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ANALYSIS OF FACTORS AFFECTING CHANGES IN JCI VALUE ON THE INDONESIA STOCK EXCHANGE

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Abstract
This research aims empirical evidence regarding the impact of the inflation rate, the BI Rate, the dollar exchange rate, and the interest rate on the Composite Stock Price Index (JCI). Composite Stock Price Index (JCI) is one of the indexes that investors frequently consider when making investments on the Indonesia Stock Exchange. Therefore, the authors wish to investigate the factors that influence the CSPI in greater detail. This study's population comprises the overall annual data for the inflation rate, BI Rate, Exchange Rate, and Composite Stock Price Index (JCI) from 1991 to 2020. The sampling method employed is a saturated sample in which the entire population is represented. This study employs the ECM technique. The results indicated that the inflation rate, the BI Rate, and the Dollar Exchange Rate (USD/IDR) partially influenced the Composite Stock Price Index (JCI).

Keywords: *BI Rate, Exchange Rate, Inflation, JCI*

1. INTRODUCTION

The environment that has an effect on the day-to-day operations of the company is referred to as the macroeconomic environment. Changes or developments that occur in different locations. National economic variables affect the capital market. According to research Listriono & Nuraina (2015) stated that if a macroeconomic indicator is bad, it will have an impact on the development of the capital market. However, positive economic indicators have a positive effect on the state of the capital markets. The Composite Stock Price Index (JCI), a stock market index maintained by the Indonesia Stock Exchange, is frequently used as a gauge of the growth of Indonesia's capital market (ISE). Because the stock price index is so widely known, the Composite Stock Price Index (JCI) is a good place to start investing. Thus, the Composite Stock Price Index (JCI) can be used to gauge market conditions broadly or to track changes in stock prices.

Investors will be better able to maximize their returns by predicting and adapting to future macroeconomic conditions if they have a firm grasp on the current state of these dynamics (Nisa & Juliprijanto, 2022). Therefore, several macroeconomic indicators may be used to aid investors in making investment decisions. As noted by Lutfiana (2017), that Growth in GDP and industrial production as well as inflation, interest rates, the value of the rupiah relative to the dollar, unemployment, and budget deficits are all macroeconomic indicators that affect the Indonesian stock market.

The research discussed is only the inflation rate, interest rate, exchange rate of Dollar to Rupiah. These three macroeconomic indicators have an important role in research, namely so that investors know and consider these three variables in making business decisions, because the economic indicators studied can be used as a reference whether the stock price and the joint stock price have increased or decreased. Investors

will certainly consider several factors, namely inflation, dollar exchange rate, and interest rates if indeed these three variables affect the Jakarta Composite Index (JCI). Previous research that states how economic indicators can affect the JCI. According to the research Listriono & Nuraina (2015) explains that the general rate of inflation is usually blamed for the cost of living rising. A rise in inflation reduces consumers' purchasing power. Because of the drop in the stock market's public purchase price, more and more people are putting their money to work in the stock market. Since most of the individual stock price indexes are also increasing, the Composite Stock Price Index (JCI) will increase if this holds true for all stocks. In order to combat rising inflation, Bank Indonesia sets the benchmark interest rate known as the Bank Indonesia interest rate (BI Rate).

Faridah & Kurnia (2016) revealed that the allocation of investors' funds will change as a result of higher interest rates. Bank products like deposits and savings accounts are safer investments than the stock market. For this reason, as interest rates rise, investors will likely shift their money from stocks to safer options like deposit accounts or savings. According to Gregory Mankiw (2007:128) in (Afriyanti, 2020), a country's exchange rate is the price at which its citizens are willing to trade with those of another country.

The relationship between the currency exchange rate and stock prices can be analyzed from two different theoretical perspectives (Astuti, 2016). According to the first sound market approach (Dorbush & Fisher, 1980), a company's competitiveness is affected by fluctuations in exchange rates, which in turn affects the company's revenue, financing costs, and stock price. The degree of openness of the domestic economy and the durability of the trade balance significantly affects the impact of fluctuations on the capital market. Second, there is the portfolio balance method, which places an emphasis on capital account transactions (Franke, 1993). If stock returns go up, investors will pour money into the economy, driving up the demand for the local currency and causing the exchange rate to rise. This finding runs counter to the findings of Gupta, who used data from Indonesian financial markets in 1993–1997 to draw the conclusion that interest rates, exchange rates, and stock prices did not have any causal relationship. The same thing was said by Panjaitan (2006) in (Laoh, 2013) who again showed that Neither stock prices nor exchange rates showed any discernible dynamic interaction.

