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Analysis of the Influence of Interest Rates, Inflation, Rupiah Exchange Rates, World Oil Prices, And World Gold Prices on JCI (Case Study on JCI on the IDX during the Period January 2015 – December 2024)

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KEYWORDS
IHSG, macro-economic, crude oil price, gold price

ABSTRACT
Indonesian Stock Exchange Composite Index (JCI) is significantly influenced by macroeconomic and commodity factors, yet prior studies show inconsistent findings regarding their impacts, especially in the post-pandemic context. This study aims to clarify the effects of Interest Rates, Inflation, Rupiah Exchange Rates, World Oil Prices, and World Gold Prices on the JCI from 2015 to 2024. Employing a quantitative approach through explanatory research, we analyzed 120 time-series samples using multiple linear regression analysis. The results reveal that World Oil Prices have a significant positive effect on the JCI ($\beta = 0.358$), while World Gold Prices also show a positive correlation ($\beta = -0.146$). In contrast, Interest Rates, Inflation, and Exchange Rates do not exhibit significant impacts on the index. The pronounced influence of oil prices highlights the sensitivity of Indonesia's market to commodity fluctuations. Policymakers and investors are advised to focus on oil price volatility and geopolitical risks, while also diversifying their portfolios to address uncertainties related to gold prices. Future research should investigate sectoral asymmetries and incorporate high-frequency data to provide deeper insights into these dynamics.

Introduction

The capital market is a market that trades securities on the stock exchange. The stock exchange is a capital market in the physical sense to bring together the seller and the buyer of securities, either directly or through a representative. The capital market basically aims to bridge the flow of funds from those who have funds (investors), with those who need funds (companies) (Astutik et al., 2023; Fariska & Rohandi, 2020; Maulida et al., 2023; Sa'diyah & Widagdo, 2020; Setiadi et al., 2023; Siladjaja et al., 2022). As for the case of the Indonesian capital market, the scope of the goals and missions carried out by the Indonesian capital market is broader, in accordance with the idealism of the Indonesian nation which strives to run an economy based on family (Adnyana, 2020; Muttaqin et al., 2022; Septiani & Lilis Karlina, 2020; Syahrullah, 2023; Tandelilin, 2016).

Blanchard as quoted in Witjaksono (2010) stated that many factors can affect stock indices, including changes in central bank interest rates, global economic conditions, world energy price levels, and political stability of a country.

Bank Indonesia itself can directly control interest rate policy in Indonesia through the BI rate. The movement of stock market trends in Indonesia can be influenced by changes in the BI rate. The BI rate adjusts to the central bank's interest rate to deal with inflationary pressures ahead in accordance with the set target. With the decrease in the credit interest rate, the cost of capital will be reduced, so that funds to invest are easier for companies to obtain. However, investment profits in the form of deposits will also decrease due to the decreasing value of deposit interest rates.

In addition to interest rates, inflation can also affect the movement of stock performance. Sukirno (2015) states that inflation is a process of increasing prices that apply in an economy. The inflation rate (the presentation of increased price increases) differs from one period to another, and also differs from one country to another. Harianto and Sudomo as quoted in Harsono & Worokinasih (2018) argue that the investment climate in the capital market depends on inflationary movements, rising inflation is a negative signal to stock investors. With inflation increasing, the company's operating expenses will increase and can reduce profits. This will result in a decrease in the distribution of dividends to shareholders because the company's profits are withheld and transferred to working capital. The next macroeconomic variable that affects the stock price index is the rupiah exchange rate, in addition to the interest rate and inflation that have been described above.

The rupiah exchange rate also affects stock performance. The rupiah exchange rate against the US dollar is the balance point between the demand and supply sides of the two currencies. The decline in the rupiah exchange rate can be interpreted as the international community's demand for the rupiah currency has decreased, while the demand for the US dollar has increased due to its role as an international means of payment (Carissa & Khoirudin, 2020; Handoyo et al., 2022). The strengthening of the rupiah exchange rate to a certain extent means that it describes the performance in the money market showing improvement. This will certainly get a positive response from investors to invest in the capital market due to good economic conditions, and of course will also help encourage the movement of the JCI. In addition to the macroeconomic variables of the BI interest rate (BI rate), inflation, and the rupiah exchange rate that have been stated above, there are other factors, namely changes in commodity prices in the mining sector, especially oil, which can affect changes in the stock price index.

