

The Effect of Inflation, Exchange, SBI Interest Rate and Dow Jones Index on JCI on IDX 2013 – 2018

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Abstract

This analysis aims to display inflation, exchange rates of currencies, SBI, and the Dow Jones Index on IHSG and IDX from 2013 to 2018. Quantitative testing approaches using the SmartPLS 3 technology and Structural Equation Modeling (SEM) analysis techniques. Inflation has a large positive effect on the JCI. Which indicates that as inflation rises, the JCI value falls. Exchange rates significantly impact the JCI. Therefore, the exchange rate indicator directly affects the path of the high exchange rate, which reduces the JCI figure. The SBI rate has no impact and negative on JCI. This means JCI would not be affected by the increased number of SBI interest rates. For the Dow Jones Index, the JCI is significantly positive. Which suggests that the Dow Jones index's rise has an effect on the JCI. The Dow Jones Index has the most impact on work motivation, at 0.982, in contrast to the inflation, exchange rate, and SBI interest rate variables against the IHSG of IDX from 2013 to 2018.

Keywords

inflation; exchange rates; SBI
interest rates; dow jones index;
JCI



I. Introduction

Investing is the process of allocating funds for the present in the hope of earning a higher return in the future (Najand & Prather, 1999). What investment economic actors have recognized globally is divided into two categories: placement of funds in financial assets and placement of funds in specific substances (real assets). Investments intangible assets include the acquisition of productive assets, the establishment of factories, and mines and plantations. Meanwhile, financial substance investing takes place in the money market, for example, through certificates of deposit, commercial paper, and money market securities. Additionally, investments may be made in the financial market, such as securities, shares, warrants, and options. (1998, Ganesan & Chiang).

Experience, sufficient knowledge, as well as an instinct/business instinct, all of which are very much needed in making investments in the stock exchange to be able to analyze the aspects that will be bought, sold, and aspects that will still be owned (Zabidi & Haryono, 2018). Those who desire to participate in the sale and purchase of shares must eliminate the traditions of plagiarism, gambling, and others that are not rational in carrying out transactions in the stock buying and selling market. An investor must be rational. Besides, an investor must predict the future fate of the company in the case of its shares being bought or sold (Tambunan, 2008).

A capital market is a place that has a function as a means of offering flexibility to invest for individual or institutional investors. Therefore, the magnitude and direction of the movement of a capital market are used as a riveting point for educational actors and people involved in the capital market world to explore (Samsul, 2006).

The IHSG is a barometer for overall stock market activity. The JCI compilation of historical information on price shares to a fixed date (Gumilang, 2014). Regular stock

market fluctuations are generally seen by the day the stock exchange price closes. The index is shown for a specific time (Mansur, 2005). The value of the JCI is the barometer for the stock exchange's results. The combination aims to calculate the equity output by calculating some stock exchange securities (Sunariyah, 2004).

Growth in the JCI shows that, while the capital market is bullish, it shows that the capital market is bearish if it decreases (Tamara & Djazuli, 2012). Therefore, an investor must consider the price trend of inventory on the Capital market. The Composite Stock Price Index is an index that investors frequently watch during the Indonesian stock exchange. This index combines all the stocks on the Indonesian stock exchange (Syaroni & Muharam, 2014). Thus, an investor can determine the state of turmoil or market downturn based on Composite Stock Price Index activities. Different market environments require different investor strategies. A stock index may influence numerous factors, including changes in benchmarks, global economic conditions, global energy prices, and political stability in a country (Krisna, 2013).

The movement of the JCI is influenced by several factors, factors originating from within the country (internal) and factors originating from abroad (external). Factors arising from within the country (internal) can come from fluctuations in the exchange rate of the money of a nation against another country, the rate of inflation, the BI rate and interest rates in that country, economic growth, social, political, and security conditions of a nation, and so on. etc. Meanwhile, factors originating from abroad (external) are from stock exchanges that have a strong influence on the stock exchanges of other countries, namely stock exchanges belonging to developed countries such as America, Japan, England, etc. Investor behavior also affects the Composite Index of Stock Prices (Yanuar, 2012).

