The Effect of Macroeconomic Variables on Kompas 100 Indeks on the Indonesia Stock Exchange

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Abstract. This study aims to determine the effect of macroeconomic variables, inflation, economic growth, interest rate, exchange rate, and unemployment rate on the KOMPAS 100 Index on the Indonesia Stock Exchange. The sample in this study used the KOMPAS 100 Stock Price Index data from 2015 to 2020 with monthly data. The data type used was secondary data and multiple linear regression analysis was used for data analysis. This study's results show that macroeconomic variables: inflation, economic growth, interest rates, exchange rates, and unemployment rate significantly influence the KOMPAS 100 Index. Partially the results of this study indicate that inflation does not significantly influence the KOMPAS 100 Index. Economic growth has a positive and significant effect on the KOMPAS 100 Index. Interest rate has a negative and significant effect on the KOMPAS 100 Index. Exchange rate has a positive and significant effect on the KOMPAS 100 Index. Unemployment has a negative and insignificant influence on the KOMPAS 100 Index.

Keywords: macroeconomic variables · KOMPAS 100 Index · unemployment · interest rates · economic growth

1 Introduction

The stock markets are becoming an essential and inseparable part of the economies in many countries, including Indonesia. The fact that stock market indices become one of the indicators to determine the healthiness of a country's economics shows the importance of the stock market in a country. [1] revealed that the stock market reflects expectations about economic conditions in the future because the stock market shows the willingness of investors to buy at a high price level when they expect companies to be profitable. The rise in stock prices indicates that investors expect the economy to grow rapidly; a decrease in stock prices suggests that investors expect an economic slowdown. Whenever the stock market experiences a substantial decline, there is reason to fear that a recession may be around the corner [1]. Thus, the government needs to pay attention to measuring the efficiency of the stock market and even interfere if it is necessary.

One of the investment goals is to earn a profit in the future. Investment can be made in several ways, namely real asset investment and investment through financial assets.

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One alternative investment in the form of financial assets that can be done is to invest in the capital market. With the development of the capital market, investment alternatives are no longer limited to real assets and deposits in banks. However, investors can also invest in the capital market, either stocks, bonds, or other financial assets.

Stock Price Index is a form of historical information to describe the movement of stock prices in the past at a particular time or a certain period [2]. The number of indices listed on the Indonesia Stock Exchange is 22 types of the stock index according to the Composite Stock Price Index (IHSG) as a component of index calculations for all stocks listed on the stock exchange. Of the various indices that exist, one of the most often used as an indicator of stock movement in Indonesia is the KOMPAS 100. The KOMPAS 100 index is an index that measures the price performance of 100 stocks that have good liquidity and large market capitalization. However, knowing the stock index does not free investors from investment risk.

Investing in stocks carries the risk of loss due to a decline in the value of the stock. Risk refers to the deviation (variability) between the expected and actual returns. The decline in stock values can be caused by many things, one of which is the risk of macroeconomic changes. In 2019, the world faced a pandemic of the spread of the virus known as Covid-19. The pandemic is one of the risks that affect the macroeconomy. For example, in March 2020, Indonesia's economy, including the KOMPAS 100 Index stock price, was impacted by the Indonesian government's announcement of the first Covid-19 case in Indonesia.

The KOMPAS 100 index tended to be volatile in 2020. The highest decline of the KOMPAS 100 index occurred in March 2020 (in the same month as the first Covid-19 case in Indonesia). The pandemic can cause macroeconomic problems and it is actually infrequent to happen. Macroeconomic problems occur almost every year. In Indonesia, several events affect macroeconomics, such as politics (elections for regional heads and presidents), economics (changes in exchange rates, inflation), geography (natural disasters), and other factors. Due to macroeconomic problems that can occur at any time and even almost every year, the researchers want to investigate the effect of the macroeconomy on the price and liquidity of the Kompas 100 stock on the IDX for the 2015–2020 period. In this study, the researchers used 5 (five) dependent variables: Inflation, Economic Growth, Interest Rate, Exchange Rate, and Unemployment Rate.