Based on the background, objectives, and previous research, the problems or hypotheses to be tested in this study are:

1) It is suspected that inflation has a significant influence on changes in the JCI price value.
2) It is suspected that the exchange rate has a significant influence on changes in the JCI price.
3) It is suspected that interest rates have a significant influence on changes in the value of the JCI price.
4) It is suspected that inflation, exchange rates, and interest rates simultaneously have a significant influence on changes in the JCI price value.

In order to explain the short-term and long-term relationship between changes in the JCI price value and inflation, exchange rates, and interest rates, this study employs the ECM (Error Correction Model) method with analysis tools employing EViews 10 with data obtained from the World Bank and BPS Indonesia.

Prior research has yielded conflicting conclusions about how much of an impact inflation, currency fluctuations, and interest rates have on the JCI price index. These findings suggest a link between inflation, exchange rates, and interest rates and shifts in the value of the JCI. Despite this variety of opinion, questions remain about the direction of the JCI value's change over the past three decades.

Given the foregoing, the current study seeks to provide empirical evidence of the impact of inflation rate, BI rate, Dollar exchange rate, and interest rate on the Composite Stock Price Index (JCI).

2. LITERATURE REVIEW

2.1. JCI

The Composite Stock Price Index, abbreviated as JCI, is a collection of historical data pertaining to the movement of the combined stock price up to a particular date. The Composite Stock Price Index (JCI) represents a value that measures the performance of a common stock (Sunariyah, (2011) in (Taufiq & Kefi, 2015)). Research by Samsul (2006) in Prasetyanto (2017) noted that the stock market's overall performance is measured by the Composite Stock Price Index, which includes all stock classes. According to Hartono (2010) in Pamungkas (2018) both common and preferred share price changes are reflected in the IDX's Composite Stock Price Index (JCI).

2.2. Inflation

For goods and services as a whole, inflation is characterized by a persistent and widespread upward trend that occurs simultaneously across the globe. If inflation rises, consumers can expect higher prices across the board. When the value of a currency falls, the price of goods and services increases across the board. In this sense, inflation can also be understood as a decline in the purchasing power of money relative to the cost of goods and services. A measure of the general rate of change in the prices paid by households for a basket of goods and services over a specified time period. The Consumer Price Index (CPI) is a metric for gauging inflation. The rate of inflation or deflation of goods and services is reflected in the Consumer Price Index's (CPI's) fluctuating values. The Consumer Price Index is a common metric used to evaluate price increases (CPI). The changes in the CPI reflect the public's spending habits by tracking the costs of a representative sample of the goods and services it regularly purchases. The Central Statistics Office's (SBI) cost-of-living survey can be used to decide what kinds of products and services are included in the Consumer Price Index (BPS). Then, BPS will track the change in price over a predetermined amount of time, typically one month, for these products and services in both traditional and contemporary markets across a number of cities. The following are some alternative measures of inflation that are in line with global standards:

1) Wholesale Prices Index (hereinafter referred to as WPI). The first market for a commodity is where large transactions in that commodity's wholesale price take place, between the first wholesaler/seller and the next wholesaler/buyer.
2) In order to get an idea of how much the final goods and services produced in an economy cost, economists use a metric called the Gross Domestic Product (GDP) deflator (country). In order to determine the GDP deflator, nominal GDP is divided by real GDP. The inflation rate and interest rates will move in tandem. When

inflation is present, the following expression describes the connection between nominal and real interest rates:

$$i = r + \pi$$

With the above equation, known as the Irving Fisher equation, we can calculate the real interest rate, which is simply the sum of the nominal interest rate and the inflation rate (fisher equation).