II. Review of Literature

2.1 Inflation

Theoretically the source of inflation can be categorized into two broad parts: demand-pull and cost push inflation. The demand-pull inflation arises due to the higher demand for goods and services while the cost-push inflation is due to an increase in the cost of production of goods and services. Or some time inflation may arise due to both demand-pull and cost-push factors (Wollie, 2018). An increase in inflation is called deflation, which is a tendency for a general and continuous decline in prices. When an economy is going through a persistent inflation, Gross Domestic Product (GDP) increases, this does not actually reflect the true growth in an economy. Hence, the rate of inflation must be subtracted from the GDP to get the real growth percentage, called the real GDP (A. Ademuyiwa, 2019). In other words, reforming the economic sector can be done by controlling inflation. Policies that only rely on economic growth are policies that limit the circulation of assets among the rich people (Martinelli, 2019).

As inflation is related to a decline in currency buying power, this affects the Composite Stock Price Index movement on IDX. Inflation will continue to increase commodity prices and erode the buying power of people (Kewal, 2012). According to Bank Indonesia info, the following table details inflation in Indonesia from 2013 to 2018:

Table 1. Inflation Data in Indonesia

Year	Inflation Rate (%)
2013	8.38
2014	8.36
2015	3.35
2016	3.02
2017	3.61
2018	3.13

Source: Bank Indonesia data

According to Table 1, inflation was 8.38 percent in 2013 due to the fuel prices, which resulted in a rise in the price of basic foodstuffs. In 2013, inflation hit 11.06 percent, the highest level since the 2008 financial crisis. Furthermore, inflation decreased by just 0.02 percent in 2014 compared to the previous year. In 2015, inflation decreased quite drastically, namely to 3.35%. Inflation in 2015 was the lowest in the last five years since 2010; this was due to weakening people's purchasing power, resulting in decreased demand for goods so that traders did not raise prices. And in 2016, it was at 3.02; in 2017, it was 3.61%, and in 2018 it was 3.13%.

2.2 SBI Interest Rates

The SBI interest rate is a policy rate that represents Bank Indonesia's monetary policy stance as announced to the public (Harsono & Worokinasih, 2018). Following are the SBI interest rates for 2013 - 2018, namely:

Table 2. SBI Interest Rates

Year	Interest Rate
2013	6.479
2014	7.542
2015	7.521
2016	6.000
2017	4.562
2018	5.104

Source: www.bi.go.id/Statistik_Ekonomi_dan_Keuangan_Indonesia

Based on the above results, the Bank of Indonesia (BI) has four times lowered the benchmark or the BI rate by 2016. 100 bps have decreased the SBI rate to 6.5 percent since the beginning of the 2016 fiscal year. Since August 2013, this is the lowest spot. The benchmark rate reduction is intended to stimulate domestic economic growth, now hit by a decline.

2.3 Exchange Rate

A foreign currency exchange rate is the price of one foreign country's currency in foreign countries' currencies (Thobarry, 2009). Reinforcing the rupiah against main currencies is suitable for investment. The following is the exchange rate data from 2013 - 2018, namely:

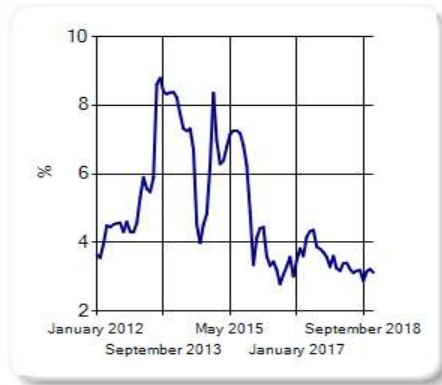


Figure 1. Exchange rate graph
Source: www.bi.go.id

Based on the chart above, it is clear that in early 2013 the condition of the Indonesian economy is targeted to grow to six percent, referring to last year's growth which reached above this figure. However, beyond expectations, the rupiah depreciation in 2013 The exchange rate on January 2 = IDR 9,733 per US dollar, then December 30 = IDR 12,331 per US dollar (-26.69%) and December 31 = IDR 12,250 per US dollar (-25 , 89%).

