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Analysis of the Influence of Macro Variables on the JCI

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ABSTRACT

The Jakarta Composite Index (JCI) serves as a representation of general stock price movements on the Indonesia Stock Exchange (IDX). JCI fluctuations are influenced by individual company performance and various macroeconomic factors.

This study aims to examine the macroeconomic variables that influence the JCI movement in Indonesia over a 15-year period (2010 to 2024). The research method used was the t-test, ANOVA test, and coefficient of determination. The macro variables studied were GDP, BI7Days, Inflation, and the Dollar Exchange Rate using SPSS version 26 software.

The results show that GDP and BI7Days significantly influence the JCI and simultaneously significantly influence the JCI. Meanwhile, inflation and the Dollar Exchange Rate did not significantly influence the JCI movement from 2010 to 2024 on the Indonesia Stock Exchange.

KEY WORDS: GDP, BI7Days, Inflation, Dollar Exchange Rate, and JCI

Introduction

Capital markets, particularly the stock market, are vital indicators of a country's economic health and prospects. In Indonesia, the Jakarta Composite Index (JCI) represents general stock price movements on the Indonesia Stock Exchange (IDX). JCI fluctuations are influenced not only by individual company performance but also by sensitivity to various macroeconomic factors.

The performance of the JCI is often linked to key macroeconomic variables. The period from 2010 to 2024 is an interesting timeframe to analyze, as it encompasses a wide range of economic dynamics,

from periods of stable growth, global crises (such as the European debt crisis), US monetary policy (such as the 2013 *Taper Tantrum*), the COVID-19 pandemic, to post-pandemic recovery and high global inflation. Significant changes in these variables are expected to trigger different responses to JCI movements.

GDP is the primary measure of economic growth. An increase in GDP is typically interpreted as growth in income and consumption, which in turn can increase corporate profits and encourage investors to invest, potentially driving up the JCI.

Inflation reflects a decline in the purchasing power of money. High

inflation can harm companies by increasing production costs and ultimately reducing consumer demand. Furthermore, uncontrolled inflation can often trigger the central bank (Bank Indonesia) to raise interest rates, thereby shifting investment from the stock market to risk-free instruments, such as deposits and bonds.

The Rupiah exchange rate against the US Dollar can impact company performance, particularly those with debt or transactions in foreign currencies. A weakening Rupiah (an increase in the exchange rate) can increase the debt burden of companies denominated in US Dollars, which can negatively impact stock prices and the Jakarta Composite Index (JCI).

Since 2016, Bank Indonesia has used the BI-Rate as its primary benchmark interest rate, replacing the Bank Indonesia Certificate (SBI). However, both instruments serve the same function: they act as monetary policy tools. An increase in the benchmark interest rate can increase the cost of capital for companies and make stock market investments less attractive compared to fixed-income instruments, thus tending to depress the JCI.

Various empirical studies have examined the relationship between macroeconomic variables and the Jakarta Composite Index (JCI). However, previous research results often show inconsistencies regarding the direction and significance of these influences. For example, some studies found a significant positive effect on GDP, while others found no significant effect. Similarly, the effects of inflation and exchange rates on the JCI also varied across study periods.

Humpe, A., & Macmillan, P. (2007) found a significant long-term relationship between macroeconomic variables and stock prices, but the relationship varied across countries (emphasizing the importance of country context). Kewal, SS (2012) found that only the exchange rate had a significant effect. Inflation, SBI, and GDP did not significantly influence the JCI.

Research by Islam, MR, & Mia, MA (2015) found that interest rates and exchange rates had a negative and significant effect, while GDP had a positive and significant effect. Research by Asih, NWS & Akbar, M (2016) found that both had a simultaneous effect. Inflation had a significant positive effect on the JCI.

The research of Osamwonyi, IO, & Alimonu, EA (2017) found that GDP had a positive effect. Inflation and interest rates had a negative effect. (The results are relatively consistent with the theory). Puspitasari, A., & Wulandari, R (2018) found that GDP and inflation had no significant effect. Only the BI Rate had a significant negative effect.

The results of Laraswati, F.'s (2021) research show that simultaneously significant. Partially: GDP, BI Rate, and Exchange Rate have a significant effect. Inflation is not significant. The research of Tejokusumo, P., Anastasia, N., & Atmadja, AS (2022) shows that Inflation, Interest Rates, and Exchange Rates have a significant effect. GDP is not significant. (Shows sectoral variations).

The research gap arising from the inconsistency of previous research, coupled with the analysis period covering important economic events and changes in monetary policy (the transition from SBI to BI-Rate), makes it necessary to re-examine this research.

This study aims to analyze and empirically test the simultaneous and partial effects of GDP, Inflation, Dollar Exchange Rate, and Benchmark Interest Rate (SBI/BI-Rate) on the JCI over the past 15 years.