The first macroeconomic variable used in this research was inflation. Tandelilin [3] stated that inflation is a situation where rising prices (absolute) occur and can last for a long time. High or even uncontrolled inflation can cause a decline in purchasing power. Dornbusch, R; Fischer [4] expressed that, at the company level, the increase in inflation can reduce the company's level of income. One of the factors that lead to the decline in revenue is an increase in the prices of goods that directly impact the increase in operating costs. Based on these, inflation may reduce a company's profits and lead to the securities in the stock market into a commodity that is not attractive. Thus, it can be said that inflation has a negative influence on the KOMPAS 100 index.

The second macroeconomic variable was economic growth. Gross domestic product is a measure of the total production of goods and services in a country. Rapid GDP growth indicates economic growth [3]. Economic growth encourages consumer purchasing power against the company's products, thereby increasing the company's

profitability and enhancing the company's stock price. Thus, economic growth has a positive influence on KOMPAS 100 index.

The third macroeconomic variable used in this research was the interest rate. The interest rate is a price to be paid on the borrowed funds. In terms of interest rate, investors want to earn profit from their investment, but for companies, the companies will incur the size of the capital costs when using loans from investors. According to Brigham and Houston [5], higher interest rates will affect the present value of cash flows of the company, which result in the opportunity to undertake investment activities becoming unattractive, so that the value of the company will decrease and also cause a decline in stock price. It can be concluded that the interest rate has a negative effect on KOMPAS 100 index.

The fourth macroeconomic variable used in this research is the rupiah's exchange rate against the USD. The exchange rate is the price of a currency against other currencies. Exchange rate refers to a price at which a country's currency is exchanged for another country's currency. According to Dornbusch, R; Fischer [4], an increase in the exchange rate in the country is called on the appreciation of the domestic currency, while the decline in the exchange rate is called the depreciation of the domestic currency. The last macroeconomic variable used in this research was unemployment. The unemployment rate is an indicator that can provide an overview of the real condition of various economic sectors. This indicator can be used to analyze the health of a country's economy. If the economy is in good condition, it will achieve a low unemployment rate. Nevertheless, if the economy is sluggish, the unemployment rate will increase. Unemployed people do not have a job but are looking for work. Unemployment is a category that includes people who are able to work but find it difficult to find work during the first four weeks. It also includes those waiting to be recalled after they were dismissed [1].

Based on research that has been done before, several studies show different results in every country. Research by Ardana et al. [6] showed that inflation has no effect on the JCI; this is similar to the research of Setiadi and Masdupi [7], which stated that inflation has no effect on the JCI. However other two studies showed different results. Almilia, [8] showed that the higher the inflation, the lower the company's profitability. The decline in company profits is bad information for traders on the stock exchange and can decrease the company's share price. Melyani & Esra [9] showed that interest rates influence the JCI. This is in line with the research on the Effects of Interest Rates on the Pakistan Stock Market by Jawan Khan and Dr. Imran Khan [10], which revealed that interest rates affect the Karachi Stock Exchange. However, the results of these two studies are different from the research on the Chinese stock market conducted by Endang Mahpudin [11], which showed that the interest rate has no effect on the stock market in China.

Research on the effect of the IDR exchange rate on the USD has been carried out by Letinan Simbolon and Purwanto (2018) with the result that the Rupiah exchange rate against the USD affects the JCI, but in contrast, Setiawan [12] showed that the Rupiah exchange rate has no effect on the USD.

Based on the above phenomenon, the authors are keen to conduct research entitled "The effect of macroeconomic variables on the KOMPAS 100 index on the Indonesia Stock Exchange".

2 Research method

This research is a quantitative study about the influence of macroeconomic variables: inflation, economic growth, interest rate, exchange rate, and unemployment rate on the KOMPAS 100 index. The population in this research was the KOMPAS 100 Stock Price Index, with the sample used being the monthly KOMPAS 100 Stock Price Index from 2015 to 2020. The determination of the sample used was purposive sampling method, and the analysis technique used was multiple linear regression analysis.

