

## The Effects of Macroeconomics, Oil Prices, and Competitive Resources on LQ 45 Stock Returns

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### Abstract

The capital market is a component of a country's financial system that accommodates meetings between parties who need funds and parties who have funds on the Indonesia Stock Exchange. The expected returns of investors in the Indonesia Stock Exchange can be influenced by various macro factors, including macroeconomics, world oil prices, and competitiveness. Macro factors are related to the president in terms of economic policies, regulations, and capital market stability. LQ 45 which is an index consisting of liquid stocks, is used as a reference for setting investment strategies. This study aims to determine the effect of the three macro factors, namely macroeconomics, world oil prices, and competitiveness on LQ 45 returns during the last two terms president of the Indonesian, Susilo Bambang Yudhoyono and Joko Widodo, using regression analysis. Analysis of each term of office is divided into high return and low return groups. The data in this study used monthly data from October 2004 to October 2021. The results showed that the three macro factors simultaneously affected the LQ 45 stock return group. Partially, it shows that world oils have a positive effect on high and low returns, both during the presidential of Susilo Bambang Yudhoyono and Joko Widodo. Macroeconomics and Competitive Resources show varied results in influencing LQ 45 returns.

**Keywords:** Capital Market, LQ 45, Return, Macro Factors and Stock Performance

### INTRODUCTION

The capital market in Indonesia continues to develop, with the increasing number of investors on the Indonesia Stock Exchange (IDX). Up to this point, the number of capital market investors has reached 8.3 million, representing a 12.13% increase from 2021(Purwanti, 2022). Investors often conduct market research and analysis to make good investment decisions, by following capital market news or company developments. Stock investors have various goals, one of which is that the return generated can be developed and used in the future (Antonio, 2014). The success of stock investors to capital gain depends on the ability to manage risk, have an investment strategy that suits their goals and understand market movements.

Capital market movements are an important part of sustainable global economic activity, these movements can be influenced by macro and micro factors, including global economic conditions, interest rates, company performance, economic and political news. Political issues from presidential have an impact on capital market movements, including economic policy, political stability and investor perceptions of presidential policy. Each policy issued by the President of Indonesia can have an impact on capital market movements, including changes in stock prices, fluctuations in inflation, exchange rates, and interest rates (Artaya et al., 2014; Pradana & Rahardjo, 6927).

Economic policies implemented by a president can affect economic growth, inflation, employment, and overall economic stability (Lumbantoruan, 2020; Yudhinanto, 2018). Prudent fiscal, monetary, and trade policies can support stable economic growth, while inappropriate policies can lead to economic challenges and fluctuations in stock price estimates. Stock price estimation is an integral part of the process of analyzing future stock prices.

Investment is essentially the placement of a number of funds at this time in the hope of getting a profit in the future period (Halim, 2005). Investors should recognize that their investment decisions significantly

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impact future investment returns. One of the factors that influence investment decisions is the ability to estimate stock prices. Stock price estimation is a tool or approach used to predict stock prices. There are several models or methods that investors can use to estimate stock prices including the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT) which is a development of the theory of CAPM (Indra, 2018; Rusiadi & Novalina, 2017). The APT model is a stock price estimation model that considers several macro factors. By identifying macro factors that affect assets, it is possible to make more informed investment decisions and better manage risks.

Before investors determine the model to be used in estimating the price of stock or assets owned, investors determine the company that will be the place of investment. The IDX, which is a capital market trading place, provides a variety of stock groups to make it easier for new or old investors to determine the type of stock to buy. There are 33 indices listed on the IDX that investors can use as a reference for buying stock. One of the index that investors can use is the Liquid 45 (LQ 45). The LQ 45 index includes 45 leading stocks traded on the IDX. The LQ 45 index is considered by investors as an index that reflects the performance of stocks that are liquid and have a large market capitalization.

Figure 1 shows the movement of LQ 45 stock returns from October 2004 to October 2021, which is included in the presidential period of the Susilo Bambang Yudhoyono (SBY) and Joko Widodo (JKW).

