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EFFECT OF EXCHANGE RATE, MONEY SUPPLY AND ECONOMIC GROWTH ON COMPOSITE STOCK PRICE INDEX IN INDONESIA STOCK EXCHANGE

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ABSTRACT

This study aims to determine the effect of macroeconomic factors, namely exchange rates, money supply and economic growth on the performance of composite stocks that occur in Indonesia on the Indonesia Stock Exchange (IDX) both in short term relationships and long term relationships. The data used in the study are secondary annualy data from 1997 to 2019 (23 years). The results obtained in this study are a short-term equilibrium relationship using the error correction method (ECM) test, the results obtained that the independent variable exchange rate, money supply and economic growth have a short term equilibrium relationship to composite stock in the short term. Likewise the estimation results that have been made on the research model show a partial or joint relationship (simultaneous) between all independent variables, namely the exchange rate, money supply and economic growth on the dependent variable, namely the composite stock shows a significant and influential relationship in the long term relationship. The results of this research are expected to be used as additional information and knowledge for potential investors to make investment decisions. For issuers, it can be taken into consideration in determining company policies.

INTRODUCTION

Capital Market has a very big role in funding economic development in Indonesia, especially for companies. There are two functions in the capital market which are functions for companies and functions for the community. The function of the capital market for companies is primarily as an alternative to get funding

from the public (investors), one of which can be used as additional working capital and business expansion. While the function of the capital market for the community is used as an alternative investment choice that can produce optimal levels of returns for investors, these investments can be in the form of stocks, bonds, mutual funds.

Therefore the Capital Market is an alternative investment choice that can produce optimal levels of returns for investors. Investment can be interpreted as an activity of placing funds in one or more than one asset during a certain period in the hope of earning income and or increasing the value of investment (Suad Husnan in Achmad Ath Thobarry, 2009).

The capital market in Indonesia is handled by the Indonesia Stock Exchange (IDX) is an institution in Indonesia that organizes and provides a system as well as a means to bring together the sale and purchase offers of other parties for the purpose of trading stock between them (wikipedia, Indonesia Stock Exchange). One of the stock market indices used by the Indonesia Stock Exchange (IDX) is the Indonesia Composite Index, ICI, or IDX Composite (IHSG) which is used as an indicator of stock price movements. The Composite Stock Price Index on IDX always fluctuates, this depends on the strength of demand and supply.

The fluctuation of the Composite Stock Price Index itself is strongly influenced by macroeconomic factors that occur in a country, one of the macroeconomic factors that greatly affects the capital market in Indonesia is the exchange rate and economic growth.

Graphic IDX Composite Development, Exchange Rate and Economic Growth
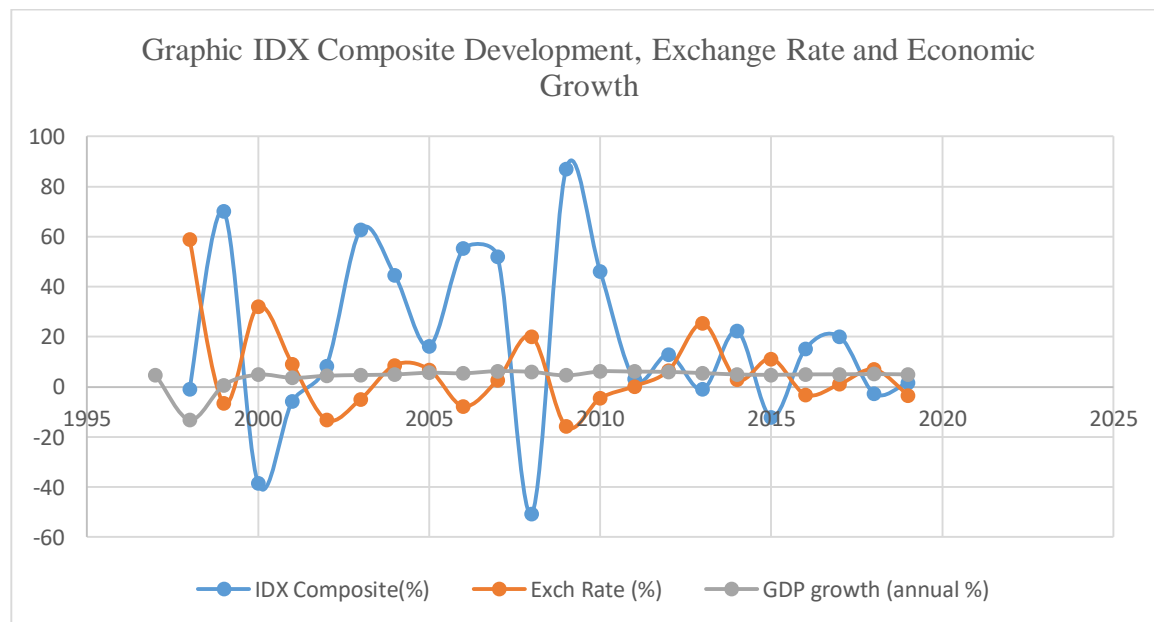
Graphic 1.1:IDXComposite Development, Exchange Rate And economic Growth