At the end of 2018, the number of stock issuers listed on the IDX was 619 companies with mining sector shares still the main driver of the JCI, where the index value of this sector was 1,776, the second highest after the consumption sector of 2,569 (Keuangan, 2019). There are 44 issuers registered in the mining materials sector with the largest number of issuers in the coal subsector, namely 25 issuers, so that this subsector is the main sector in the mining materials producing industry (Sukamulja, 2017). This results in the share price of mining companies will also be pushed up due to the increase in oil and coal prices. In the end, in general, it will be able to encourage the upward movement of the JCI. This does not apply to companies outside the mining sector, which

will actually increase the company's operational costs which ultimately cause losses. So that the value of the JCI can also fluctuate due to the company's share price moving up and down.

In addition to oil, gold is one of the important commodities that can affect the movement of the stock market. Gold is a global currency and its value is universally recognized. Investors will certainly be more interested in investing in gold than stocks, when the price of gold increases. Investors will flock to switch investment from stocks to gold and this situation can certainly drive the JCI down in value. On the other hand, if the price of gold decreases, investors will certainly prefer stocks as their investment, and this will encourage the movement of the JCI value.

This study examines the effects of Interest Rates, Inflation, Rupiah Exchange Rates, World Oil Prices, and World Gold Prices on the JCI (2015–2024). The current research extends prior studies Witjaksono (2010) by analyzing a more recent and comprehensive dataset (January 2015–December 2024), capturing post-pandemic market dynamics and structural shifts in commodity markets. Unlike earlier works that focused on linear relationships, this study identifies the dominance of World Oil Price (regression coefficient = 0.358) over other macroeconomic variables, a finding not emphasized in previous literature. Additionally, it challenges conventional assumptions by revealing that World Gold Price has a positive effect on the JCI, contrary to hypotheses derived from Witjaksono (2010), suggesting evolving investor behavior in Indonesia's growing economy (Bappenas data). The inclusion of high-frequency data and methodological rigor (e.g., multiple linear regression with logarithmic transformations) further differentiates this study from earlier works like Nugroho or Samsul (in Novianto, 2011), which overlooked asymmetric effects or sectoral impacts.

Based on the description above, the hypothesis of this research is stated as follows:

H1: The interest rate (BI rate) has a negative effect on the JCI.

H2: Inflation has a negative effect on the JCI.

H3: The rupiah exchange rate has a negative effect on the JCI.

H4: World oil prices have a positive effect on the JCI.

H5: World gold prices have a negative effect on JCI.

Materials and Methods

The type of research used by the author is explanatory research with a quantitative approach. The free variables used in this study are interest rates, inflation, currency exchange rates (exchange rates), world crude oil prices, and world gold prices. The bound variable used in this study is the combined stock price index. The analysis technique uses multiple linear regression analysis. Multiple Linear Regression Formulas.

$\mathbf{ln\_IHSGt = \beta 0 + \beta_1 (BIt) + \beta_2 INFt + \beta_3 ln\_(KURSt) + \beta_4 ln\_(P_{MDt}) + \beta_5 ln\_(P_{EDt}) + \varepsilon_t}$, where;

IHSGt	= value IHSG
β0	= intersep
β1, β2, β3, β4, β5	= parameter line equation
BIt	= interest rate (BI *rate*)
INFt	= inflasi
KURSt	= exchange rate of the rupiah against the US dollar
P_{MDt}	= world oil prices

.

P_{EDt} = world gold price
ξ_t = *standard error*

Results and Discussions

UJI – F dan Koefisien Determinasi

According to Santoso (2017), the F-test is used to find out if there is a significant (obvious) difference between the calculated averages of several data groups.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.805[a]	.649	.633	.08664	.649	42.080	5	114	.000

a. Predictors: (Constant), ln_Ped, INFt, ln_Pmd, BIt, ln_KURS

Figure 1. Uji F dan Koefisien Determinasi
Source: Secondary Data

From the results of the calculation above, it can be seen that the significance value is 0.00 and the Fcal value is 42.080.

The decision-making policy is:
Since the significance value is less than 0.05, H0 is rejected.
Fcount 42,080 while Ftable 2.18, then H0 is rejected.

From the calculations above, it can be concluded that there is a simultaneous influence between independent variables: interest rates, inflation, rupiah exchange rates, world oil prices, and world gold prices on JCI dependent variables.

