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The Impact of Macroeconomics Factors on the Jakarta Composite Index

Hartini Pop Koapaha
Faculty of Economics and Business, Universitas Klabat
Corresponding Author: Hartini Pop Koapaha hartinikoapaha@unklab.ac.id

A R T I C L E I N F O

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A B S T R A C T

This study aims to assess the relationship between macroeconomics factors on the Jakarta Composite Index. The multiple linear regression is employed to examine the impact of four macroeconomics variables namely GDP growth, inflation, interest rate spread, and broad money (money supply) on the Jakarta Composite Index. The result presents that Jakarta Composite Index is negatively affected by inflation and interest rates, while the increase in money supply boost the Jakarta Composite Index. In this study GDP growth has no significant influence on the Jakarta Composite Index. Investors may take advantage of this circumstance, notably they can purchase blue chips when inflation and interest rates rise and sell their shares when the money supply is expanding.

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INTRODUCTION

The capital market plays a significant role in determining a nation's economic strength. Similarly, the capital market in Indonesia contributes significantly to the country's growth pace. The capital market is an essential economic pillar because it acts as a conduit between parties who require money (businesses) and parties who have an excess of cash (Tandelilin, 2010). Moreover, it is explained that the capital market will result in an efficient allocation of funds since funds from investors will be channeled into investment activities that will generate returns for investors. In contrast, companies needing funds will receive funds from investors for capital expenditures. Gitman, Joehnk, and Smart (2011) argue that the satisfaction of the firm's capital requirements will permit the growth of these companies, which will have a good effect on all corporate stakeholders.

As an investment vehicle, the capital market provides different investment options for investors to select from. Samsul (2006) states that securities in the capital market include stocks, bonds, warrants, and derivatives (derivatives). With these many options, investors may position their assets following the intended impact based on the amount of risk and rate of return.

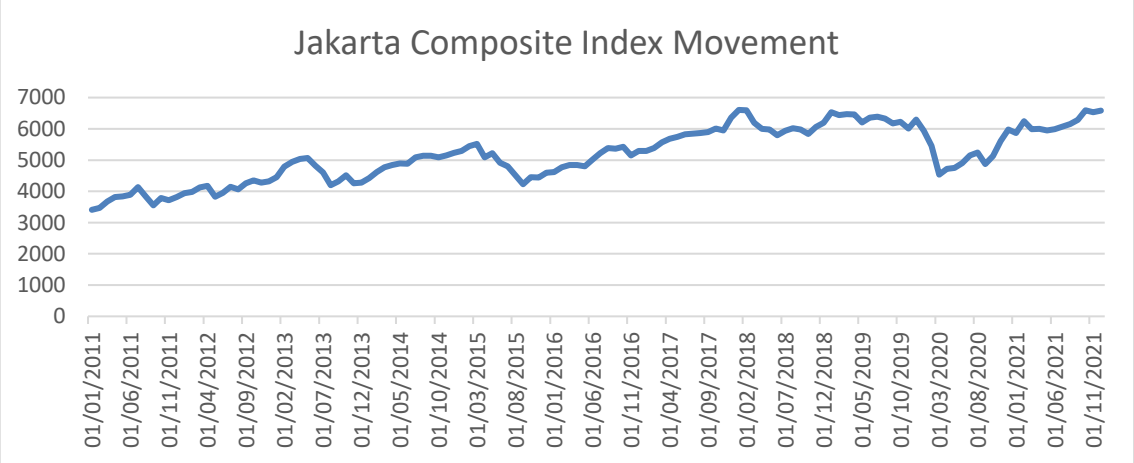

Figure 1. Jakarta Composite Index Movement

According to the Indonesia Stock Exchange (IDX), the rise of the capital market in Indonesia has a favorable trend from year to year, which has the ability to boost the economy of Indonesia. The trend of the composite stock price index (CSPI) from 2011 to 2021 is seen in Figure 1. In 2011, the price of the stock price index increased from 3,400 to 6,500 rupiah, as indicated by the statistics. This is optimistic since it will benefit the economy of the nation. The capital market impacts the economy, but economic conditions also impact the capital market. There is a correlation between the company's success and stock prices and macroeconomic indicators such as exchange rate, BI rate, and inflation. According to Reilly and Brown (2012), global and national macroeconomic conditions (macroeconomic variables) have an impact on enterprises that influence the capital market and share prices. Several macroeconomic factors, including inflation, money supply, interest rates, and the Rupiah's exchange rate versus the US Dollar, influence the capital market, particularly the stock market.

