

# The Influence of Macroeconomic Factors on Agricultural Sector Stock Price in Indonesia Stock Exchange

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## ABSTRACT

The dynamic that happens in capital market can influence the stock price index of each sector. The conditions of macroeconomic stability participated in causing the uncertainty of fluctuations in stock prices on the Indonesia Stock Exchange. The agriculture sector stock in the period of 2014 to 2018 experienced the lowest stock movements compared to other sectors amounted -35.62%, besides that the agricultural sector has smaller market capitalization than other sectors in the Indonesia Stock Exchange. The purpose of this study is to determine the influence of macroeconomic factors on agricultural sector stock prices. The method used in this study was a quantitative method using multiple linear regressions and using SPSS software. Macroeconomic variables used in this study were inflation, interest rate, rupiah exchange rate, world oil price, industrial production index and specific factors of the agricultural sector that is CPO price. The result shows significant relation between inflation, exchange rate and world oil price, while interest rate, industrial production indices and CPO prices did not have a significant relation. While simultaneously macroeconomic factors and specific factors of the agricultural sector influences the agricultural sector stock prices for 85.9% and the remaining 14.1% is explained by other variables outside the research.

**Keywords:** Indonesian capital market, agriculture, macroeconomic, inflation, world oil price, exchange rate, stock price, multiple linear regression

## INTRODUCTION

Investment has an important role in the economic progress of a country. One of the most popular investments by investors as investors is investment in the form of stock. Investment in the capital market has evolved over the years and is a consideration for the public to invest in stock. Stock is one of the securities among other securities that have a high level of risk. High risk is reflected in the uncertainty of *return* that will be received by investors in the future. This is equal the definition of investment according to Sharpe (1964) in Tandelilin (2010), that investment is a fund

commitment with a certain amount to get uncertain *return* in the future. Stock can also be defined as a sign of capital participation of a person or party (business entity) in a company or limited liability company. By including capital, the party has claim on company income, to company assets, and has the right to present at the General Meeting of Shareholders (RUPS).

Stock price is an important consideration for investors in buying and selling stock. Stock prices have reflected conditions that occur in the market both from economic, social, political and cultural conditions (Kodrat and Indonanjaya, 2010).

Stock price volatility illustrates changes in stock prices that occur during a certain observation period. The price fluctuation can be caused by internal factors of the company, for example due to changes in the level of profits or the book value of the company as a result of external factors such as shocks that occur in external stock indexes, macroeconomic factors such as inflation, exchange rates, interest rates, world oil prices and rumors or sentiments that are developing within the stock market itself.

The dynamic that occur in the capital market can influence the stock price index of each sector. The capital market is an activity that is vulnerable to any kind of changes, both caused by economic or non-economic factors. In the Indonesian economy, macroeconomic factors indirectly influence the index and stock returns. The macroeconomic stability conditions participated in causing uncertainty of fluctuations in stock prices on the Indonesia Stock Exchange. Macroeconomic variables are variables that can influence the stock prices but cannot be controlled by business actors. The global economic crisis in 2008 had a huge effect on the world economy and national economy, especially the stock market. The global economic crisis caused an increase in inflation in several countries, including Indonesia, which was followed by the increase of BI rate that time. This has caused a change in the stock price on the Composite Stock Price Index (CSPI) that experienced a sufficient correction amounted -46.50% and the entire sector of the stock at that time also experienced a correction in its stock price. After the global economic crisis in 2008, the capital market in Indonesia has revived until now. The development of the capital market in Indonesia is indicated by the increase in the total number of investors in Indonesia. Based on data from PT *Kustodian Sentral Efek Indonesia* (KSEI), on November 19, 2018, the total number of stock investors on the Indonesia Stock Exchange (IDX) has reached 829,426 *single investor*

*identification* (SID). This number increased by 31.97% compared to the number of investors listed at the end of 2017 amounted 628,491 *single investor identification* (SID).

Presently, Indonesia Stock Exchange (IDX) has around 10 sectoral stocks, that are (1) the agricultural sector (2) the mining sector (3) the basic and chemical industry sector (4) the various industry sector (5) the consumer goods industry sector (6) the property sector, real estate, and building construction (7) infrastructure, utilities, and transportation sector (8) financial sector (9) trade, service and investment sector (10) manufacturing sector. The movement of these sectors is influenced by many factors, both internal and external factors. The macroeconomic fundamental factors are considered as the dominant factors that contribute to stock movements (Sirucek 2012) this is because macroeconomic factors will be directly responded by investors in investment decisions for Indonesia Stock Exchange.