Graph 1.1 shows the relationship between the exchange rate and IDX Composite is negative or inversely proportional, meaning that if there is a depreciation of the exchange rate then IDX Composite will rise or be opposite if there is an appreciation of the exchange rate then IDX Composite will increase. While economic growth is flat graph.

TAHUN	IHSG	IHSG Growth %	Exchange Rate (IDR/USD)	Exchange Rate Growth (%)	Economic growth (annualy) %	Money Supply (M2	M2 Growth (%)
2010	3703.51	46.13196	9024.7	-4.54699	6.223854	2471206	0.154023
2011	3821.99	3.199127	9048	0.25818	6.169784	2877220	0.164298
2012	4316.69	12.94352	9642	6.564987	6.030051	3307508	0.14955
2013	4274.18	-0.98478	12084.8	25.33499	5.557264	3730409	0.127861
2014	5226.95	22.29129	12432.8	2.87965	5.006668	4173327	0.118732
2015	4593.01	-12.1283	13831	11.24606	4.876322	5004977	0.199277
2016	5296.71	15.32111	13396.5	-3.14149	5.033069	5419165	0.082755
2017	6355.65	19.99241	13547.9	1.130146	5.067406	6136552	0.13238
2018	6194.05	-2.54262	14492.5	6.972298	5.17127	5760046	-0.06135
2019	6299.54	--	14012.5	--	5.030947	6238267	--

Data Source: world Bank, Pacific Exchange Rate, Indonesia Bank (BI) and IDX
Tabel 1.1: IDX Composite Stock Development, Exchange Rate, Economic Growth Data and Money Supply (M2)

Table 1.1 shows development data or growth between IDX Composite stock, exchange rate, economic growth and money supply (M2). IDX Composite data from 2010 to 2011 in table 1.1 above has been a very sharp decline while the exchange rate, economic growth and money supply have not experienced significant changes.

From 2011 to 2012 there has been a fairly good development of IDX Composite stock (increasing), while the exchange rate has depreciated and economic growth and money supply tends to be flat. From 2012 to 2013 there was a sharp decline in IDX Composite stock in the amount of -0.98478% while the exchange rate also experienced a significant depreciation of 25.33% and economic growth also decreased in economic growth and the money supply tended to be flat.

Data from 2013 to 2014 has seen a very large increase in the performance of IDX Composite stock in the amount of 22.29% while the exchange rate and economic growth and money supply tend to remain unchanged. Data from 2014 to 2015 has seen a very sharp decline in the performance of IDX Composite, the worst performance of IDX Composite in the last 10 years.

While IDR against the USD depreciated, economic growth also declined and money supply tended to be flat. Data from 2015 to 2016 there has been a very sharp increase in the performance of IDX Composite that is equal to 15.32%.
While IDR to the USD tends to remain unchanged and economic growth also experiences an increase and the money supply tends to be flat. Data from 2016 to 2017 has increased again on IDX Composite's performance of 19.99%, while IDR against the USD and economic growth tends to remain unchanged and money supply tends to decrease. Data from 2017 to 2018 there has been a very bad decline in the performance of IDX Composite, amounting to -2,54%, while IDR against the USD has experienced depreciation and economic growth and money supply tends to remain unchanged.