2.4 Dow Jones Index

The Dow Jones Index, along with the Dow Jones Transportation Index, is America's oldest stock exchange index. On May 26, 1896, the Wall Street Journal and Dow Jones & Company issued the first Dow Jones Index. The Dow Jones Index is the average of 12 stocks from major US sectors (Witjaksono, 2010).

The following is the Dow Jones index data for 2013 - 2018 as follows:

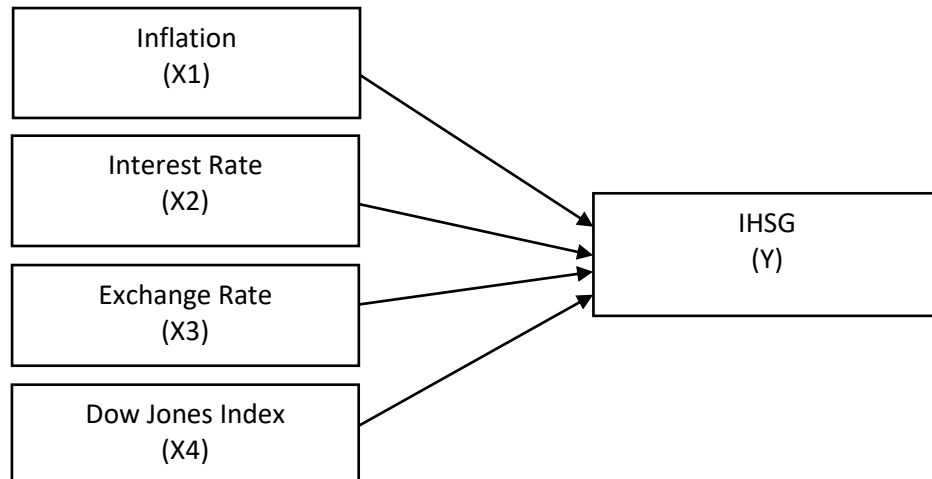


Figure 2. Dow Jones Industrial Average Graph
Source: www.investing.com

The effect of external variables affecting the JCI, namely the United States' presence, is significant for other countries, including their investors and companies' influence. To influence the index movements of other countries by DJIA, which is one of the NYSE indices (Dow Jones Industrial Average).

2.5 Frameworks and Hypotheses

The theoretical basis and results of previous research can be described as follows:



The hypothesis is as follows, based on the research background:

- H1: Inflation had an effect on the JCI on the IDX in 2013-2018
- H2: Exchange rates have an impact on the JCI on the IDX in 2013-2018
- H3: Interest rates affected the JCI on the IDX in 2013-2018
- H4: The Dow Jones Index acted as the JCI on the IDX in 2013-2018

III. Research Methods

The analytical method employed for analyzing data obtained in this study uses quantitative analyses to determine whether macroeconomic variables influence the brutal commodity and the rates of SBIs, inflation, and exchange rates using numeric formulations or mathematical models. IDX IHSG index of Foreign and Dow Jones (Kuncoro, 2013). PLS-based data analysis (Partial Least Square). Inflation, exchange rates, interest rates, and the Indonesia Bourse Dow Jones index are the populations included in the study at the end of each month (close price). However, this data is calculated monthly for the period 2013-2018, the sample taken.

IV. Results and Discussion

Appendix 1 contains the effects of data tabulation for the dependent and independent variables. Table 3 summarizes the descriptive statistics for each variable:

Table 3. Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std Deviation
Inflation	2.790	8.790	5.051	1.865
Exchange Rate	9,686.65	15,178.87	12,773.88	1,340.339
SBI Interest rate	4.250	7.750	6.201	1.261
Dow Jones Index	13,860.58	26,458.31	19,065.88	3,478.374
IHSG	4,195.090	6,605.630	5,227.085	608.639

Source: Results of PLS Data Processing

The following findings can be explained using the descriptive statistical test results in Table 3.