During the period of the last five years (2014 to 2018), the average of stock movement that have the deepest correction was the agricultural sector, amounted -35.62%. Agriculture sector stock consists of several sub-sectors, that are food crops, plantations, animal husbandry, fisheries and forestry. Based on the news circulating, the most severe correction of stocks in the agriculture sector occurred in 2017 to 2018, where the agricultural sector was hit by several negative issues, that was anti palm oil campaign from the European Union, an increase in Indian import duties (the main importers of CPO), reduced demand, decreased of soybean oil prices because of the trade war of the United States (US) - China, an increase in the Fed interest rates so that Bank Indonesia increase the interest rates and also because of the weakening of the rupiah which was reach Rp 15.313,-

Research on the influence of macroeconomic factors on stock prices has been conducted before with case studies in Indonesia and outside Indonesia. Khalid

(2012), Antonio *et al.* (2013) and Barakat (2015) stated that inflation has a positive influence, whereas Wahyuni *et al.* (2016) and Khan and Zaman (2012) said that inflation has a negative effect on stock prices. Artha *et al.* (2014), Antonio *et al.* (2013) and Khalid (2012) explained that world interest rates, exchange rates and oil had a positive influence on stock prices, while Erwanto (2015) said that interest rates and exchange rates had a negative effect and oil prices also had a negative influence on stocks (Fatima 2014). The CPO price built in this study because it is an important variable to be analyzed because it is thought to have a relationship with the stock price of the agricultural sector. Besides that, several studies also use CPO prices as sector specific factors with result that CPO price have a positive effect on agricultural sector stocks (Nordin 2014).

With the result differences from previous studies related to the influence of macroeconomic factors on stocks, the researchers are interested in examining the influence of macroeconomic factors on stock prices with different object range and period. This study is focused on analyzing the influence of macroeconomic factors on agricultural sector stock prices.

## PREVIOUS RESEARCH AND FRAMEWORK

Some similar researches on macroeconomic factors on stock prices have been conducted with case studies of domestic and foreign capital markets. Both discussing the whole sectors and focus on certain sectors have been conducted before.

Artha *et al.* (2014) conducted study on the effect of macroeconomic factors on stock prices in the agricultural sector in the period 2005-2011. Macroeconomic factors used in this study include the rupiah exchange rate, the BI rate and world oil prices. The result of this study is that the three macroeconomic factors are said to have an influence on agricultural sector stock prices. Nordin *et al.* (2014) used macroeconomic variables such as

commodity prices (CPO prices, world oil prices, and gold prices), interest rates and exchange rates on the Malaysian stock market. The results of this study explain that CPO commodity prices have a positive effect, while for world oil prices and gold prices have a negative effect. Interest rates and exchange rates have a positive effect on the performance of the Malaysian stock market.

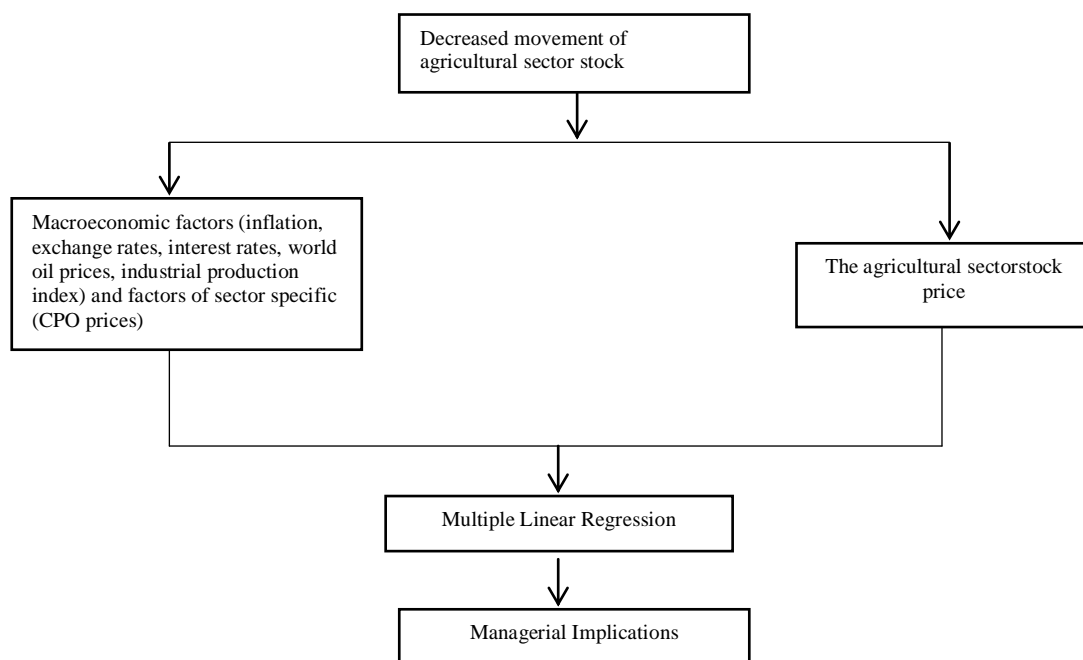
Khan and Zaman (2012) conducted research on the effect of macroeconomic variables towards stock prices on the Karachi stock market, Pakistan. The data variables used are GDP, exports, consumer indices, the money supply, exchange rates, foreign direct investment, and oil prices. The data used was annual data. The method used was multiple linear regression. The results of this study are the GDP and the exchange rate has a positive influence, while the consumer index has a negative influence on stock prices. The result also explained that exports, the money supply, foreign direct investment and oil prices were not significant. Khalid (2012) used multiple regression method to test the macroeconomic variables such as inflation, world oil price and the exchange rate of the stock prices of several companies in Saudi Arabia. The result shows that all macroeconomic variables had a significant influence on stock prices in Saudi Arabia.