From the equation it is shown that interest rates can change for two reasons, namely; (Mankiw & Reis, 2007)

1) Since the real interest rate changes and
2) Because the inflation rate changes.

The relationship between inflation and SBI interest rates can be explained, namely, an increase in the SBI interest rate will have an impact on rising money market rates (RMMR) this will cause investors and business actors to reduce their interest in borrowing capital from banks, this causes inertia in the business world and product shortage domestic. Importing goods to meet domestic needs and prices of domestic goods also rose significantly, causing inflation. So that an increase in interest rates will also cause an increase in inflation.

2.3. Interest Rate

Samuelson & Nordhaus (1998) state that an interest rate is a fee for the use of a sum of money. Samuel G. Kling defines interest as "compensation for the use of money which due" in his 1960 edition of The Legal Encylopedia for Home and Business (246 IBI). According to the Oxford English Dictionary (1989), p. 109 (IBI, 37), "Interest is money paid for the use of money lent (the principal), or for forbearance of a debt, according to a fixed ratio (rate per cent)."

There is some theory about interest rates. In other words, the level interest rate based on Adam Smith's classic theory and interest level Keynes theory. According to the classical theory that bank interest rates affect savings and investment. The taller interest rate, the bigger desire in habitant to save but invest, and on the contrary. Therefore, if there is connection negative or inversely between loan interest rates and investment, then investment is a function of interest rates. This matter shows that when monetary policy increases interest rate loan, investment will decrease because economic agents lend to the bank to borrow money to raise business funds (Cost of Capital).

Another theory is theory which put forward by Keynes which has convey that still available 3 reason people hold cash is the transaction motive, just in case & speculation then these 3 motives which affect money demand that usually people want use motive the permanent liquid for Fulfill those 3 motives, demand for money for the purpose of this speculation determined the big expert low interest rates, when small interest rate then money demand people will big caused and decrease people's desire to save, however the opposite when interest rate big the demand for money will decrease. Hence, to increase GDP (gross domestic) by lowering interest rates. Therefore, when inflation occurs at least in the short run in Keynessian theory, this monetary policy plays a role in increasing GDP without increasing the wage level of employment.

When rates of interest are low, a greater quantity of money flows into the economy, fostering faster expansion. Similar to how a high interest rate inhibits economic growth by limiting the flow of funds, a low interest rate also slows down expansion (Sundjaja & Barlian, 2003). (Nopirin, 2000) explains that interest rates' economic role is to allocate production factors for the creation of goods and services with present and future demand. Internal and external factors, as described by Ramirez and Khan (1999), are said to be responsible for the determination of interest rates' values. National income, money supply, and inflation are examples of internal factors. In contrast, the expected rate of change in foreign interest rates and exchange rates are external factors.

There are two types of interest rates: nominal interest rates and real interest rates. Based on Fisher's theory, the real interest rate is calculated by subtracting inflation expectations from the nominal interest rate, so the nominal interest rate is the rate at which all commercial banks in Indonesia are required to pay interest on deposits. It is widely anticipated that interest rates will remain stable because, as Mishkin (2008:60) argues in (Puspitaningrum et al., 2014) that a stable interest rate encourages a stable financial market, which in turn ensures that the flow of capital from individuals with productive investment opportunities is not disrupted and that economic activities continue unabated.

2.4. Exchange rate

Exchange Rate according to Hamdy (2008) in Ferdiansyah (2017) The exchange rate is the price of the local currency in foreign currency. Therefore, the exchange rate is determined by comparing the value of one rupiah to the currency of another nation. For instance, the exchange rate of the rupiah versus the U.S. dollar, the exchange rate of the rupiah versus the yen, etc. The exchange rate against a currency is defined becomes relative price based on one currency against another. There are basically three exchange rate systems:

1) Fixed exchange rate system
   A system in which the exchange rate between one currency and another is fixed at a predetermined value is also known as a fixed exchange rate system.
2) Floating exchange rate system
   In a floating exchange rate system, the currency's value rises and falls as a result of fluctuations in the underlying market forces of supply and demand. Somewhere in the middle of the two aforementioned exchange rate systems sits the controlled floating exchange rate system. Limits on the range of exchange rate fluctuations, known as investment band limits, are set by the central bank in this system.