1. During the period 2013-2018, the lowest inflation was at 2.79% in August 2016, and the highest inflation was 8.79% in August 2013, with an average inflation value of 5.051% and a standard deviation of 1.865%. This means that inflation in 2013-2018 is concentrated in 5051, with a standard deviation of 1.865%.
2. During the period 2013-2018, the lowest exchange rate was IDR 9,686.65 in February 2013, and the highest exchange rate was IDR 15,178.87 in October 2018, with an average value of 12,773.88 and a standard deviation of 1,340,339. This means that the exchange rate for 2013-2018 is concentrated for IDR 12,773.88, with a standard deviation of 1,340,339.
3. During the period 2013-2018, the lowest SBI interest rate was 4.25% from September 2017 to April 2018. The highest was 7.75% from November 2014 to January 2015, with an average inflation rate of 6.201% and a standard deviation of 1,261%. This means that the SBI interest rate for 2013-2018 is concentrated at 6.201%, with a standard deviation of 1.261%.
4. During the period 2013-2018, the lowest Dow Jones Index was 13,860.58 in January 2013, and the highest was 26,458.31 in September 2018, with an average inflation value of 19,065.88 and a standard deviation of 3,478,374. This means that the Dow Jones Index for 2013-2018 was centered at 19,065.88, with a standard deviation of 3,478.374.
5. During the 2013-2018 period, the lowest IHSG was IDR 4,195,090 in August 2013, and the highest was IDR 6,605,630 in January 2018, with an average value of IDR 5,227,085 and a standard deviation of 608,639. This means that the exchange rate for 2013-2018 is concentrated in the amount of Rp. 5,227,085, with a standard deviation of 608,639.

The results of data analysis using PLS are as follows:

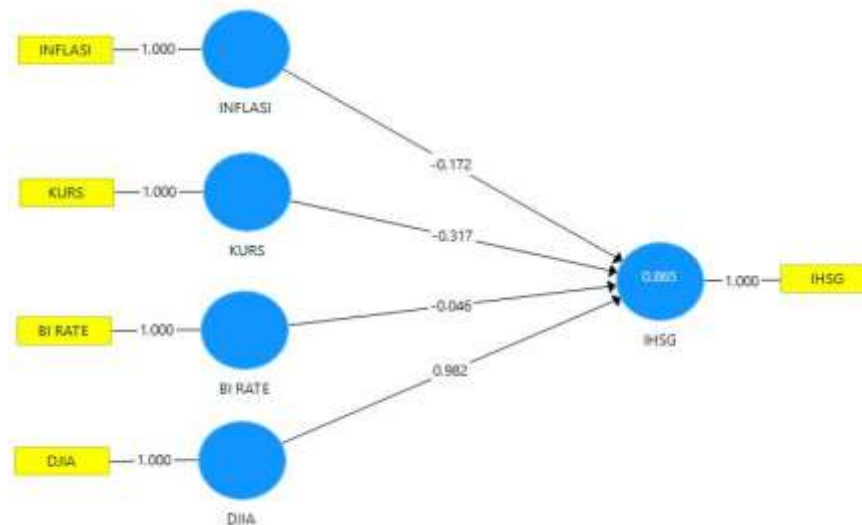


Figure 3. PLS Algorithm Output Results

As shown in Figure 3, the round shape is denoted by a vector, while an indicator represents the box shape. Each variable in this analysis is identical to the predictor. Additionally, it describes direct and indirect relationships. The JCI is directly related to inflation, and the exchange rate is directly related to the JCI, the SBI is directly related to the IHSG, and the Dow Jones Index has direct ties to the JCI.

The results of the Structural Model Evaluation with R Square show the following data:

Table 4. Result of Structural Model Evaluation with R Square
R Square

Mean, STDEV, T-Values, P-Values

	Original Sample (O)	Mean (M)	Std Deviation	T Statistic (O/STDEV)	P Values
IHSG	0.865	0.876	0.022	40.043	0.000

Table 4 shows that the R² value of the JCI variable is 0.865 or 86.5%. This means that 86.5% of the composite share price index portion is explained by inflation, exchange rates, SBI rate, and Dow Jones, while the other 13.5% is based on variables that are not in this research model. Hypothesis tests are applied to evaluate the causal relationship defined by the model, especially its effect on the endogenous variables by exogenous and moderating variables. The following table shows the T statistical testing of the hypotheses.