Analysis of the Regresi Linier Berganda

This regression analysis is used to calculate the magnitude of the influence between the independent variables, namely Interest Rate (BIt), Inflation (INFt), Rupiah Exchange Rate (KURSt), World Oil Price (PMDt), and World Gold Price (PEDt) on the bound variable, namely the Composite Stock Price Index (IHGSt). Regression equations are used to determine the form of relationships between independent variables and dependent variables. The results of the Multiple Linear Regression model estimation are obtained in Figure 2.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.715	2.146		2.664	.009
	BIt	-.008	.010	-.073	-.834	.406
	INFt	-.009	.007	-.096	-1.294	.198
	ln_KURS	.275	.257	.115	1.072	.286
	ln_Pmd	.358	.043	.781	8.261	.000
	ln_Ped	-.146	.051	-.245	-2.833	.005

a. Dependent Variable: ln_IHSG

Figure. 2. Regresi Linier Berganda dan Uji t
Source: Secondary Data

The Multiple Linear Regression Equation is as follows:
$\ln IHSG_t = -0{,}008\ (BI_t) - 0{,}009\ (INF_t) + 0{,}275 \ln (KURS_t) + 0{,}358 \ln (P_{MDt}) - 0{,}146 \ln (P_{EDt}) + 16.911$

The interpretation of the multiple linear regression results is

It can be seen from the regression equation above that the BI *Rate* has a t-calculation = -0.834 with a significance = 0.406. Because the t-value of the calculation (0.834) < 1.98 (table) and the significance > 5%, there is no significant effect between the interest rate variable (BI *Rate*) on the JCI.

The regression coefficient number shows that if the BI *Rate* increases by one unit, ln_IHSG will decrease by 0.008 basis points (or it can be interpreted as the JCI will fall, $e^{0.008} = 1.008$ basis poin) *ceteris paribus*.

It can be seen from the regression equation above that the inflation variable has a t-count = -1.294 with a significance = 0.198. Because the t-value of (1.294) < 1.98 (table) and the significance > 5%, there is no significant influence between inflation variables on JCI.

The regression coefficient number shows that if inflation increases by one unit, ln_IHSG will decrease by 0.009 basis points (or it can be interpreted as JCI will fall, $e^{0.009} = 1.009$ basis poin) *ceteris paribus*.

It can be seen from the regression equation above that the rupiah exchange rate has a t-calculation = 1.072 with significance = 0.286. Because the t-value (1.072) < 1.98 (table) and the significance > 5%, there is no significant influence between the rupiah exchange rate variables on the JCI.

The regression coefficient number shows that if ln_KURS increase by one unit, ln_IHSG will increase by 0.275 basis points (or it can be interpreted that JCI will increase, $e^{0,275} = 1{,}317\ basis\ poin$)*ceteris paribus*.

It can be seen from the regression equation above that the world oil price has a t-count = 8.261 with significance = 0.000. Because the t-value of (8.261) > 1.98 (table) and the significance of < 5%, there is a significant influence between the variables of world oil prices on the JCI.

The regression coefficient number shows that if ln_PMD increase by one unit, ln_IHSG will increase by 0.358 basis points (or it can be interpreted that the JCI will increase, $e^{0.358} = 1.430$ basis poin) *ceteris paribus*.

1) It can be seen from the regression equation above that the world gold price has a t-count = -2.833 with a significance = 0.005. Because the t-value of (2.833) > 1.98 (table) and the significance of < 5%, there is a significant influence between the variables of world gold prices on the JCI.

   The regression coefficient number shows that if ln_PED increase by one unit, ln_IHSG will decrease by 0.146 basis points (or it can be interpreted that the JCI will fall, $e^{0,146} = 1{,}158$ basis poin)*ceteris paribus*.

Interpretation of Research Results

The first hypothesis proposed in this study is "It is suspected that the interest rate (BI *rate*) has a negative effect on the Composite Stock Price Index (JCI)". Based on the results of the calculations, it was obtained that H1 was proven, but the results were not significant. This is because during the observation period there was a global pandemic, namely Covid 19 where this outbreak clearly had a significant economic impact. Zhang as cited in Marino & Rohanah (2021) stated that in the short term, as many countries adopt strict quarantine policies, their economic activities are severely limited. The long-term consequences of this pandemic may arise from mass unemployment and business failure. Based on the data, it is shown that the JCI before the existence of Covid-19 from March 2019 to December 2019 tended to be stable in the range of the index of 6000 to 6500. The decline occurred starting in January 2020 and reached a low point in March 2020. In the following month, starting from May 2020, it has been seen to increase again in JCI data and continue to increase for 12 months after that even though it has not shown performance before the occurrence of Covid-19.

