of the JSE All-share Index and the JSE Top 40 Share Index.

5. Conclusion and Implications

Based on the results of research and discussion on the effect of Covid-19 and government policies on the liquidity of the Indonesia Stock Exchange, it can be concluded that all independent variables in this study have a simultaneous effect on the liquidity of the Indonesia Stock Exchange.

Government policy variables such as restrictions on teaching and learning activities in educational institutions, restrictions on workplace activities, control of international travel cause differences in the liquidity value of the Indonesia Stock Exchange, where each determination of these policies will reduce the level of illiquidity of the Indonesia Stock Exchange. On the other hand, the government's policy regarding internal movement restrictions does not cause differences in the liquidity level of the Indonesia Stock Exchange. The transaction volume variable has a significant negative effect on the liquidity of the Indonesia Stock Exchange, while the BI rate variable has a significant positive effect on the liquidity of the Indonesia Stock Exchange. During Covid-19 investors must pay attention to government policy such as restrictions on activities of educational institutions, workplace activity restriction, international travel control, monetary policy and the volume transaction of Indonesia Stock Exchange because these variables may affect the liquidity of Indonesia Stock Exchange. If the liquidity level of Indonesia Stock Exchange is decreasing the investors should extend the duration of holding period for their portfolio. Amihud and Mendelson (1986) stated that assets that have a low level of liquidity will be retained by investors for a longer period so that the returns from these assets will increase over time and can exceed the transaction costs of these assets.

This study has limitations in the scope of the study. The scope of this research is limited to the Indonesia Stock Exchange, with a research period of 3 months starting on March 2, 2020, which is the date the first positive case of Covid-19 occurred in Indonesia, until June 2, 2020. So that further researchers can develop this research by expanding the scope of the research scope is to become Stock Exchanges in emerging markets in the Asian continent or wider to cover the whole world. The research period can also be extended from 2019 to 2021 to identify and compare the liquidity conditions of the Stock Exchange before the Covid-19 pandemic, during the Covid-19 pandemic, and the "second wave" period of the Covid-19 pandemic.

References

Amihud, Y. 2002. *Illiquidity and Stock Returns: Cross Section and Time-Series Effects.*1Journal of Financial1Markets, Vol. 5 (2002), Hal. 31-56, New York: New York1University.

Amihud, Y. et al. 2005. “Liquidity and asset prices,” Foundation and Trends in Finance, vol. 14, pp. 269-364, 2005.

Amihud, Y., & Mendelson, H. (1986). Liquidity and stock returns. Financial Analysts Journal, 42(3), 43-48.

Ahn H-J, Cai J, Yang C-W. *Which Liquidity Proxy Measures Liquidity Best in Emerging Markets? Economies.* 2018; 6(4):67. https://doi.org/10.3390/economies6040067

Bekaert, G., Harvey, C. R., & Lundblad, C. (2007). *Liquidity and expected returns: Lessons from emerging markets.* The review of financial studies, 20(6), 1783-1831.

Butler, A. W., Grullon, G., & Weston, J. P. (2005*). Stock market liquidity and the cost of issuing equity. Journal of Financial and Quantitative Analysis,* 40(2), 331-348.

Chebbi, K., Ammer, M. A., & Hameed, A. (2021). *The COVID-19 pandemic and stock liquidity: Evidence from S&P 500.* The Quarterly Review of Economics and Finance.

Chen X., Xie D. 2016. *How responsive is China'sstockmarket to the monetary policies.* Lecture Notes in Engineering and Computer ScienceVolume 2, 2016, Pages 788-793.

Kyle, A, 1985. Continuous Auctions and Insider Trading. Econometrica 6, 1315-1335.

Marozva G. 2020. Stock Market Liqudity and Monetary Policy. *International Journal of Economics and*

Business Administration Volume VIII, Issue 2, 2020
McKibbin, W. J., & Fernando, R. (2020). Global macroeconomic scenarios of the COVID-19 pandemic.
Mdaghri, A. A. et al., 2020. *Stock market liquidity, the great lockdown, and the COVID-19 global pandemic nexus in MENA countries.* Review of Behavioral Finance.
Narayan, P.K., Phan, D.H.B., Liu, G., 2020. *COVID-19 lockdowns, stimulus packages, travel bans, and stock returns.* Financ. Res. Lett. 101732.
Sicherman, N., Loewenstein, G., Seppi, D. J., & Utkus, S. P. (2016*). Financial attention. The Review of Financial Studies,* 29(4), 863-897.
Zaremba. Adam, Aharon. David. Ender, Kizys. Renatas, Zawadka. Dariusz, "COVID-19, government policy responses, and stock market liquidity around the world: A note." Researh in International Business and Finance 56 (2021) 101359.
Zaremba, A., Kizys, R., Aharon, D.Y., Demir, E., 2020. *Infected markets: novel coronavirus, government interventions, and stock return volatility around the globe.* Financ. Res. Lett. 101597.