Based on the demand side, there are 3 factors that affect foreign exchange rates:

1) Import Payment Factor, the domestic exchange rate tends to weaken as imports of goods and services increase because of the increased demand for foreign currency. If imports fall, however, the country's currency (the rupiah) will strengthen because there will be less demand for foreign currency.
2) The greater the outflow of capital, the higher the demand for foreign exchange, and the lower the value of the currency. The repayment of private and public debts owed to foreign creditors and the investment of funds abroad are two examples of capital outflows from Indonesia.
3) There is a negative correlation between the strength of a country's currency and the extent to which its citizens engage in speculative activities involving foreign exchange.

Meanwhile, based on the supply side to the 2 main factors that affect supply foreign exchange:

1) Export Revenue: The higher a country's total export receipts of goods and services, the higher that country's total amount of foreign exchange received, which in turn causes the country's home currency to strengthen (appreciate) in comparison to other currencies.
2) Capital Inflow Factor: The local currency exchange rate has a greater tendency to strengthen when there is a greater capital inflow. The receipt of foreign debt, placement of short-term funds by foreigners (portfolio investment), and direct investment from foreign countries are all examples of potential capital inflows. The gap between domestic and international interest rates is the primary factor that determines the total amount of capital that enters a country (differential interest rates).

The higher the difference between domestic and foreign interest rates, the greater the tendency for capital to flow into a country. In addition, the level of risk and market sentiment also affects investors' decisions to invest in a country. Countries that have a high investment risk generally tend to be avoided by investors.

3. RESEARCH METHODS

Time series data and secondary data from the World Bank and Financial Notes were used to conduct this analysis. Economic expansion, exports, imports, and gross capital formation figures from 1991 to 2020 are necessary for this study. Error Correction Model (ECM) technique data analysis performed in EViews 10. The short- and long-term connections should be explained by this model.
Systematically the ECM model used is:

JCI = $(Inflation_t, Interest\ rate_t, Exchange\ rate_t)$

Information:

JCI	= Composite Interest Rate Price Index/year
$Inflation_t$	= Inflation/year
$Interest\ rate_t$	= Interest Rate/year
$Exchange\ Rate_t$	= Exchange Rate against Dollar/year

So the equation of the long-run model is:

$$JCI = a_0 + \beta_1 Inflation_t + \beta_2 Interest\ rate_t + \beta_3 Exchange\ rate_t + \mathcal{E}_t$$

Information:

JCI	= Composite Interest Rate Price Index/year
$Inflation_t$	= Inflation/year
$Interest\ rate_t$	= Interest Rate/year

$Exchange\ rate_t$ = Exchange Rate against Dollar/year
$\mathcal{E}_t$ = *error term*

While the equations of the short-term model are:

$$D(JCI_t) = a_0 + \beta_1 D(Inflation_t) + \beta_2 D(Interest\ rate_t) + \beta_3 D(Exchange\ rate_t) + \beta_4 ECT + \mathcal{E}_t$$

Information:
$D(JCI_t)$ = Composite Interest Rate Price Index/year/differentiated at first difference
$D(Inflation_t)$ = Inflation/year/differentiated at first difference
$D(Interest\ rate_t)$ = Interest Rate/year/differentiated at first difference
$D(Exchange\ rate_t)$ = Exchange Rate against Dollar year/which has been differentiated at first difference
ECT = *Error Correction Term*
$\mathcal{E}_t$ = *error term*

It is important to check that all variables are stationary before attempting to estimate the Error Correction Model (ECM). Therefore, a unit root test must be conducted to determine whether or not all variables are stationary, and at what level.