Based on the phenomena and facts above, the purpose of this study is to examine whether the exchange rate, economic growth and money supply have an influence on the performance of IDX Composite stock, either partially or simultaneously. Want to know the equilibrium of short-term and long-term relationships between exchange rates, economic growth and money supply against IDX composite stock. Besides this research is to find out how much each of these independent variables affects the performance of IDX Composite in Indonesia. Thus, the results of this study are expected to be used as additional information and knowledge for potential investors to make investment decisions. For issuers, it can be taken into consideration in determining company policies.

LITERATURE REVIEW

IDX Composite Stock (IHSG)

Composite Stock Price Index (CSPI), which uses all the listed issuers as a component of index calculation. This index covers the price movements of all common and preferred shares listed on the IDX as the capital market in Indonesia. Composite Stock (IHSG) is an index that measures the price performance of all shares listed on the Main Board and the Indonesia Stock Exchange Development Board (source: Indonesia Stock Exchange-IDX)

The capital market is a market for a variety of long-term financial instruments that can be traded, both debt securities, equities (stocks), mutual funds, derivative instruments and other instruments. The capital market is a means of funding for companies and other institutions (for example the government), and as a means for investing activities. Thus, the capital market facilitates various facilities and infrastructure of buying and selling activities and other related activities. (source: Indonesia Stock Exchange-IDX)

Indonesia Stock Exchange (IDX) is the party that organizes and provides a system as well as a means to bring together the sale and purchase offers of other parties for the purpose of trading securities between them.

The Stock Price Index applies to individual / group shares while the combined share price (CSPI) uses the data of all shares listed on a stock exchange. Index calculation methodology uses market weighted average index with the basic formula of calculation (Achmad Ath Thobarry, 2009):

$$Index = \frac{MarketValue}{BaseValue}.100$$

Rupiah Exchange Rate and Its Effect on Composite Stock Performance

The exchange rate itself can be interpreted as the price of a country's currency (domestic currency) which is converted in the form of a foreign country's currency (foreign currency). The stable growth of currency values shows that the country has relatively good or stable economic conditions.

The exchange rate between domestic currencies against other foreign currencies will experience fluctuations in changes, especially in the exchange rate system which is fully controlled by the mechanism of the currency market (free floating

exchange rate or flexible exchange rate). There are two kinds of changes in exchange rates, namely:

➢ Nominal Depreciation (depreciation), is a decrease in the price of the domestic currency against other foreign currencies.
➢ Nominal Nominal appreciation (appreciation), is an increase in the price of the domestic currency against other foreign currencies.

The two changes in the exchange rate above both appreciation and depreciation occur because of the pulling forces of demand and supply in the market (market mechanism). With the changes in the exchange rates mentioned above, it will affect the Composite Stock Performance of IDX.

There are three basic reviews or approaches for determining fluctuations in exchange rates themselves, namely:

1. Purchasing Power Parity (PPP), a review of the relative price of goods.
2. Monetary Approach, a review of the relative price of money.
3. Asset Market Approach, a review of the relative price of bonds.

The exchange rate (exchange rate) is one of the factors that affect activities in the capital market and money market because investors tend to be very careful to make investments. This exchange rate depreciation or depreciation will have a negative effect on the economy and capital markets.

The decline in the Rupiah exchange rate against foreign currencies has a negative effect on the economy and capital market. This is because a decrease in the exchange rate can increase the cost of importing raw materials and increase interest rates but can increase exports.

Money Supply (M2)

Money supply circulating in the community is actually controlled by the central bank, the Indonesian Bank. However, the amount of money circulating in the community is not only determined by the policies of the central bank, but also by household actors (who hold money) and banks (where money is stored).