Therefore, investors should pay special attention to these indicators while attempting to forecast market moves.

Several nations, such as Malaysia, Pakistan, Kenya, Iran, Indonesia, India, and so on, have conducted significant research on macroeconomics and its effect on stock prices (Jawaid & Haq, 2012; Ouma & Muriu, 2014; Tripathi & Seth, 2014; Nordin et al., 2014; Sutrisno, 2017; Mumo, 2017; Gursida, 2018). In Malaysia, Nordin et al. (2014) found a negative relationship between interest rates, currency rates, and stock prices. According to Jawaid and Haq (2012), there is a long-term correlation between the currency rate and interest rates on Pakistani stock prices. Similarly, a number of macroeconomic variables, such as money supply, currency rates, and inflation, influence the return on the Kenyan stock market (Mumo, 2017). Indeed, Khan (2017) demonstrated that the exchange rate and inflation have a beneficial long-term effect on stock market volatility. Firdausi (2016), in contrast, stated that macroeconomic indicators such as the consumer price index and free-market exchange rates do not have a significant effect in the fluctuation of stock prices in Iran.

Investors must be cautious, alert, and able to gauge market circumstances in their investing operations. The stock index is one indicator that may be used to observe market conditions. The stock index is an indicator that demonstrates the fluctuation of stock prices and serves as a guide for investors engaging in the capital market, particularly in stocks. The IDX contains twelve stock indexes at present, including the Composite Stock Price Index (IHSG), LQ45, IDX30, Sectoral Index, Jakarta Islamic Index (JII), Kompas 100 Index, Business-27 Index, PEFINDO25 Index, SRI-KEHATI Index, Main Board Index, Development Board Index, and Individual Index.

Researchers have focused on the macroeconomic variables that influence the capital market; nevertheless, it was discovered that the conclusions of the studies contradicted one another. According to Kumar and Puja (2012), inflation has a negative influence on equities, whereas the money supply has a positive effect on stocks. In addition, according to Wongbangpo and Sharma (2002) the exchange rate had a beneficial impact on stocks in some South East Asian countries such as Indonesia, Malaysia, and the Philippines, and a negative impact on stocks in Singapore and Thailand. Moreover, Purnamawati and Wirastuti (2012) discovered that the currency rate and SBI interest rates had a negative impact on the LQ45 stock index in the near term, although inflation had a favorable impact. It was highlighted further that on a long-term basis, SBI interest rates have a negative impact, whilst inflation and currency rates have a favorable impact. The researcher is interested in performing study on macroeconomic factors that impact the LQ45 stock index, as shown by the preceding explanation.

Moreover, Evita (2016) shows that inflation, SBI interest rates, and the IDR/USD exchange rate affect JCI movements. Research from Satoto and Budiwati (2013) shows that there is an effect of exchange rates, interest rates, and GDP on stock prices. While inflation has no significant effect on stock prices. In addition, the exchange rate and GDP appear to affect all portfolio returns, except for the small firm's PBR portfolio.Based on some of the results of previous studies, it can be said that there are inconsistencies in the test results of the

independent variables on the movement of the JCI. Unfortunately, few research have explored the relationship between Indonesian macroeconomic conditions and stock market performance to date. The aim of this research is to examine the impact of macroeconomics variables on Jakarta Composite Index. Therefore, this study examined the link between macroeconomic conditions (GDP growth, inflation, interest rate, and money supply) and stock market performance (stock price index), focusing specifically on the Jakarta Composite Index. The next section is discussing the underlying theory for this research, followed by the methodology used for this study. In the results and discussion section, all the study results are showing and explained. Lastly, the conclusion and suggestion can be found in the last section.

THEORETICAL REVIEW

The stock index is an index that displays stock market performance and price movement information (Tandelilin, 2010). In addition, it was emphasized that the stock index may be utilized as a source of information for capital market investments. The stock market index is also a measure of the overall health of a country's economy. The stock index is an index that displays stock market performance and price movement information (Tandelilin, 2010). In addition, it was emphasized that the stock index may be utilized as a source of information for capital market investments. The stock market index is also a measure of the overall health of a country's economy.