1) Stationary Test
   The investigation kicks off with a stationary test. ADF (Augmented Dickey-Fuller) testing ensured that all of the variables were stable at the same value. Mc-Cointegration Kinnon's Degree Test's developed critical value is applied to the absolute value of the calculated ADF to determine whether or not it is greater than the table ADF.
2) Cointegration Test
   Cointegration test was carried out after the stationary test, where all variables were at the same degree of integration. In this study, using the Johansen Cointegration System Test.The Johansen test is used because in addition to being more accurate, it is also easier to understand. If all the variables are cointegrated, then it is continued to the ECM (Error Correction Model) test.
3) ECM (Error Correction Model) Test
   This model is employed in the pursuit of, and correction of, short-term disequilibrium in the direction of long-run equilibrium. The significance of the Error Correction Term (ECT) value indicates the validity of the ECM model; if the ECT value is large, the model specification is justified by the ECM (Error Correction Model).
4) Classic Assumption Test
   a) Normality Test
      The purpose of this test is to determine if the data on a given variable follow a normal distribution. Histograms and a test created by Jarque-Bare (JB) are two possible approaches.
   b) Multicollinearity Test
      The purpose of this test is to identify any potential correlations between independent variables in a regression model (Ghozali, 2016).
   c) Heteroscedasticity Test

This test aims to determine whether a regression model contains elements of heteroscedasticity or not. There are 2 methods used to detect heteroscedasticity problems, namely formal methods and informal methods (Agus Widarjono, 2013).

d) Autocorrelation Test

The term "autocorrelation" refers to the statistical relationship between the components of a single observation and those of other, time-varying observations. Breusch-serial Godfrey's correlation LM test is a reliable way to learn whether or not autocorrelation is present.

4. RESULTS AND DISCUSSION

4.1. Research Result

4.1.1. Stationarity Test

Augmented Dickey-Fuller Unit Root Test Level can be seen in the following table.

Table 1. JCI Stationarity Test Result

Null Hypothesis: JCI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistics		-6.376134	0.0000
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Source: EViews 10 (processed data)

Table 2. Inflation Stationarity Test Result

Null Hypothesis: INFLATION has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistics		-2.707047	0.0854
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

Source: EViews 10 (processed data)

Table 3. Exchange Rate Stationarity Test Result

Null Hypothesis: EXCHANGE_RATE has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistics		-1.133396	0.6880
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

Source: EViews 10 (processed data)

Table 4. Interest Rate Stationarity Test Result

Null Hypothesis: INTEREST_RATE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistics		-5.704794	0.0001
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

Source: EViews 10 (processed data)

From the above table of four variables, including the JCI and interest rates, we can deduce that growth and inflation variables are stationary at the level, as evidenced by the ADF t-statistic value being larger than the MacKinnon value at the significant level and the probability value of the two variables being less than 0.05 or 5%. Since the ADF t-statistic is less than the MacKinnon value at the 5% significance level, we can infer that inflation and exchange rate variables are not stationary at the level. Due to the presence of two non-level variables, we must proceed with the first difference test.

Table 5. Testing in first difference

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistics		-5.613360	0.0001
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

Source: EViews 10 (processed data)

Table 6. Test in first difference Inflation

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistics		-8.955601	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

Source: EViews 10 (processed data)

Table 7. Test in First Difference Exchange Rate

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistics		-6.393173	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

Source: EViews 10 (processed data)

Table 8. Test In First Difference Interest Rate

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistics		-10.06025	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

Source: EViews 10 (processed data)

After performing tests at the first difference level, it is clear that the four aforementioned variables (JCI, inflation, exchange rates, and interest rates) are stationary. Mac Kinnon's effect on the significance level for each variable is clearly larger than that of the ADF t-statistic. Each factor's probability value is also below 5%, or 0,05. As a result, it follows that the variables in this study are stationary at the level of first difference.

4.1.2. Cointegration Test

Two or more non-stationary time series variables are said to be cointegrated if each variable has the same trend pattern. When this happens, then if the variables are regressed, the trend in each variable will cancel each other out. Therefore, the regression between the cointegrated variables will not result in a spurious regression. It is often said that cointegrated variables are certain to have a long-term relationship, so that regression between these variables can be justified. Cointegration is a number of variables that have balance or cointegration over a long period of time and can integrate with each other in the same order. The following are the results of the Cointegration Test, namely:

Table 9. Cointegration Test Trace Results

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistics	0.05 Critical Value	Prob.**
None *	0.642651	67.15461	47.85613	0.0003
At most 1 *	0.590868	38.34142	29.79707	0.0041
At most 2	0.373294	13.31734	15.49471	0.1037
At most 3	0.008307	0.233563	3.841466	0.6289