There are several economic macro factors that affect money supply including the sale of shares, one of which is the composite stock price index in the market capital. This was stated by J.M Keynes (economist) states that money is one form of wealth held by the community other than in the form of savings in banks, shares or other securities, so that there is a demand for money.

Money circulating in the community in the broad sense symbolized by M2 or L2 is defined as money in the broad sense or liquid funds that cannot be used as a medium of exchange for every purchase, namely the money supply including M1 and also savings accounts in banks and similar assets including deposits in a savings account at a bank, money market mutual funds, funds in the capital market. So M2 is M1 plus quasi money.

Bank Indonesia Certificates (BIC) are securities issued by Bank Indonesia, and one of the components used by the government to control the amount of money in circulation. Then the relationship of interest rates with money supply is if too much money occurs in the community that can trigger inflation, the monetary policy adopted by Bank Indonesia is to increase bank interest rates, thus the public will be interested in saving money in banks so that it can reduce money supply in society.

Thus to maintain the stability of the value of the currency, Bank Indonesia as a monetary authority has several authorities in carrying out its duties, namely formulating and implementing monetary policy to control money supply and interest rates in order to support the achievement of the objectives of the stability of the value of money and the economy of a country.

Economic Growth and Relation to IDX Composite Stock Performance

The problem of economic growth can be seen as a macroeconomic problem in the long run. The economic growth of a country is an indicator of the development of activities and economic progress that causes the production of goods and services in a society to increase so that the prosperity of the community is expected to increase.

Economic growth is defined as the development of activities in the economy that causes the goods and services produced in society to increase and be long-term. So the term economic growth explains or measures the achievements of the development of an economy. In actual economic activities economic growth means the development of fiscal production of goods and services that apply in a country (Sudono Sukirno, 2004).

This increased ability is due to the factors of production will always increase in number and quality, (Popy Citra Juita CS.). Addition of these factors of production can be realized through investment. Todaro (2003: 137) states that the resources that will be used to increase income and consumption in the future are called investments. Thus investment can be interpreted as spending or spending by investors or companies buying capital goods and production equipment to increase the ability to produce goods and services available in the economy.

The model of economic growth according to what was presented by Joseph Alois Schumpeter emphasizes the importance of the role of economic actors who have an entrepreneurial spirit (entrepreneur) to carry out the process of innovation in creating economic development. They continue to strive for innovation in economic activity.

Salah satu indikator dari pertumbuhan ekonomi suatu negara adalah *Gross Domestic Product* (economic). Pertumbuhan ekonomi dapat dihitung dengan menggunakan rumus sebagai berikut:

$$\Delta GDP\ Growth = \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}} X100$$

Information:

Δ economic(t) = Economic growth rate of a certain year (t).
 t-1   = Previous year.

Economic growth is one of the factors that influence changes in stock prices. Estimated economic growth will determine economic development. economic comes from the number of consumer goods that are not included as capital goods. The increasing number of consumer goods causes the economy to grow, and increases the scale of the company's sales turnover, due to the consumptive society. With the increase in sales turnover, the company's profit also increased. Increased profits cause the company's stock prices to also increase, which impacts on stock price movements (Kewal in Muhammad Faisal Amrillah, 2016).

If the economic growth improves, the purchasing power of the people will increase as well and this provides an opportunity for the company to increase its sales. With the increase in sales, the opportunity for profit will also increase (Tandelilin in Prasetiono in Muhammad Faisal Amrillah, 2016).

Research on the relationship of economic growth to stock prices has been conducted by Sangkyun Park in Achmad Ath Thobarry, 2009 where the result is finding a positive influence of economic growth on stock prices.