Research on Indonesian stock market with the property and real estate sector was conducted by Simbolon (2018). This study finds out the effect of macroeconomic factors towards the stock prices of the property and real estate sectors using multiple linear regression method. The results of this study states that macroeconomic factors such as inflation, interest rates, and the rupiah exchange rate have a significant influence on stock prices while, GDP has no significant effect on stock prices.

This research began with the stock movement in the agricultural sector that experiencing the deepest correction compared to other sectors, amounted -

35.62%. This is thought to be the impact of the existing sentiment in the European Union related to oil palm that cause CPO price to decrease. The policy of the increase of The Fed interest rate and the weakening of the exchange rate in 2018 are also thought to result weak movement in agricultural sector stock, the majority of which are filled by plantation subsector companies. Agriculture sector stock is believed to have a high sensitivity to

macroeconomic factors are considered as factors that cannot be controlled by the company or investors, so that it can influence the company internal. Therefore, the researchers need to take action about macroeconomic factors that influence agricultural sector stock price so that investors and company are expected to be able to anticipate and determine the right steps. The conceptual thinking framework is presented in Figure 1 below.



changes in macroeconomic conditions. The

Figure 1 Framework

## RESEARCH METHOD

This research is a quantitative research. The type of data used in this study was secondary data. These data include data of end of month closing stock price, data of world oil price, data on the exchange rate of the rupiah against the US dollar (USD), data of inflation in Indonesia, data of interest rate, data of Industrial Production Index (IPI) and data of palm oil prices (CPO). The data obtained were from the Indonesia Stock Exchange, the Central Statistics Agency, and Yahoo Finance. All data taken was a monthly period from January 2014 to December 2018. The timeframe was based in order to obtain the latest year data, so that

the results obtained are actual related to the relationship between observed variables.

The model used in this research :

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + e \quad (1)$$

Description :

- Y = Share price of plantation sub-sector companies
- a = Constant
- $b_{1,2,3,..,6}$  = Regression Coefficient
- $X_1$  = Inflation rate
- $X_2$  = Interest rate
- $X_3$  = Rupiah exchange rate

- X<sub>4</sub> = World oil prices
- X<sub>5</sub> = Industrial production index
- X<sub>6</sub> = Price of CPO
- e = *Standar Error*

## RESULT AND DISCUSSION

*R Square* test result shows the total 0.859, meaning that the figure states that the independent variables in the study consisting of inflation, interest rates, rupiah exchange rates, world oil prices, industrial production index and CPO prices are able to explain 85.9% dependent variable in this study that is the stock price and the remaining 14.1% explained by other variables outside this study. The tests using the F test produce a significant number of less than 0.1. Beside that, testing by means of hypothesis testing in this study resulted in a Fcount of 53,912 with meaning that this Fcount is bigger than a Ftable. Both of these tests explain that overall the independent variables (inflation, interest rates, rupiah exchange rates, world oil prices, industrial production index, and CPO prices) influence towards the dependent variable, in this case the agricultural sector stock prices.

The T test in this study is to find out whether there are influences of independent variables in this case inflation, interest rates, rupiah exchange rates, world oil prices, industrial production indexes, and CPO prices partially on the dependent variable in this case agricultural sector stock prices. The T test results show that inflation, the rupiah exchange rate and world oil prices significantly influence the agricultural sector stock prices. While interest rates, industrial production index and CPO prices do not significantly influence the stock price of the agricultural sector. The T test results can be seen in table 1.