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Source: EViews 10 (processed data)

Table 10. Cointegration Test Critical Value Results

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistics	0.05 Critical Value	Prob.**
None *	0.642651	28.81319	27.58434	0.0346
At most 1 *	0.590868	25.02407	21.13162	0.0134
At most 2	0.373294	13.08378	14.26460	0.0762
At most 3	0.008307	0.233563	3.841466	0.6289

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Source: EViews 10 (processed data)

Johansen Cointegration System test results are compared to the critical value to determine whether or not cointegration exists. The Trace result has a trace statistic of 67.15461, which is greater than the critical value of 47.85613. The Maximum Eigenvalue results corroborate this, as the max-eigen statistic is 28.81319, which is larger than the minimum acceptable value of 27,58434. These findings suggest that the JCI, inflation, exchange rates, and interest rates have all been cointegrated over time. And in the long run, that has been a good thing because it has created equilibrium.

4.1.3. ECM Test

The independent variable and the dependent variable in an error correction model, also known as an error correction model (ECM), which is modeled to observe the long-term and immediate effects of the two variables (Satria, 2004). Time series data with dependencies, also known as cointegration, can be analyzed with the help of the Error Correction Model (ECM). If two economic variables are already in long-term equilibrium with one another, then the ECM technique can be used to balance their short-term economic relationship. Two or more variables are said to have a long-term relationship if

and only if they are cointegrated. However, economic shocks frequently affect the relationship between variables, causing them to become unbalanced. In other words, if there is a shock to the economy, there will likely be a temporary disequilibrium (imbalance) between the cointegrated variables. Using this information, the error correction model (ECM) can determine how large and quickly cointegrated variables are adjusting back toward equilibrium in the short term.

Long Term Model

$PE = \beta_0 + \beta_1 inflation_t + \beta_2 TPT_t + \beta_3 APS_t + e$

Short Term Model

$PE = \beta_0 + \beta_1 \Delta inflation_t + \beta_2 \Delta TPT_t + \beta_3 \Delta APS_t + \beta_4 ECT_{t-1} + e_t$

In the above two equations, the arrangement is based on the test results showing that all variables are stationary at the first difference level. These ECM measures have both long- and short-term benefits. Test results for ECM are listed below:

Table 11. Short-Term ECM Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INFLATION)	1.014893	0.314896	3.222943	0.0036
D(EXCHANGE_VALUE)	-0.001052	0.001312	-0.802341	0.4302
D(Interest_RATE)	1.133580	0.424782	2.668617	0.0134
ECT(-1)	-1.395467	0.171985	-8.113870	0.0000
C	1.474835	1.296583	1.137479	0.2666
R-squared	0.770504	Mean dependent var		0.091724
Adjusted R-squared	0.732255	SD dependent var		11.39097
SE of regression	5.894153	Akaike info criterion		6.541384
Sum squared resid	833.7849	Schwarz criterion		6.777125
Likelihood logs	-89.85007	Hannan Quinn Criter.		6.615215
F-statistics	20.14429	Durbin-Watson stat		1.812937
Prob(F-statistic)	0.000000			

Source: EViews 10 (processed data)

The estimation results of the Error Correction Model (ECM) reveal that inflation and interest rate variables have a sizeable impact on the JCI's expansion in the near term. A probability of less than 5% makes this abundantly clear. Meanwhile, interest rates and exchange rates are irrelevant to the expansion of the economy. More than 5%, or 0.05, probability indicates this. Further, the ECT value of -1.395467 is statistically significant (P 0.0000).