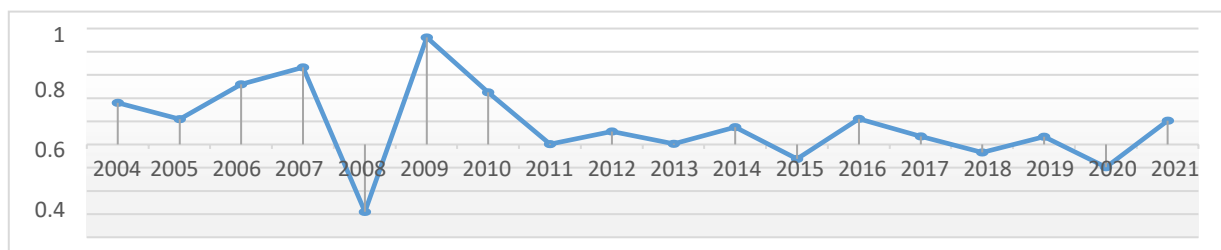


Figure 1 The Movement of LQ 45 Stock Returns

This study aims to analyze and explore the Arbitrage Pricing Theory (APT) in the Indonesian capital market. In this research, the researchers identify macroeconomic factors that can influence the prices of LQ45 stocks during the presidencies of SBY and JKW. The correlation between macro factors and stock prices is complex due to the multitude of factors that can affect stock prices. Changes in stock prices refer to fluctuations in the prices of stock assets in the capital market. Stock prices can vary over time, and these changes can be attributed to various factors, including macroeconomic, global oil prices, and competitive dynamics.

Any changes in the country's macroeconomy will affect the company's performance and the price of its products, if the company's performance is affected by economic conditions, the company's profits may decrease. Thus, investors will withdraw their money from the stock and have an impact on the return expected by investors. The rupiah exchange rate has a negative impact on stock returns, but the Bank Indonesia (BI) interest rate has a positive impact on stock returns (Desitania, 2021). Other research states that the BI interest rate and the rupiah exchange rate have a negative impact on stock returns (Lilyana et al., 2022). Economic development has a positive impact in influencing the movement of stock returns in Indonesia (Makhfudz, 2016). While the increase in resources and technology in the economic system has a positive impact on obtaining foreign capital (D. Maharani, 2017).

The increase in world oils will encourage an increase in aggregate demand and increased welfare, so investors tend to invest in stock instruments (Raraga et al., 2012). According to other studies, world oils have a negative effect on the movement of the Jakarta Composite Index (JCI), indicating that an increase in world oils will result in a decrease in the JCI while in other studies the world oil pushes up the stock price index (Bjornland, 2009).

Companies that are competitive can increase economic growth and net profit. Competitive is essential for creating opportunities for better use of technology and increasing the number of Indonesian export products to international markets. As a result, the source of competitive affects the rate of return in the Indonesian capital market. The nickel price or source of competitive had a negative impact on the JCI mining index (Prastyo & Sertiartiti, 2018). On the other research, nickel prices or Competitive Resources have a positive impact on mining sector stock returns (Rahmat Ramadhan, 2020).

Previous studies that examine the influence of macro factors on stock returns show inconsistent results. So, this study aims to examine more comprehensively how the influence of macroeconomic factors, world oils and Competitive Resources on LQ 45 stock returns during the two presidential periods of the SBY and JKW.

Figure 2 shows the movement of the macroeconomics, world oil and Competitive Resources over the last two presidential in Indonesia.

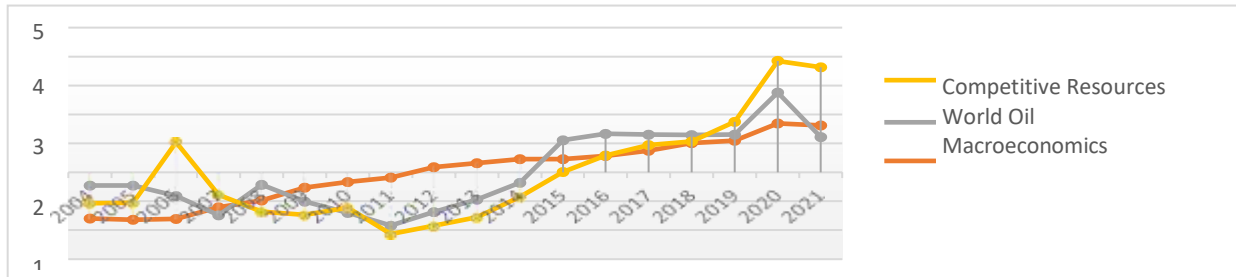


Figure 2 The Movement of Macro Factors

## LITERATURE REVIEW

Macroeconomic variables have a systematic influence on market returns using Arbitrage Pricing Theory (APT) (Gusni & Riantani, 2017). APT was first introduced by (Ross, 1976) which assumes that there are two investment opportunities that have the same characteristics, so they cannot be sold at different prices. In the APT model, the amount of return on an asset or security is influenced by several macro factors. The APT equation is expressed in formula 1.