The Framework of Research in research is as follows:
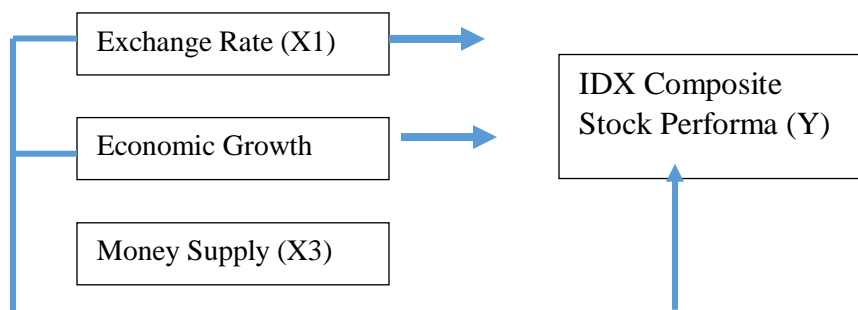
Figure 4: Framework of Research

Hypothesis:

H1: exchange rate (Rp to USD) has a significant effect on composite stock.
H2: economic growth has a significant effect on composite stock.
H3: Money supply has a significant effect on composite stock.
H4: exchange rate, economic growth and Money supply influence together (simultaneously)
against composite stock.

RESEARCH METHODOLOGY.
In the research carried out using the Ordinary Least Square (OLS) method. The data used in this study is using secondary data and time series data on an annual basis (yearly) and is a long term relationship that is data from 1997 to 2019 (22 years). The analysis method in this study uses cointegration analysis and error correction method (ECM). The cointegration method is used to explain the long-run relationship between economic variables, namely the independent variable and the independent variable in the form of the same trend direction of the non-stationary variables used in the model, so that the problem of the spurious regession phenomenon can be overcome and not happen.

This cointegration method uses the Johansen test which is used to see the cointegration between variables in the model). While the error correction method-ECM method is used to analyze multivariate time series data that is not stationary but there is a cointegration between the variables used in the research model. This method will also be used to see how much influence the exchange rate, money supply and economic growth has on Composite Stock in this study

Before conducting the analysis using the statistical test above so that the results of the research conducted obtained BLUE (Best, Linear, Unbias and Estimator) results, then conducted several other tests namely; data stationarity testing. This test is intended so that the time series data used in research remains stable in the long run at the level of variance if fluctuations, there is no difference in the range of data fluctuations in the event of a phenomena of spurious regression, this is needed in order to identify long and short-term relationships between variables. . Another statistical test followed by the model selection criteria is the goodness of fit test with the correlation test, also using the classic assumptions that underlie the regression model (heteroscedasticity, muticollinearity, autocorrelation). in addition to the goodness of fit test, namely the correlation test, AIC test, Fisher test (F-test), normality test so that all data to be used is normal.

The cointegration method is used to explain the long-run relationship between the research variables used, namely the independent variable (exchange rate and economic growth) with the dependent variable (composite stock) in the form of the same trend direction of the non-stationary variable data used in the model, so that the problem of spurious regression phenomenon does not occur. Characteristics of spurious regression according to Wing Wahyu Winarso, 2009 are characterized by: having a high coefficient of reflection (R2), a high simultaneous test value (F-test), having a partial value (t) that is not or many are insignificant so the test cannot be used hypothesis and have a low Durbin Watson (d-value).

If these variables are cointegrated, a stable relationship will occur in the long run. So this study aims to see whether there is a long-term equilibrium relationship time series data exchange rate and economic growth with composite stock data. The cointegration method used is by using the root unit time series with the Engle-Granger (EG) test or the Augmented Engle-Granger (AEG) test. The Unit Root Test conducted using the Augmented Dikey Fuller - ADF Unit Root Test with the following hypotheses:
H0: There is root unit
H1: no root unit

While the error correction method-ECM used in this study is the method used to analyze multivariate time series data which is not stationary but there is a cointegration between the variables used in the research model. The ECM method is used to balance short-term economic relationships of variables that already have a long-term balance / economic relationship. Thus the ECM in this study will be used to see how much influence the exchange rate and economic growth have on the Composite stock's performance both in the short term and in the long term relationship. The Engle-Granger ECM model can be defined as follows (Saputra, Mariani Jaya et al):

$$\Delta Y_t = \alpha_0 + \alpha_t \Delta X_t + \alpha_2 EC_t + \varepsilon_t$$
$$\text{With} EC_t = Y_{t-1} - \beta_0 - \beta_1 X_{t-1}, \ \Delta X_t = X_t - X_{t-1},$$

α_1 = short-term coefficient, β_1 = long-term coefficient, and α_2 = equilibrium correction coefficient.