Table 12. Long Term ECM Test

Dependent Variable: JCI
Method: Least Squares
Date: 06/08/22 Time: 15:58
Sample: 1991 2020
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFLATION	0.558704	0.239014	2.337538	0.0274
EXCHANGE RATE	0.000486	0.000397	1.225788	0.2313
INTEREST RATE	0.667561	0.429890	1.552864	0.1325
C	-11.10072	7.579989	-1.464477	0.1551

R-squared	0.221785	Mean dependent var	3.028333
Adjusted R-squared	0.131991	SD dependent var	7.513064
SE of regression	6.999697	Akaike info criterion	6.853177
Sum squared resid	1273,890	Schwarz criterion	7.040003
Likelihood logs	-98.79765	Hannan Quinn Criter.	6.912944
F-statistics	2.469928	Durbin-Watson stat	2.472964
Prob(F-statistic)	0.084289		

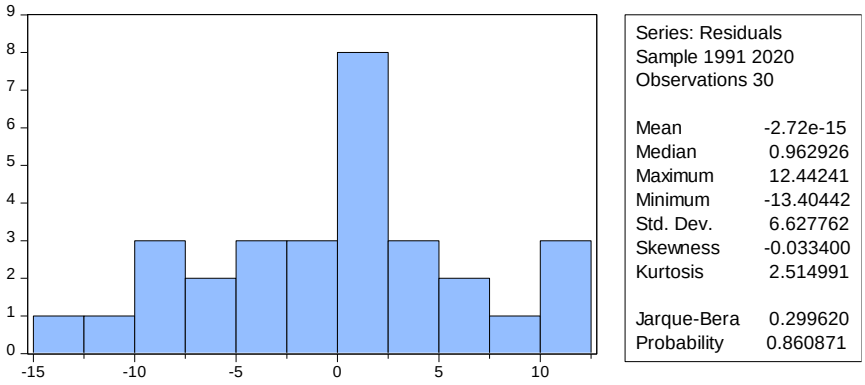
Source: EViews 10 (processed data)

The long-term growth of the JCI is significantly affected by the inflation variable, as shown by the ECM (Error Correction Model) estimation results. A probability of less than 5% makes this abundantly clear. Meanwhile, interest rates and exchange rates are irrelevant to the expansion of the economy. More than 5%, or 0.05, probability indicates this.

The ECM (Error Correction Model) estimation results demonstrate that the inflation variable significantly affects the long-term and short-term development of the JCI in Indonesia. A probability of less than 5% makes this abundantly clear. However, the interest rate variable significantly affects JCI expansion only in the short-term ECM test.

4.1.4. Classic Assumption Test

1) Normality test



Source: EViews 10 (processed data)

Figure 1. Normality test

In light of the results of the aforementioned normality test, we can conclude that the data is normal, or at least that it satisfies the normality requirements, since both the Jarque-Bera statistic value and the probability value are greater than 0.05 and 5%, respectively.

4.1.5. Multicollinearity Test

Multicollinearity test is a test that seeks to identify whether or not the independent variables in a regression model are highly correlated.

Table 13. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
INFLATION	0.057128	10.32835	5.917034
EXCHANGE RATE	1.57E-07	8.754750	1.530059
INTEREST RATE	0.184805	9.411839	6.039712
C	57.45624	35.18033	NA

Source: EViews 10 (processed data)

Using Variance Inflation Factors (VIF), multicollinearity test results can be viewed; if the Cetered VIF value is less than 10, there is no multicollinearity. Given that the Cetered VIF values for all variables are less than 10, it can be concluded that the results do not exhibit multicollinearity.

4.1.6. Heteroscedasticity Test

Heteroscedasticity test is a test used to determine whether there is a difference in variance from one residual to another observation.

Table 14. Heteroscedasticity Test Results

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistics	1.095409	Prob. F(4.24)	0.3814
Obs*R-squared	4.477102	Prob. Chi-Square(4)	0.3453
Scaled explained SS	1.474694	Prob. Chi-Square(4)	0.8311

Source: EViews 10 (processed data)

The Breusch-Pagan-Godfrey Test for Heteroscedasticity showed a significance level of H_0 accepted, indicating that heteroscedasticity did not occur in the research model employed. The Prob. Obs*R-squared value was 4.477102, and the Prob. Chi-Squared value was 0.3453, both of which are greater than 0,05 (5%).

4.1.7. Autocorrelation Test

The purpose of the autocorrelation test is to establish if a certain time interval (t) is correlated with the time interval before it (t -1).