Several approaches are available for constructing the stock index. The stock index is calculated using three methods: Price Weighted Index, Value Weighted Index, and Unweighted Index (Reilly & Brown, 2012). It was mentioned further that the Price Weighted Index is the arithmetic mean of current stock prices, which implies that the movement of the index is impacted by the price difference of each component, so that major stock price swings might affect the entire stock index. The second technique is the Value Weighted Index, which takes into consideration not only the price but also the size of the firm when computing the stock index. With a big market capitalization, even a minor change in price can affect the entire index. The last option is the Unweighted Index, in which all shares regardless of price or market capitalization are assigned the same percentage. So that equities with low prices have the same value as those with high prices, and shares with a small market size are equal to those with a huge market capitalization.

The movement of the JCI is impacted by a number of variables, particularly domestic (internal) and international (external). Internal factors can include variations in the exchange rate of foreign currency, the rate of inflation, the interest rate, economic development, social, political, and security situations of a nation, etc. Meanwhile, forces coming from overseas (external) originate from stock exchanges that exert a major impact on the stock markets of other countries, notably those of developed nations such as the United States, Japan, the United Kingdom, etc. Investor activity also influences the Composite Stock Price Index (Firdausi et al., 2016).

Hismendi and Musnadi (2013) explained that the rise of the Gross Domestic Product (GDP) influences the Jakarta Composite Index (JCI). According to Hasyim (2016), Gross Domestic Product (GDP) is the total money earned by all individuals, both domestic and foreign, through the sale of a country's goods and services. The Gross Domestic Product (GDP) of emerging nations has a higher value due to greater foreign investment than exports. Consequently, this causes the stock price index on the capital market to decline. GDP growth influences the strengthening of the CSPI because the capital market demand for shares exceeds the stock supply. It may be concluded that the CSPI will rise if the demand for shares exceeds the supply on the Indonesian stock exchange.

H_1 : The increase of GDP is resulting in the increase of JCI.

The rise and fall of the stock price index might occur because certain forces in the economy lead the price level to climb abruptly, while other causes cause the price level to increase gradually and constantly. According to Sartono (cited in Mardiyati & Rosalina, 2013), inflationary shocks are occurrences that tend to increase prices. Inflation is directly associated with a decline in buying power, both for individuals and businesses, which is a significant phenomenon that occurs in practically every country in the globe.

According to Hooker (2004), the inflation rate has a considerable impact on stock values. Relatively growing inflation is a bad indication for capital market participants. Inflation raises a business's revenues and expenses. If the rise in manufacturing costs exceeds the increase in price that the firm may enjoy, the company's profitability will drop. If a firm generates a tiny profit, investors will be hesitant to invest in the company, resulting in a decline in the stock price.

H_2 : Inflation is negatively affecting JCI.

High interest rates are a negative signal to stock prices. An increased interest rate will increase the interest rate implied on an investment in a stock. In addition, an increase in interest rates can also cause investors to withdraw their investments in stocks and transfer them to investments in the form of savings or deposits. Weston and Brigham (1994) argue that interest rates have a large influence on stock prices. Higher interest rates sluggish the economy, raising interest costs and thereby lowering corporate profits, and causing investors to sell stocks and transfer funds into the bond market.

H_3 : The JCI is lowering when the interest rate is increasing.

Brahmasrene and Jiranyakul (2007) analyzed the Thai stock market between 1992 and 2003 to evaluate the causal relationship between money supply and stock markets on developing economies. Shaoping (2008) also explored the effects of changing macroeconomic factors (including the money supply) on stock prices. In the Chinese market from 2005 to 2007, he found that the money

supply had a significant impact on share prices. Yuanyuan and Donghui (2004) found the same conclusion on the influence of monetary policy on the behavior of stock prices on the Chinese market. According to the authors, a "loose" monetary policy promotes the growth of stock markets, whereas a "restrictive" one results in a decline in share values.

H4 : Money supply has a positive effect on JCI.

METHODOLOGY

This study is focusing on the Indonesian market. The Jakarta Composite Index (JCI) is chosen since market capitalization for Indonesia Stock Exchange is 7,023,496.769 IDR billion or around 474 billion US Dollars in 2018 and consider as one of biggest market capitalization in Southeast Asia. The data of this study is taken from two sources such as Yahoo Finance for stock index price and from World Bank database for macroeconomics variables. The duration of the data is from 1990 to 2020. There are four variables used in this study. The dependent variable is Jakarta Composite Index (JCI), while the independent variables are GDP growth (GDPG), inflation (INFLATION), interest rate (SPREAD), and money supply (BROAD). The consumer price index (CPI) is used to measure the inflation. The interest rate spread is used as interest rate variable, and broad money is used to represent the money supply.