So to answer and prove the research objectives above as well as to see the coefficients of each independent variable used in the research model with multiple regression equations as follows:

$$\boldsymbol{Composite\_Stock_t = \beta_1 + ER_2 X_{2t} + GDP\_Growth_3 X_{3t} + M2X} \quad \ldots \ 3.1$$

Y_t : IDXComposite Stock

X_{2t} : Exchange Rate
X_{3t} : Economic Growth
X_{4t} : Money Supply
u_i : disturbance term

RESEARCH ANALYSIS AND RESULTS

STATISTICAL TESTS ON RESEARCH DATA.

Normal DataTest

The first step before estimating the research model is the normalization test of all operational variables used in the model. This normality test can be done using several methods, one of which is the Jarque-Bera (JB) test, this must be done in order to produce a regression equation that is Best Linear Unbias Estimator (BLUE)

The results of the normalization test conducted using the Jarque-Bera method using the E-Views software are as follows:

Normalitas Test to Variables Model				
No.	Variable	Result	Prob.	information
1	Composite Stock	Normal	0.354940	Less than α=0.05
2	Exchange Rate	Normal	0.941987	Less than α=0.05
3	economic Growth	Normal	0.27823	Less than α=0.05
4	Money Supply	Normal	0,297246	Less than α=0.05

Source: Output Eviews 6.0 (yang diolah)

Seen from the results of the above output where the results of Jarque-Berra is greater than Prob. And Prob. Bigger than alpha. This shows that Ho is accepted (accept Ho) which means that all data used in the study are normally distributed.

Heteroskedasticity Test:

Heteroskedasticity Test: used in this study is to use the White test. The output results with this white test are as follow:

Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic	0.446187	Prob. F(3,18)	0.7230
Obs*R-squared	1.522777	Prob. Chi-Square(3)	0.6770
Scaled explained SS	1.433439	Prob. Chi-Square(3)	0.6977

Where the results: Breusch-Pagan-Godfrey test shows Chi-Square Probability of Obs * R-squared is 0.6770 or greater than $\alpha = 5\%$ which means receiving Ho. Thus this research model does not contain heteroscedasticity or is homoscedastic.

Autocorrelation Test

The statistical test used for this autocorrelation test is to use the Durbin-Watson test. The Durbin-Watson test results using Eviews are 2.244198, this shows accept H0, this means there is no Autocorelas. Or you can also use the Breusch-Godfrey Serial Correlation LM Test with the following results:

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.025792	Prob. F(6,12)	0.4543
Obs*R-squared	7.458350	Prob. Chi-Square(6)	0.2805

Where the results of Prob.Obs * R-squared above is equal to 0.280 greater than 0.05 (alpha) means that there is no problem with Correlation.

RESEARCH MODEL ESTIMATION

After doing some statistical tests above, the next step is to estimate the research model. The estimation results of the research model that have been conducted with E-Views before cointegration and error correction model (ECM) tests are conducted as follows:

Dependent Variable: COMPOSITE_STOCK				
Method: Least Squares				
Date: 06/26/20 Time: 03:38				
Sample: 1997 2019				
Included observations: 22				
VARIABLE	COEFFICIENT	STD. ERROR	T-STATISTIC	PROB.
C	1046.348	615.7003	1.699444	0.1065
EXCHANGE_RATE	-0.187769	0.076144	-2.465973	0.0239
ECONOMIC_GROWTH	1.978565	0.561812	3.521756	0.0024
M2	0.001255	9.48E-05	13.24679	0.0000
R-squared	0.970986			
Adjusted R-squared	0.966150			

F-statistic	200.7946
Prob(F-statistic)	0.000000
Akaike info criterion	14.97888
Durbin-Watson stat (DW)	2.244198

Source: E-Views Processing Data

From the results of data processing with E-views on the research model obtained, the results as above. Then from the data processing results obtained by the multiple regression equation as follows:

COMPOSITE_STOCK = 1046.34788563 - 0.187768702421*EXCHANGE_RATE + 1.97856466161*ECONOMIC_GROWTH + 0.00125524608407*M2 ……………… 4.1

From the results of equation 4.1 above can explain the relationship between exchange rate factors, economic growth and money supply to composite stocks in long term relationships. It can be seen that money supply and economic growth have a positive relationship (directly proportional) to the composite stock, meaning that if money supply and economic growth rise then the composite stock will rise or strengthen, conversely if money supply and economic growth fall then the composite stock will weaken. While the exchange rate factor on the contrary has a negative relationship (inversely proportional) to the composite stock, meaning that if the exchange rate experiences depreciation, the composite stock will experience the opposite to be appreciated.

The estimation results above show that the partial relationship between all independent variables, namely the exchange rate, money supply and economic growth to the dependent variable, namely composite stock, shows a significant and influential relationship in long term relationships, this can be seen from the Prob value. (probability) all independent variables are smaller than alpha by 0.05 (5%). exchange rate (0.0239), money supply (0.0000) and economic growth (0.0024)

The simultaneous relationship between the three independent variables with the dependent variable in the reseach model was very influential (significant).

Besides that, seen from the goodness of fit model used in this very good research, it can be seen from the determinant coefficient that is the Adjusted R-squared value of 0.966150 meaning that the relationship between the independent variable and the dependent variable is 96.6150% meaning that the independent variable has an influence or a very strong contribution to the dependent variable. other

goodness of fit models can also be seen from the value of Akaike info criterion (AIC) which is equal to - 14.97888.

Stationary Test.

After estimating the research model above the next step, a stationary test before cointegration test and error correction method (ECM) test is performed to identify long-term and short-term relationships between the variables used in the model. The results of the stationary tests of all variables used are as follows:

Tabel 2: Result Unit Root Test withAugmented Dikey Fuller – ADF

Deskripsi	Diferensiasi	Order Integrasi		
	Level	1st difference	2nd difference	
	p-value	p-value	p-value	
Composite Stock	0.9848	0.0006	---	I(1)
Exchange Rate	0.6265	0.0017	---	I(1)
Economic Growt	0.0831	0.0002	----	I(1)
Money Supply	0.2804	0.1469	0.4004	I(1)
Prob. Pada ADF - Fisher Chi-square	0.9071	0.0000	0.000	

By using E-Views, the results of stationary test output show that almost all variables used in the research model are non-stationary. Where the p-value of all variables is greater than alpha that will be used in this study is 0.05. So we need to change the data into stationary through differentiation (difference) to the first level (1st difference), the second level (2nd difference) and so on. which is done through a unit root test (unit root test) using the Augmented Dickey Fuller test (ADF-Test).

Cointegrasion Test(ENGLE-GRANGER)

The purpose of this cointegration test is to see whether there has been an equilibrium relationship between the independent variable and the dependent variable in the model between the short-term to the long-term, as well as this test to determine whether or not there is spurious regression.

The first thing to do in the cointegration test is to see whether the residual data from the model used in the study has been stationary at the level or not. This test

uses the Augmented Dickey-Fuller test (ADF-Test). The results of the residual stationary tests that have been carried out are as follows:

			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.963314	0.0008
Test critical values:	1% level		-3.808546	
	5% level		-3.020686	
	10% level		-2.650413	
*MacKinnon (1996) one-sided p-values.				

The results of the residual unit root test of the research model at the above level can be concluded that H0 is rejected indicating there is no unit root indicated by the ADF test of -4.963314> critical value of 5% ADF of -3.020686 this is supported by the probability value of 0.0008 <0.05.