The results of this study are expected to provide significant

contributions to: (a). Investors: As a basis for making investment decisions in the capital market. (b). Companies: In formulating financial and operational strategies related to macroeconomic risks. (c). Government /Bank Indonesia: As input in formulating fiscal and monetary policies that can maintain the stability and growth of the capital market.

Theoretical

The capital market (securities market) is a market for various long-term financial instruments that can be bought and sold. The stock market is a sub-section of the capital market where ownership instruments (shares) are traded (Tandelilin, E. (2010).

The *Composite Stock Price Index (CSPI)* is an indicator used to measure the overall performance of the Indonesian stock market. The JCI reflects average stock price changes and serves as a reflection of the national economic outlook. (Fahmi, I. (20212).

The APT theory (Ross, 1976) states that asset *returns* are influenced by a number of systematic macroeconomic risk factors. In this context, GDP, inflation, exchange rates, and benchmark interest rates are considered macroeconomic factors that influence stock market *returns* (the Jakarta Composite Index). (Ross, SA (1976).

Fund Flow Theory, Changes in macroeconomic variables affect the flow of investment funds. Increases in interest rates or high inflation can divert funds from the stock market (risky instruments) to risk-free instruments (such as deposits or bonds) or even withdraw funds (capital outflow), which causes selling pressure on the JCI. (Jones, CP (2010).

Gross Domestic Product (GDP) is the total value of goods and services produced by a country during a specific period. Its relationship with the Jakarta Composite Index (JCI) (Positive Hypothesis) means that an increase in GDP indicates strong economic growth. This growth means increased corporate income and consumption, improved corporate profits, and brighter future prospects, which drive stock prices up. (Mankiw, NG (2021).

Inflation is a sustained increase in the general price level of goods and services. Its relationship with the Jakarta Composite Index (JCI) (Negative Hypothesis) means that high inflation can reduce consumer purchasing power, suppress corporate profit margins (due to rising production costs), and increase economic uncertainty. Furthermore, high inflation encourages the Central Bank to raise interest rates, which is negative for the stock market. (Fisher, I. (1930).

The exchange rate is the price of one unit of foreign currency in domestic currency (e.g., IDR/USD). The relationship with the Jakarta Composite Index (Negative Hypothesis) means that a weakening Rupiah (an increase in the IDR/USD exchange rate) can increase the debt burden for companies with loans in US dollars and increase the cost of importing raw materials, which ultimately depresses corporate profits and stock prices. However, the exchange rate can also have a positive impact on export-oriented companies. (Doenbusch, R. (1976).

The Benchmark Interest Rate (formerly SBI, since 2016 is the BI-Rate) is the main instrument of Bank Indonesia's monetary policy to control inflation and maintain the stability of the Rupiah. (Bank Indonesia. (2016). Relationship with the IHSG (Negative Hypothesis), meaning that an increase in the Benchmark Interest Rate (BI-Rate) will increase the company's cost of capital, reduce the present value of future cash flows, and make investment in fixed income instruments more attractive than stocks. These three factors tend to depress the IHSG. (Keynes, JM (1936).

Research Methodology

Type Research, Data, Operationalization and Analysis Method

This research method will explain the approach, data types, sampling techniques, operationalization of variables, and data analysis methods used in the research.

1. Types and Approaches of Research

Research Approach: This research uses a quantitative approach with descriptive and associative (causality) methods. (Sugiyono. (2017).
Descriptive: To describe the development of macroeconomic variables (GDP, Inflation, Exchange Rate, BI-Rate) and IHSG during the research period. Associative: To test and analyze the causal relationship (influence) between independent variables on the dependent variable.

2. Data and Data Sources

Data Type: The data used is secondary data in the form of time series data. Research Period: The data collected covers a quarterly or monthly period for 15 years (2010 Quarter I or January to 2024 Quarter IV or December).

Data sources, come from various sources including:

- IHSG is sourced from the Indonesia Stock Exchange (BEI)
- GDP (Gross Domestic Product), obtained from the Central Statistics Agency (BPS)
- Inflation, obtained from the Central Statistics Agency (BPS)
- Dollar exchange rate (IDR/USD), obtained from Bank Indonesia (BI)
- Reference Interest Rate (SBI/BI-Rate), obtained from Bank Indonesia (BI) (using SBI before 2016 and BI-Rate/BI 7-Day Reverse Repo Rate since 2016).