Table 15. Autocorrelation Test Result

Breusch-Godfrey Serial Correlation LM Test:

F-statistics	2.121208	Prob. F(2.24)	0.1418
Obs*R-squared	4.506430	Prob. Chi-Square(2)	0.1051

Source: EViews 10 (processed data)

Breusch-Pagan-Godfrey test for heteroscedasticity: Prob. Obs*R-squared = 4.477102, Prob. Chi-Squared = 0.3453, value > 0.05 (5%), H_0 is accepted; no heteroscedasticity in the data set; hence there is no issue with the research model.

4.2. Discussion

4.2.1. Effect of Inflation on JCI

The analysis demonstrates that inflation has a substantial impact on economic expansion in Indonesia both in the short and long term. A significant negative impact on economic growth is seen in the short run as a result of exports. T-test probability = 0.0036, so the value is 3.222943. This means that for every one percent increase in inflation, the JCI will fall by 1.01%. Long-term economic growth is negatively impacted by inflation. The t-statistic of 2.337438 at a significance level of 0.0274 demonstrates this. It follows that a one percent rise in exports will have a negative effect on GDP of 0.55%. Research by Yanuar (2013) explains that the general inflation rate is often understood as the cause of the overall increase in price of goods, lends credence to these findings. A rise in inflation reduces consumers' purchasing power. As a result of the fall in the public purchase price, more and more people are putting their money to work in the stock market. Since most of the individual stock price indexes are also increasing, the Composite Stock Price Index (JCI) will increase if this holds true for all stocks.

4.2.2. Effect of Exchange Rate on JCI

The analysis reveals that the short-term impact of the exchange rate variable on the JCI is positive and statistically insignificant, while the long-term impact is not. As the t-statistic of -0.802341 and the probability of 0.4302 are both not statistically significant at the α=0.05 or α =5% level of significance, it is clear that this is the case. The positive and insignificant effect of the live exchange rate in the long run. The probability of this happening is 0.2313, which is far too low to be considered statistically significant at the α =0.05 or α =5% level (as indicated by the t-statistical value of 1.225788). This demonstrates that the JCI is independent of the exchange rate. Gupta's research, which used Indonesian data from 1993 to 1997 to draw its conclusions, confirms these findings by finding no correlation between changes in interest rates, currency exchange rates, and stock prices. Panjaitan (2006) highligh that once more that stock prices and exchange rates did not exhibit any significant dynamic interaction.

4.2.3. The Effect of Interest Rates on the JCI

The analysis reveals that the short-term interest rate variable significantly and negatively affects the JCI. The probability of 0.0134 is statistically significant at the α =0.05 or α =5% level, as shown by the t-statistic value of 2.668617. Therefore, a 1% increase in inflation would lead to a 1.13% drop in the JCI over the next few months. The impact of interest rates on the economy is positive and negligible over the long term.

Using a significance level of α=0.05 or α =5%, the t-statistic of 1.552864, the probability of which is 0.1325, demonstrates this. That interest rates are unrelated to the JCI over the long term is demonstrated here. Bank Indonesia's interest rate, also known as the BI Rate, is the benchmark rate used by the central bank to combat the country's spiraling inflation. Similarly, Astuti et al. (2013) .'s study found that increased interest rates would influence how investors allocated their capital. Compared to the volatility of the stock market, the risk associated with investing in bank products like deposits and savings accounts is lower.

5. CONCLUSION

5.1. Conclusion

Conclusions can be drawn, among other things, in the long term and short term inflation has a significant effect on the JCI, based on testing and analysis of inflation data, exchange rates, and interest rates on Indonesia's economic growth. Long-term and short-term economic growth are both negatively impacted by inflation. If inflation rises, the JCI will fall, as this analysis demonstrates. The impact of the exchange rate on the JCI is positive and negligible both in the long and short term. This indicates that a rise in the Exchange Rate will lead to a rise in GDP.

Increases in short-term interest rates have a significant and detrimental effect on the expansion of the JCI. This demonstrates that the JCI will fall as interest rates rise. Meanwhile, interest rates have a positive and negligible impact on the JCI over the long term. This demonstrates that the JCI is independent of interest rates.

5.2. Suggestion

Research shows that investors would be wise to pay more attention to data on the changes in the aforementioned variables when trying to predict the JCI and other economic indicators play a significant role in determining the JCI's direction.

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