Table 5. Hypothesis test

Mean, STDEV, T-Values, P-Values

	Original Sample (O)	Mean (M)	Std Deviation (STDEV)	T Statistic (O/STDEV)	P Values
BI RATE -> IHSG	-0.046	-0.053	0.069	0.666	0.507
DJIA -> IHSG	0.982	0.983	0.059	16.543	0.000
INFLATION -> IHSG	-0.172	-0.162	0.079	2.189	0.032
EXCH RATE > IHSG	-0.317	-0.310	0.062	5.112	0.000

In each of the hypotheses previously described, the exogenous variables affect, according to the test criterion, when the T-Static value exceeds the critical value (t-table). According to the first hypothesis, inflation has a significant positive impact on the JCI. The inflation variable is 2.189 T and has a value of 0.032 p, while the critical values (t table) are 1.66, and the p-minus value is 0.05 or 5%. The initial results of the analysis are furthermore -0.172. The test results show that the T-statistical value is higher than the critical (t-table) value, and the p-value is lower than 0.05.

According to the findings of this hypothesis, inflation has a significant positive impact on JCI. JCI rates are decreasing as inflation increases. This is in line with Kewal's (2012) study, which shows that inflation has a positive and vital impact on JCI. In the meantime, the study findings contradict Sunardi & Ula (2012) study. The second theory is that exchange rates have a significant strong impact on the JCI. The tests demonstrate that the exchange variable has a value of 0,000 p and a T Statistics of 5,112, while the critical value (t table) is 1,66 and weight of 0,05 or 5% p. The initial results of the analysis are -0.317. The T-statistical values are more significant than the critical (t-table) value and p-value less than 0.05 shown in the test results.

Based on this, the exchange rate has a significant positive impact on JCI. It can be concluded. In other words, the JCI will fall as the exchange rate increases. This was in line with Taufik & Kefi's (2015) study, which found that the exchange rate significantly influences JCI. The findings from Astuti et al. (2013) and Maurina (2015) also follow this line.

In the third hypothesis, the SBI rate has no impact and a negative impact on the JCI. The SBI rate is 0.666 and the p-value 0.507, while the critical value (t table) is 1.66 and the p-value is less than 0.05 or 5 percent. The results of the test were collected. Furthermore, the initial study result is -0.046. The T-statistic is above the critical value (t-Table), the p-value is higher than 0,05, and the initial sample positive results are positive.

Consequently, the SBI rate has no impact and a negative to JCI. This means JCI would not be affected by the increased number of SBI interest rates. This is consistent with the Saputra (2019) study, which demonstrates that the JCI has a mixed effect on the BI rate, which is neutral and negative. Previous research findings are inconsistent with Asmara & Asmara (2018), which argue that the BI rate has a positive and statistically relevant impact on the JCI.

The fourth hypothesis affirms the Dow Jones Index's significant positive impact on JCI. The test results show that the T-standard is 16,543, and the p-value is 0,000, while the critical value (t table) is 1,66, and the p-value is less than 0,05 or 5 percent. The initial results of the analysis are 0.982. The test results show that T is higher than the critical value (t-table), and p is less than 0.05.

According to this report, JCI is significantly and positively influenced by the Dow Jones Index. This means the rise influences the JCI in the Dow Jones index. This study confirms Ernayani's findings (2015), that the Down Jones Index has a strong and relevant impact on JCI. This is also reflected by Amin and Herawati (2012), who considered the JCI's Dow Jones Index to have a positive and vital impact.

V. Conclusion

Inflation, according to the first hypothesis, has a significant positive impact on JCI. This implies that the JCI value decreases with increasing inflation. According to the second hypothesis, JCI suffers significantly as a result of the exchange rate. As a result, the exchange rate tracker has a direct impact on the course of the high exchange rate, lowering the JCI statistic. In the third hypothesis, the SBI rate has no impact and a negative impact on the JCI. This means JCI would not be affected by the increased number of SBI interest rates. According to the fourth hypothesis, The Dow Jones Index has a large positive influence on the JCI. This suggests that the JCI has an impact on the Dow Jones index.

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