Table 1 Regression Test Result

Model	$\beta$	t count	p-value
Constant	5629.336	3.923	0.000
Inflation (X1)	83.388	4.232	0.000
Interest Rate (X2)	9.200	0.253	0.801
Rupiah Exchange Rate (X3)	(0.240)	(4.310)	0.000
Oil Price (X4)	3.642	2.684	0.010
Industrial Production Index (X5)	(4.110)	(0.686)	0.496
Price of CPO (X6)	(0.416)	(0.786)	0.435

Inflation variable has significant influence on agricultural sector stock prices. Khan and Zaman (2012), stated that high inflation will cause interest rates to increase where when the interest rates is increased, the corporate debt will also increase as a result of investors attracting investment so stock prices will decrease. However, in this study, an increase in inflation responded positively by stock prices. Meaning that if it is associated with investment theory which states that risk and *return* move positively then when an increase in inflation occurs, the price will tend to increase, company *profit* rise and eventually investors will get high *capital gain* and vice versa. This is equal to previous studies such as Khalid (2012), Antonio *et al.* (2013), Barakat (2015), Alena (2017) and Simbolon (2018), meaning that when inflation is high then stock prices will also increase.

Interest rate variable has no significant influence on agricultural sector stock prices. The interest rates have a positive influence on stock prices which means that the higher the interest rates, the stock prices will tend to decrease and vice versa (Jones 2013). This is possible because if there is an increase in the *BI Rate*, there will be a possibility that deposit rates will increase that causes *risk averse* investors to invest their money better in the form of deposits with the consideration that investors can minimize risk and avoid losses on the stock market. As a result, shareholder activity decreases and share prices will fall. Beside that, companies or issuers that will expand or expand their businesses will need capital. This capital can be obtained from loans or debt in banks which have high interest rates. As a result, high debt will reduce the company financial performance so that it will decrease stock prices. The results of this study are in line with research by Ho (2011), Naik and Padhi (2012), Artha (2014), Antonio *et al* (2013), and Simbolon (2018) which stated that interest rates are not significant on stock prices.

The rupiah exchange rate variable has a significant influence on the share price



of agricultural sector. The relationship between exchange rates and stock prices can vary. This can be different depending on the geographical area, economic condition, relation with the international world, domestic condition and others. Inconsistencies in results between different countries may be caused by trade volumes, equities, economic relations, risk assessments (Suriani *et al.* 2015). The relation between exchange rates and stock prices maybe not only unidirectional but bidirectional or multidirectional, meaning that there is no certain theory about the relationship between exchange rates and stock prices (Muhammad 2014). This is also proven by Nasri's research (2017) which states that there are no standard results that confirm the existence of a link between exchange rates and stock price.

The oil price variable has a significant influence on the stock price of the agricultural sector. Oil prices have a positive influence on stock prices in agricultural sector, meaning that when oil prices is rising then stock prices will also rising. In developing countries, the influence of oil prices and stock prices has been proven by many studies such as Arouri and Fougau (2009) who say that oil prices have a major role in economic activity. The results of this study are equal to research by Khalid (2012), Antonio *et al.* (2013), Artha (2012), Kang *et al.* (2015), and Erwanto (2015). Bodie *et al.* (2014) explains that the increase of energy and commodity prices will boost the share prices based on natural resources.

Industrial production index (IPI) variable has no significant effect towards agricultural sector stock prices. This is proven by the results of t test which is smaller than t table and the significance value is greater than 0.100. The industrial production index is usually used as a proxy for the level of real economic activity. High industrial production increased sales and corporate profits, which directly results in increased trading activities in the stock market which is reflected by the market

index (Nwaolisa 2016). The result of this study is contradicted to the study of Subeniotis *et al.* (2011), Alena (2017), and Febrina (2018) which stated that there is a positive relationship between industrial production indexes and stock prices in the long run.

CPO price variable has no significant influence towards agricultural sector stock prices. The results of this study is contradicted to previous studies which indicated that the price of CPO affects the movement of shares in the agricultural sector (Nordin 2014) (Andiantyo 2018). The CPO price is considered as insignificant in this study, because not all issuers in the agricultural sector produce CPO commodities, but there are some issuers that produce commodities such as coffee, rubber. Meaning that even though CPO prices have decreased, the company still has substitute commodities that can help commodity sales.

## CONCLUSION AND SUGGESTION

Partially the macroeconomic factors such as inflation, exchange rates and world oil prices have a significant influence towards agricultural sector stock price. While the macroeconomic factors of interest rates and industrial production index and CPO price have no significant effect. Simultaneous test results, indicated that the independent variables in the study consisting of inflation, interest rate, rupiah exchange rate, world oil price, industrial production index and CPO prices were able to explain 85.9% of the dependent variables in this study, that are stock prices and the rest of 14, 1% is explained by other variables outside the study.

As a recommendation, investors must pay attention to macroeconomic factors because they are factors that cannot be avoided by company or investors. For further research, both investors and publishers in the agricultural sector are expected to be able to predict stock price movement in the agricultural sector and macroeconomic factor, to minimize

investment losses and also for companies in the agricultural sector to anticipate the effects. The macroeconomic factors so that macroeconomic factors such as inflation, oil price, exchange rate and others do not affect the company financial performance that will influence the stock price.

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