The next step is the cointegration test by using the Johansen Cointegration test with Eviews, which is by integrating all the data variables (groups) used in the research model, which if the time series variable is cointegration, then there is a stable relationship in the long run. The results of this cointegration test are as follows:

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.806705	49.59464	47.85613	0.0340
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.806705	31.22720	27.58434	0.0162
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				

* denotes rejection of the hypothesis at the 0.05 level	
**MacKinnon-Haug-Michelis (1999) p-values	

The cointegration test results with Johansen Cointegration Test that have been done are comparing the value of trace statistics with critical values (5%). It turned out that the trace statistic value of 49,59464 was greater than the critical value (5%) 47,85613. In addition to strengthening the cointegration test results, we can also see the results of the Maximum Eigenvalue Statistics, with a result of 31,22720, greater than the critical value of 5%. 27.584434. From these results so that we can conclude that there has been a cointegration between research variable data, namely composite stock, exchange rate, economic growth and maney supply. This shows that there has been a long term equilibrium relationship between variables in the research conducted. Besides that the model in the research that was made no longer contained the problem of spurious regression (spurious regression).

Error Correction Model (ECM) Test

Because all the data used in this study are not stationary and cointegration between variables occurs so that in the long run there is an equilibrium relationship as described above. However, in the short term, there is no certainty that an equilibrium relationship will occur, this study will use the Error Correction Model (ECM) error correction model to analyze and prove exchange rate, economic growth and maney supply movements to the composite stock in the short term whether there is also an equilibrium relationship. The results of Error Correction Model (ECM) tests that have been carried out are as follows:

Dependent Variable: D(COMPOSITE_STOCK)				
Method: Least Squares				
Date: 02/10/06 Time: 01:07				
VARIABLE	**COEFFICIENT**	**STD. ERROR**	**T-STATISTIC**	**PROB.**
C	80.55637	151.2946	0.532447	0.6022
D(EXCHANGE_RATE)	-0.212762	0.096791	-2.198151	0.0441
D(ECONOMIC_GROWTH)	1.908228	0.674707	2.828232	0.0127
D(M2)	0.001059	0.000408	2.598105	0.0202
RESIDUAL_1(-1)	-1.091802	0.351204	-3.108736	0.0072
R-squared	0.678084			
Adjusted R-squared	0.592239			
F-statistic	7.898987			
Prob(F-statistic)	0.001237			
Akaike info criterion	15.09019			

Durbin-Watson stat (DW)	1.934421

Source: E-Views Processing Data (ECM)

D(COMPOSITE_STOCK) = 80.5563698646 - 0.212761945563*D(EXCHANGE_RATE) + 1.90822830532*D(ECONOMIC_GROWTH) + 0.00105938045483*D(M2) - 1.0918017991*RESIDUAL_1(-1) …………………4.2

The results of the model error correction (ECM) test seen in the above results show that the lag of residual value is negative (-1.091802) and should be negative. In addition, all independent variables, namely exchange rates, money supply, economic growth and residual results are significant, this shows that these variables have a short term relationship to composite stock, this can be proven from the value of Probability (Prob.) Of each each variable weighted 0.05. The residual coefficient in the results above is -0.732447, this shows that the error correction term is 73.24% and significant.

So we conclude that all independent variables in this study, namely the exchange rate, money supply and economic growth have a sort term equilibrium relationship or a long term equilibrium relationship.

CONCLUSIONS

From the results of data processing that has been done on the data model used in this study and after conducting several stages of data processing with statistical tests ranging from model estimation, classic assumption tests, stationary tests on all research data both independent variables and independent variables with root test unit, followed by cointegration test and error correction model (ECM) test, obtained results which we can conclude that all variables used in the study are not stationary in nature this is a condition for conducting cointegration tests namely the equilibrium test in the long run, this we want to know whether there has been an equilibrium relationship between independent variables, namely the exchange rate, money supply and economic growth on the dependent variable, namely composite stock in the long term. The results obtained in this study indicate that all the independent variables have an influence (contribution) to the dependent variable and there has been an equilibrium relationship between the exchange rate, money supply and economic growth on the composite stock in the long term over a period of 22 years starting in 1997 s.d. 2019, the short-term balance relationship using the ECM test results show that the independent variable exchange rate, money supply and economic growth also have an equilibrium relationship to composite stocks in the short term. So that the exchange rate, money supply and economic growth have an influence or contribution to the performance of composite stock both in the short term and long term.

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