3 Results and Discussion

Figure 1 exhibits the results of multiple linear regression analysis to test the influence and direction of the relationship of independent variables of inflation, economic growth, interest rate, exchange rate, and unemployment rate on the KOMPAS 100 index on the Indonesia Stock Exchange.

From the table (Fig. 1), the multiple regression equation can be specified as follows:

$$\text{KOMPAS100} = \beta 0 + \beta 1\,\text{Inf} + \beta 2\,\text{EG} + \beta 3\,\text{Interest} + \beta 4\,\text{Exchange} + \beta 5\,\text{UR} + e$$

$$\text{KOMPAS100} = -0.551274\text{Inf} + -0.366831\text{EG} + 0.894543\,\text{Exchange} + e$$

With:

KOMPAS 100	= KOMPAS 100 Stock Price Index
Inf	= Inflation
EG	= Economic growth
Interest	= The interest rate
Exchange	= Exchange rate
UR	= Unemployment rate
β0	= Constant regression
β1, β2, β3, β4, β5	= Coefficient of regression
e	= Error Disruptors

Based on Fig. 1, it appears that the inflation coefficient is −0.55127. These results suggest that the higher inflation will decrease KOMPAS 100 index amounts to −0.55127 units, assuming other variables are held constant. Based on Fig. 1, multiple regression shows coefficient is negative for economic growth −0.366831. The resulting coefficient values indicate that the increased economic growth will decrease KOMPAS 100 index at −0.366831 units, assuming other variables are held constant.

Based on Fig. 1, the exchange rate coefficients are positive for 0.894543. These results indicate that an increase in exchange rates will increase KOMPAS 100 by 0.894543 units assuming other variables are held constant.

3.1 Feasibility Test

The F-statistic test results in Table 2 (Fig. 1) show sig 0.000. The results obtained show that the value of sig 0.000 < alpha of 0.05 then the decision is Ho rejected and Ha is accepted so that it can be concluded that inflation, economic growth, interest rates, exchange rates, and the unemployment rate have a significant effect on the KOMPAS 100 index in The Indonesia Stock Exchange.

Ghozali [13] stated that the R^2 value close to unity means independent variables provide almost all the information needed to predict the variation of the dependent variable. Based on the test results in Table 2 (Fig. 1), it is obtained that R^2 is 0.059317, meaning that 5.9% predictive KOMPAS 100 can be explained by the five independent variables inflation, economic growth, interest rates, exchange rates, and unemployment rate, while 94.1% are explained by other variables not used in this study.

However, Ghozali [13] stated that the fundamental weakness of using the coefficient of determination is biased against the number of independent variables included in the model. Adding one independent variable will increase R^2, regardless of whether these variables significantly influence the dependent variable. Therefore, many researchers advocated using the adjusted R^2 value when evaluating the best regression model. Unlike R^2, the adjusted R^2 value can go up or down when the model adds the independent variable. The results of adjusted R^2 values also obtained a value of 0.58074; then, it can be concluded that the predictive KOMPAS 100 index can be explained by five independent variables: inflation, economic growth, interest rates, exchange rates, and the unemployment rate that is equal to 5.8%, while the remaining 94.2% is influenced by other variables not used in this research.

Dependent Variable: STOCK_PRICE_INDEKS_KOMPA
Method: Least Squares
Date: 05/12/22 Time: 12:00
Sample: 1 3790
Included observations: 3790

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.009991	0.018650	-0.535708	0.5922
INFLATION	-0.551274	0.168910	-3.263705	0.0011
ECONOMIC_GROWTH	-0.366831	0.087692	-4.183169	0.0000
INTEREST_RATE	0.387414	0.197772	1.958888	0.0502
EXCHANGE_RATE	0.894543	0.078025	11.46485	0.0000
UNEMPLOYMENT_RAT	0.436903	0.329898	1.324357	0.1855