$$R_i = R_f + \beta_{i1}F_1 + \beta_{i2}F_2 + \dots + \beta_{in}F_n + \varepsilon_i \quad (1)$$

Macroeconomics is a branch of economics that examines the behavior of the economy or the level of economic activity as a whole including factors that affect the performance of the economy or aggregate activity so that it is a problem faced in everyday life (Dornbush & Fischer, 1997: 3 ; Muana, 2001 : 1). Macroeconomic factors, including interest rates and exchange rates of many things that affect the economy of a country or region, and are needed for economic analysis, public policy, and investment decision making.

The world oil is the average price of crude oil traded on the global market. World oils are influenced by a variety of complex economic, geopolitical and environmental factors. An increase in the price of crude oil will trigger an increase in the price of other goods, because various fields of industry use oil as fuel (Gumilang et al., 2014). The world oil is an important global economic indicator, as it is one of the main sources of energy worldwide. High oil prices can affect the cost of living and business in many countries including capital markets, while low oil prices can provide investors with encouragement to buy stocks. As a result, changes in world oils often make headlines in the news and have far-reaching impacts across different sectors of the economy.

The source of competitive is the ability or advantage used to compete in a particular market (Porter, 2008 : 292). Competitive is created through continuous development on all lines of the organization, especially the production sector. The factors that determine National Competitive Advantage (NCA) or the management of a scientific data-based ecosystem that can drive sustainable development and blue carbon in Indonesia are the demand conditions, related industries, and supporting industries, as well as inter-industry competition.

## METHOD

The method used in this research is quantitative research with a descriptive and verificative approach based on the collection of objectively measurable data and analyzed statistically. The stages in processing the data that has been collected are by conducting a classical assumption test consisting of data normality, multicollinearity, heteroscedasticity, and autocorrelation tests. Then, multiple linear regression tests with the aim of measuring the extent of the impact of macroeconomics, world oil, and competitive resources in

influencing LQ 45 returns during the presidential of the SBY and JKW. The multiple linear regression equation is expressed in formula 2.

$$Y_{it} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + e \quad (2)$$

After multiple linear regression testing, hypothesis testing is then carried out to determine the meaningfulness of the results of the influence of the variables studied. The hypothesis in this research study.

H0 = Macroeconomics, world oil and Competitive Resources have no influence in influencing LQ 45 stocks returns during the presidential of SBY and JKW.

H1 = Macroeconomics, world oil and Competitive Resources are influential in affecting LQ 45 stock returns during the presidential of SBY and JKW.

The significance level of decision making on probability (prob.) or  $\alpha$  above 0.05 (5%) means that H1 can be accepted, which means that macro factors affect LQ 45 returns.

The data collection stage used a purpose sampling technique by collecting secondary data sourced directly from the official IDX website, Statistics Agency, and capital market data collection. The population in this study are all stocks included in the LQ 45 index and listed on the IDX. In the span of the last 2 presidential periods, there were 150 stocks that were consistently included in the LQ 45 index. Samples that met the criteria were 23 stocks in SBY presidential and 35 stocks in JKW presidential. The variables used are macroeconomics, world oils and Competitive Resources with a time span of October 2004 to October 2022.

Based on the mean of each stock return, four study groups are generated based on the high return and low return of SBY and JKW as shown in Figure 3.

SBY	JKW
<b>High Return</b> (group 1)	<b>High Return</b> (group 3)
<b>Low Return</b> (group 2)	<b>Low Return</b> (group 4)

Table 1. LQ 45 Stock Return Group

## RESULT AND DISCUSSION

Classical assumption test decision making used normality, multicollinearity, heteroscedasticity, and autocorrelation tests. The normality test results in each group show that the probability value  $> 0.05$  so it can be concluded that the high return and low return groups in each presidential are normally distributed, which means that the classic assumption of normality has been met. Table 2 shows the normality test results of the four groups.

Table 2. Normality Test Results	
Description	Value Prob.
SBY High Return	0.075 $> 0.05$
SBY Low Return	0.091 $> 0.05$
JKW High Return	0.066 $> 0.05$
JKW Low Return	0.207 $> 0.05$

Source: 2022 Processed Data

The results of the heteroscedasticity test in each group show a prob. value  $> 0.05$ , which means that the regression analysis complies with the homoskedasticity assumption. Table 3 shows the results of the heteroscedasticity test for each group.