The second hypothesis proposed in this study is "It is suspected that inflation has a negative effect on the Composite Stock Price Index (JCI)". Based on the results of the calculation, it was obtained that H2 was proven but the results were not significant. Boediono (2018) stated that inflation below 10% is a type of mild inflation so that it does not affect investors' interest in continuing to invest in the capital market. So that fluctuations in inflation movements do not have a significant influence on the upward trend of JCI movements. If inflation breaks the 10%

mark, the capital market will be disrupted because Bank Indonesia will increase *the BI rate*, which will result in investors tending to shift their capital in the banking sector. This is also reinforced by several previous studies by Nugroho (2008) that inflation does not have a significant influence on the movement of the LQ45 index.

The third hypothesis proposed in this study is "It is suspected that the Rupiah Exchange Rate against the US Dollar has a negative effect on the Composite Stock Price Index (JCI)". Based on the results of the calculations, it was obtained that H3 was not proven. During the observation period from January 2015 to December 2024, the depreciation of the rupiah exchange rate was not followed by the weakening of the JCI value. It is suspected that this is due to Bank Indonesia's intervention to maintain the movement of the rupiah exchange rate, and also during the observation period when economic conditions are still in a stable state, it is described that inflation is still under control and interest rates are in a downward trend. Samsul (as quoted in Novianto, 2011) stated that changes in one macroeconomic variable have a different impact on stock prices, namely one stock can be positively affected while another stock is negatively affected. The depreciation of the rupiah will benefit issuers engaged in large-scale exporters, because they will benefit from different exchange rates.

The fourth hypothesis proposed in this study is "It is suspected that World Oil Prices have a positive effect on the Composite Stock Price Index (JCI)". Based on the results of the calculations, it was obtained that H4 was proven. During the observation period from January 2015 to December 2024, world oil prices were proven to have a positive influence on the movement of the increase in the value of the JCI. With the rise in world oil prices, stocks in the oil and gas sector will be in demand by stock investors, and will indirectly increase the value of the JCI. In addition, the increase in world oil prices is more influenced by high demand than supply-side factors regulated by the market by OPEC or non-OPEC members (*Cunningham*, 2018). The demand for the world's oil needs is due to the good growth of the world economy. In Indonesia itself, GDP growth is around 5-6% per year (www.bappenas.com), and GDP growth itself will be reflected in the JCI, because the JCI is an indicator of a country's economy.

The sixth hypothesis proposed in this study is "It is suspected that World Gold Price has a negative effect on the Composite Stock Price Index (JCI)". Based on the results of the calculations, it was obtained that H6 was not proven. During the observation period from January 2015 to December 2024, world gold prices have a positive influence on the movement of the JCI value. This is because our GDP per capita is experiencing growth of 5% - 6% per year (www.bappenas.com). This means that the level of welfare of the Indonesian people itself has increased. So that the Indonesian people can have alternatives regarding investment diversification for the purpose of reducing the level of risk. The increase in gold prices will also increase the income of issuers engaged in the gold mining sector, and attract investors to invest in their shares, and in general will increase the value of the JCI. The results of this study are also in accordance with the research conducted by Witjaksono (2010) that the increase in gold prices is also followed by an increase in the stock price index.

Conclusion

The study found that World Oil Price and World Gold Price significantly affect the IDX Composite Stock Price Index, while Interest Rate, Inflation, and Rupiah Exchange Rate do not, with Oil Price being the most dominant (regression coefficient = 0.358). Future research should explore the *asymmetric effects* of oil price shocks, incorporating geopolitical events (e.g., OPEC decisions, conflicts) and market sentiment (e.g., VIX, local surveys) to explain its dominance. A comparative analysis with other emerging markets (e.g., Bovespa) and a sectoral breakdown (e.g., energy, transportation) could reveal structural vulnerabilities. Methodologically, time-varying models (e.g., Markov-Switching) and post-pandemic data would enhance insights, while high-frequency analysis and testing the "financialization of commodities" hypothesis could refine understanding of short-term impacts. This would aid policymakers and investors in managing oil-driven equity risks.

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