R-squared	0.059317	Mean dependent var	-0.001507
Adjusted R-squared	0.058074	S.D. dependent var	0.097576
S.E. of regression	0.094701	Akaike info criterion	-1.874609
Sum squared resid	33.93576	Schwarz criterion	-1.864730
Log likelihood	3558.384	Hannan-Quinn criter.	-1.871097
F-statistic	47.72198	Durbin-Watson stat	2.146905
Prob(F-statistic)	0.000000		

Fig. 1. Multiple Linear Regression Analysis

3.2 Hypothesis Testing

The hypothesis 1 testing in Table 2 (Fig. 1) aims to demonstrate the effects of inflation empirically as measured by the inflation rate to KOMPAS 100 index gained sig at 0.0011. Based on obtained data sig value of 0.05, the results obtained show that the sig of 0.0011 $<$ 0.05 alpha. Hence, it can be concluded that inflation, as measured by the inflation rate, does significantly affect the KOMPAS 100 Index on the Indonesia Stock Exchange, or it can be said that hypothesis 1 is accepted.

The hypothesis 2 testing in Table 2 (Fig. 1) aims to demonstrate the effect of economic growth empirically as measured by PDB to KOMPAS 100 Index. Based on the obtained data sig value of 0.05, the results show that the value of sig 0.000 $<$ alpha 0.05, then the decision is accepted. Then it can be concluded that economic growth, as measured by the economic growth rate, negatively and significantly affects the KOMPAS 100 Index on the Indonesia Stock Exchange, or it can be said that hypothesis 2 is accepted.

The hypothesis 3 testing in Table 2 (Fig. 1) aims to demonstrate the effect of interest rate empirically, as measured by BI Rate, on the KOMPAS 100 Index. Based on the obtained data sig value of 0.05, the results show that the value of sig 0.00502 $>$ alpha 0.05, then the decision is rejected. It can be concluded that interest rate, as measured by the SBI interest rate, has a positive but not significant effect on the KOMPAS 100 index on the Indonesia Stock Exchange, or it can be said that hypothesis 3 is rejected.

The hypothesis 4 testing in Table 2 (Fig. 1) aims to demonstrate the effect of the exchange rate empirically as measured by the difference of change value IDR to USD in the current period and previous period toward the KOMPAS 100 Index. Based on obtained data sig value of 0.05, the results show that the value of sig 0.0000 $<$ alpha 0.05, then the decision is accepted. It can be concluded that exchange rate has a positive and significant effect on KOMPAS 100 index on the Indonesia Stock Exchange, or it can be said that hypothesis 4 is accepted.

The hypothesis 5 testing in Table 2 (Fig. 1) aims to empirically demonstrate the effect of unemployment rate as measured by the open unemployment rate on the KOMPAS 100 Index. Based on obtained data sig value of 0.05, the results show that the value of sig 0.1855 $>$ alpha 0.05, then the decision is rejected, so it can be said that hypothesis 5 is rejected.

4 Conclusion

his study shows that macroeconomic variables: inflation, economic growth, interest rate, exchange rate, and unemployment rate significantly influence the KOMPAS 100 Index. Partially the results of this study indicate that inflation does not significantly influence the KOMPAS 100 Index. Economic growth has a positive and significant effect on the KOMPAS 100 Index. Interest rate negatively and significantly affects the KOMPAS 100 Index. Exchange rate has a positive and significant effect on the KOMPAS 100 Index. Unemployment has a negative and insignificant influence on the KOMPAS 100 Index.

Based on the presented research, the results of this study can be used by investors or traders to help make decisions. If the inflation is high, it is better not to invest in the stock market because an increase in inflation may decrease stock value. If the IDR decreases against the USD, it is better to invest in the stock market because its stock

value may increase. In addition, the government can use the results of this study as a consideration to make economic policy, particularly in creating a fiscal stimulus to boost stock investment in the Indonesian Stock Exchange.

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