Table 3. Heteroscedasticity Test Results

Description	Value Prob.
SBY High Return	0.050 > 0,05
SBY Low Return	0.067 > 0,05
JKW High Return	0.097 > 0,05
JKW Low Return	0.079 > 0,05

Source: 2022 Processed Data

The multicollinearity test results on each return group are shown in Table 4 with the method tested using the Variance Inflation Factor (VIF) < 10.00. The test results on each return group of SBY and JKW presidential can be concluded that there is no multicollinearity between variables.

**Table 4. Multicollinearity Test Results**

Variables	High Return SBY	Low Return SBY	JKW High Return	Low Return JKW
		VIF		
Macroeconomics	3.856	4.382	6.646	6.377
World oil	3.427	3.862	1.404	1.448
Competitive Resources	1.483	1.450	7.161	6.908

Source: 2022 Processed Data

The results of the autocorrelation test on each presidential period using the Durbin-Watson test method using equation (3). Table 5 shows that there is no autocorrelation in each group of returns from each presidential SBY and JKW.

$$dU < dw < (4 - dL) \quad (3)$$

**Table 5. Autocorrelation Test Results**

Description	dU < dW < (4-dL)
SBY High Return	1.8306 < 2.086553 < 2.2929
SBY Low Return	1.8306 < 1.919482 < 2.2929
JKW High Return	1.8306 < 1.934333 < 2.2929
JKW Low Return	1.8306 < 1.927146 < 2.2929

Source: 2022 Processed Data

The selection of regression models from each group of stock returns during the presidential of the SBY and JKW used common effect regression model testing, so that in multiple linear regression analysis there are 4 equation models from each return group. During the presidential of the SBY, the multiple linear regression model for the high return group is shown in equation (4) while the low return group model is shown in equation (5). The regression model during the presidential of the JKW for the high return group is shown in equation (6) and the multiple linear regression model for the low return group is shown in equation (7).

$$Y_{it} = 0,042989 + 0,011418 X_1 + 0,02217 X_2 + 0,00197 X_3 + e \quad (4)$$

$$Y_{it} = 0,016634 + 0,012131 X_1 + 0,013127 X_2 + 0,00209 X_3 + e \quad (5)$$

$$Y_{it} = 0,028756 - 0,035844 X_1 + 0,025122 X_2 + 0,013992 X_3 + e \quad (6)$$

$$Y_{it} = 0,05671 - 0,089095 X_1 + 0,01977 X_2 + 0,034091 X_3 + e \quad (7)$$

The difference in the presidential of the SBY and JKW has an impact on the reaction to the movement of fluctuating macro factors. Figure 3 shows that macroeconomic movements have increased from 2004 to 2021, this is because Bank Indonesia (BI Rate) changed the benchmark interest rate as a monetary policy tool to control inflation and economic growth. The role of macroeconomics is very important in measuring or evaluating opportunities and risks in buying stocks in the capital market. Thus, investors must understand the macroeconomic factors that can affect the capital market to make wise investment decisions.

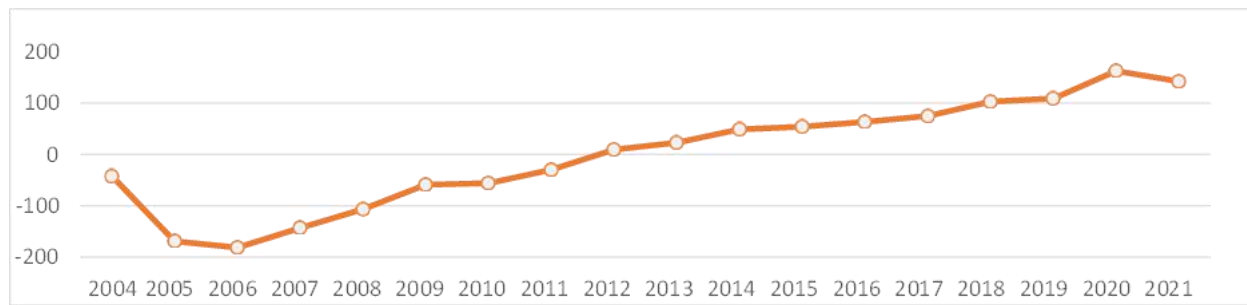


Figure 4 Macroeconomics Movements

One of the macroeconomic factors is the BI Rate or interest rate, which when interest rates increase, stock prices will decrease and vice versa. This is because high interest rates will make investors switch to deposits or savings which result in stocks not being in demand so that stock prices decrease and stock returns will also decrease.