This study intends to assess if macroeconomic indicators (GDP growth, inflation, interest rate, and money supply) have a significant influence on the JCI. As indicated in previous section, this study examined four hypotheses, where to test those hypotheses, the multiple linear regression was utilized. The regression model in this study is as follows:

$$JCI = \alpha + \beta_1 GDPG + \beta_2 INFLATION + \beta_3 SPREAD + \beta_4 LNBROAD + \varepsilon \ldots\ldots\ldots\ldots (1)$$

To test the simultaneous relationship between all independent variables on the dependent variable, the F test (F-test) was used. The F test will be carried out using the SPSS application. If the probability value or p-value is less than 0.05, then there is a significant effect of the independent variables on the dependent variable.

RESULTS

The normality assumption was evaluated by displaying the quantiles of the model residuals against the quantiles of a Chi-square distribution, sometimes known as a Q-Q scatterplot (DeCarlo, 1997). To satisfy the assumption of normality, the quantiles of the residuals must not depart significantly from their theoretical counterparts. Possible indication that the parameter estimates are inaccurate is the presence of significant variances. Figure 2 depicts a Q-Q scatterplot showing the residuals of the model.

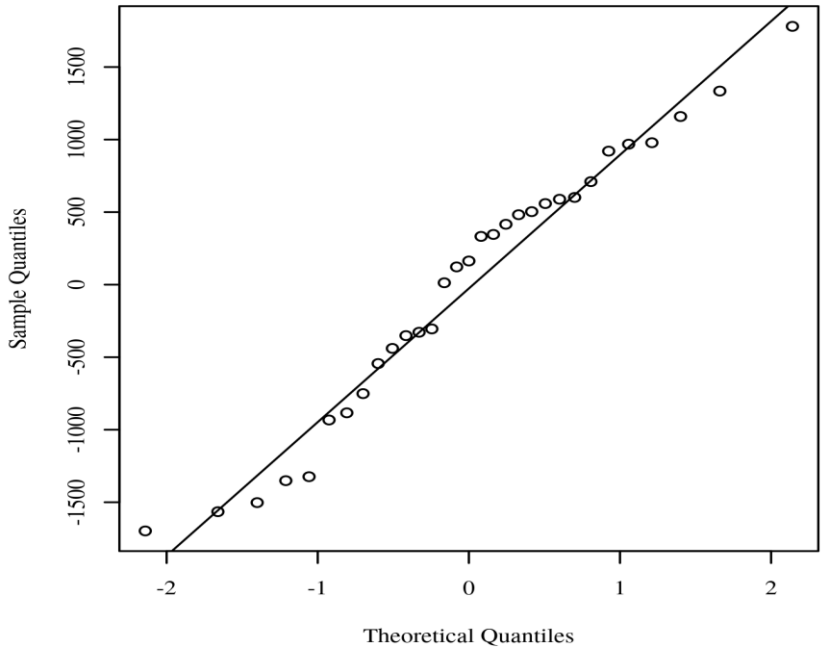

Figure 2. Q-Q Scatterplot for Normality of the Residuals for the Regression Model

Homoscedasticity was determined by comparing residuals to anticipated values (Bates et al., 2014; Field, 2017; Osborne & Walters, 2002). The homoscedasticity assumption is satisfied if the points appear to be distributed randomly with a mean of zero and no apparent curvature. The scatterplot of anticipated values and model residuals is shown in Figure 3.

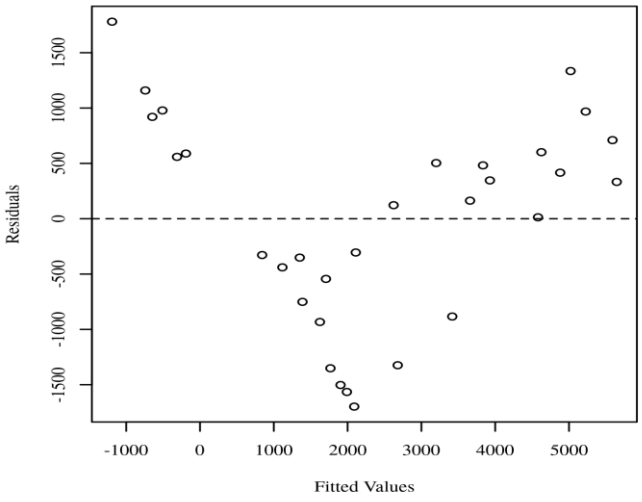

Figure 3. Residuals Scatterplot Testing Homoscedasticity

To determine the presence of multicollinearity amongst predictors, Variance Inflation Factors (VIFs) were computed. High VIFs suggest an increase in the model's multicollinearity effects. VIFs over 5 are reason for worry, whereas VIFs of 10 should be regarded as the upper limit (Menard, 2009). In the regression

model, all predictors have VIFs smaller than 10. The VIF for each predictor in the model is shown in Table 1.