3. Operationalization of Variables

| Variables | Notation | Operational Definition | Measurement Scale |
|-----------------------------|----------|--------------------------------------------------------------------------------------------------------|-------------------|
| Composite Stock Price Index | Y | Closing value of the Composite Stock Price Index at the end of the observation period. | Ratio |
| Gross domestic product | X1 | Total value of Indonesia's Real GDP based on constant prices (economic growth). | Ratio |
| Inflation | X2 | The rate of change of the Consumer Price Index (CPI) in annual percentage (YoY). | Ratio |
| Dollar Exchange Rate | X3 | The average exchange rate of the Rupiah against the US Dollar (IDR/USD) for the period. | Ratio |
| Benchmark Interest Rate | X4 | The percentage level of Bank Indonesia's benchmark interest rate (using SBI and BI-Rate continuously). | Ratio |

Source: from various sources

4. Data Analysis Method

This study uses Multiple Linear Regression Analysis to test the influence of independent variables on the dependent variable. Since the data used is *time series data*, the most appropriate model is a regression model that is able to overcome time series data problems such as *Autoregressive Conditional Heteroskedasticity (ARCH)* or using methods that overcome non-stationary data.

Regression Equation:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e$$

Where:

$$Y = \text{IHSG}$$

$$X_1 = \text{GDP}$$

$$X_2 = \text{Inflation}$$

$$X_3 = \text{Dollar Exchange Rate}$$

$$X_4 = \text{BI-Rate/BI 7-Day Reverse Repo Rate}$$

5. Hypothesis Testing

The hypothesis needs to be tested (Engle, GS (2087) through the following tests:

- Simultaneous Test (F Test): To determine whether all independent variables together have a significant effect on the IHSG.
- Partial Test (t-Test): To determine the influence of each independent variable individually on the IHSG.
- Determination Coefficient Test: To determine how much of the IHSG variability can be explained by the variability of the GDP, Inflation, Exchange Rate and Reference Interest Rate variables.

Analysis and Discussion

| Model Summary | | | | |
|---------------|-------------------|----------|-------------------|--------------------------------|
| Model | R | R Square | Adjusted R Square | Standard Error of the Estimate |
| 1 | .973 ^a | .947 | .926 | 341.46668 |

a. Predictors: (Constant), SBI_BI7DAYS, DOLLAR_RATE, INFLATION, GDP

The results of the summary model research show that the Adjusted R Square value is 0.926 or 92.6%. This means that 92.6% of the JCI value is influenced by the SBI, Dollar Exchange Rate, Inflation, and GDP variables during the period 2010 to 2024. The remaining 7.4% is still influenced by other macro variables, such as economic growth, unemployment rate, Gini Index, and even macroeconomic conditions and political issues in Indonesia.

| ANOVA ^a | | | | | | |
|------------------------------------------------------------------|------------|----------------|----|-------------|--------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 20890898.397 | 4 | 5222724.599 | 44.792 | .000 ^b |
| | Residual | 1165994.936 | 10 | 116599.494 | | |
| | Total | 22056893.333 | 14 | | | |
| a. Dependent Variable: IHSG | | | | | | |
| b. Predictors: (Constant), SBI_BI7DAYS, KURS_DOLAR, INFLASI, PDB | | | | | | |

The results of the Anova test, the significance value is 0.000, meaning that simultaneously the variables SBI, Dollar Exchange Rate, Inflation and GDP have a significant influence on the movement of the JCI for the period 2010 to 2024 in Indonesia.

| Coefficients ^a | | | | | | |
|-----------------------------|-----------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2387.410 | 930,549 | | 2,566 | .028 |
| | GDP | .155 | .053 | .620 | 2,924 | .015 |
| | INFLATION | 67,771 | 54,204 | .119 | 1,250 | .240 |
| | DOLLAR_EXCHANGE | .167 | .110 | .297 | 1,520 | .159 |
| | SBI_BI7DAYS | -237,927 | 80,507 | -.265 | -2,955 | .014 |
| a. Dependent Variable: IHSG | | | | | | |

The results of the t-test, the influence of each macro variable on the JCI, it turns out that the GDP and BI7Days variables have a significant influence on the movement of the JCI, while the Inflation and Dollar Exchange Rate variables do not have a significant influence on the JCI in Indonesia for the period 2010 to 2024.

Conclusion

Partially, only the GDP and BI7Days variables have a significant effect on the JCI and simultaneously also have a significant effect on the JCI, while the Inflation and Dollar Exchange Rate variables do not have a significant effect on the JCI movement from 2010 to 2024 on the Indonesia Stock Exchange.

Therefore, prospective investors before investing in the Indonesian capital market need to pay attention to and analyze the GDP and BI7Days variables, because if GDP rises, it is likely that the JCI will also rise and if BI7Days rises, the JCI will also move down, because the negative figure is quite large (-237.93).

Inflation and the Dollar Exchange Rate have no significant effect, meaning that they will indirectly affect the movement of the JCI, but the movement is not fast and significant to changes in the movement of the JCI in the Capital Market, during the research period from 2010 to 2024.

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