Table 1. Variance Inflation Factors for GDPG, INFLATION, SPREAD, and LNBROAD

Variable	VIF
GDPG	5.00
INFLATION	5.73
SPREAD	3.49
LNBROAD	1.84

The results of the linear regression model were significant, $F(4,26) = 30.88$, $p < .001$, $R^2 = .83$, indicating that approximately 82.61% of the variance in IHSG is explainable by GDPG, INFLATION, SPREAD, and LNBROAD. GDPG did not significantly predict IHSG, $B = 13.98$, $t(26) = 0.13$, $p = .896$. Based on this sample, a one-unit increase in GDPG does not have a significant effect on IHSG. INFLATION significantly predicted IHSG, $B = -107.57$, $t(26) = -2.45$, $p = .021$. This indicates that on average, a one-unit increase of INFLATION will decrease the value of IHSG by 107.57 units. SPREAD significantly predicted IHSG, $B = -354.62$, $t(26) = -2.66$, $p = .013$. This indicates that on average, a one-unit increase of SPREAD will decrease the value of IHSG by 354.62 units. LNBROAD significantly predicted IHSG, $B = 1,399.28$, $t(26) = 7.67$, $p < .001$. This indicates that on average, a one-unit increase of LNBROAD will increase the value of IHSG by 1,399.28 units. Table 2 summarizes the results of the regression model.

Table 2. Results for Linear Regression with GDPG, INFLATION, SPREAD, and LNBROAD Predicting IHSG

Variable	*B*	*SE*	95.00% CI	β	*t*	*p*
(Intercept)	-43,718.69	6,759.82	[-57,613.70, -29,823.68]	0.00	-6.47	< .001
GDPG	13.98	105.77	[-203.43, 231.39]	0.02	0.13	.896
INFLATION	-107.57	43.85	[-197.71, -17.44]	-0.48	-2.45	.021
SPREAD	-354.62	133.52	[-629.06, -80.17]	-0.41	-2.66	.013
LNBROAD	1,399.28	182.52	[1,024.12, 1,774.45]	0.85	7.67	< .001

Note. Results: $F(4,26) = 30.88$, $p < .001$, $R^2 = .83$ Unstandardized Regression Equation: IHSG = -43,718.69 + 13.98*GDPG - 107.57*INFLATION - 354.62*SPREAD + 1,399.28*LNBROAD

DISCUSSIONS

The result shows that macroeconomics variables are significantly affecting JCI. INFLATION and SPREAD have a negative influence on JCI, while LNBOARD is positively impacting JCI. Therefore, the result is confirming the hypothesis H_2, H_3, and H_4. The result is in line with Sukamto (2016), Rahmawati and Baini (2019), and Nawindra and Wijayanto (2020). It implies that the

investors should aware of macroeconomics factors especially inflation, interest rate, and money supply.

CONCLUSIONS AND RECOMMENDATIONS

In this study, the impact of macroeconomics variables on JCI are examined. The result shows that inflation and interest rates is lowering JCI, while money supply tend to increase JCI. Therefore, investors should be alert to inflation and the increase of the interest rate since it can lower the JCI. The increase of money supply might be a signal for investor that the stock index might be increase and the investors can take necessary action related to their investment activities.

For further researchers who will conduct research on the analysis of the influence of macroeconomic factors that affect the LQ45 stock index, it is recommended to accommodate other macroeconomic variables such as gross domestic product (GDP), economic growth rate, world oil prices, Rupiah exchange rate. versus foreign currencies that have a big influence on the economy such as the Japanese yen. Furthermore, the future research can expand the time span of the study so that the observations obtained can be even better.

FURTHER STUDY

Therefore, this study examined the link between macroeconomic conditions (GDP growth, inflation, interest rate, and money supply) and stock market performance (stock price index), focusing specifically on the Jakarta Composite Index. The next section is discussing the underlying theory for this research, followed by the methodology used for this study. In the results and discussion section, all the study results are showing and explained. Lastly, the conclusion and suggestion can be found in the last section.

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