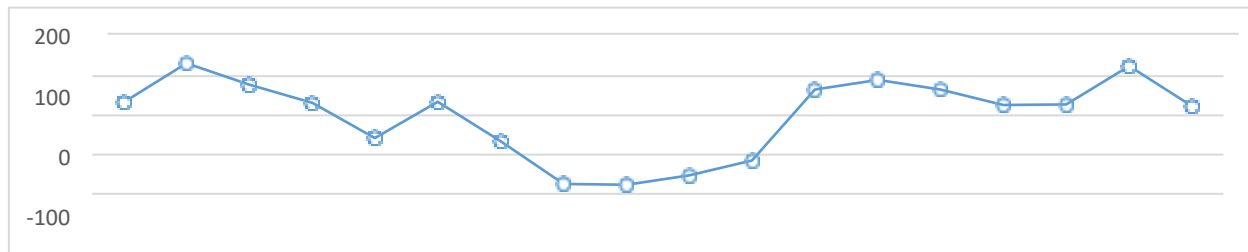


Figure 3 World Oil Movement

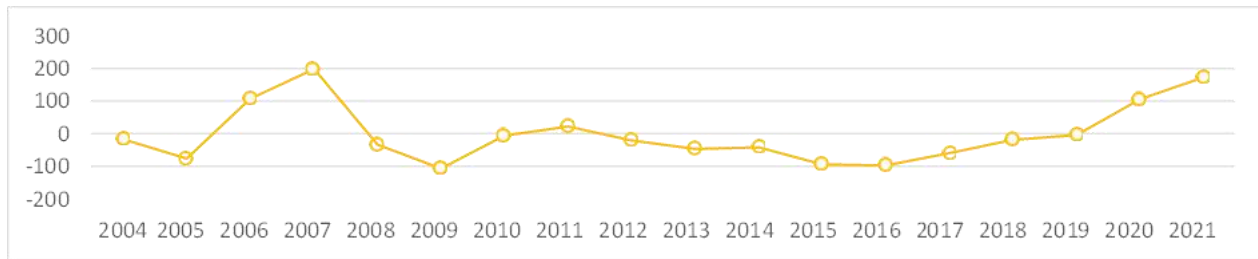
Figure 3 shows that world oil movements can be influenced by various economic or political factors. World oils are based on the price of crude oil, which is the main raw material for the production of various fuel and energy products. Changes in world oils can help investors in planning the right profit estimation or investment strategy.

The results showed that if the price of crude oil increases, expectations of improving the performance of companies will also increase, so that stock prices will be pushed up, followed by an increase in returns (Nurhasanah et al., 2021). In Figure 5 there are several years that do not match this understanding. As in 2006, world oil decreased while returns increased.

In addition to macroeconomics and world oil movements that can affect LQ 45 stock returns, the macro factors studied in this study are competitive resources. Competitive resources are various factors that allow a company to compete successfully in the capital market. One of the competitive resource factors is natural resources such as nickel or other mining industry sectors.

Some studies state that competitive resources have a positive effect on expected returns, while other studies show that competitive resources have a negative effect on returns. (Rachman, 2022). This happens because Indonesia has the largest nickel reserves compared to other countries. Currently, nickel demand continues to increase from the green energy sector because nickel is the main raw material for making electric vehicle batteries. Thus, the increasing demand for nickel makes the company's stock price increase so that the stock return increases. Figure 4 shows the movement of Competitive Resources during the study time span.





**Figure 4 Movement of Competitive Resources**

Investors who want to invest in the LQ 45 stock group must consider changes in macro factors that are used as a reference for making investment decisions. Because these macro factors will cause changes in the company's share price to fluctuate. So that macroeconomics, world oils and Competitive Resources are one of the macro components that need to be considered. This is based on the results of research showing that investors who want to invest will feel a significant negative impact on the movement of the LQ 45 Index on the IDX caused by these macro factors.

To optimize the research results, further research can be carried out by examining other macro factors that can affect LQ45 stock returns. Increased sustainability analysis including impact assessment for novice investors. Thus, it can increase deeper and informative understanding and better investment decisions for novice investors.

The results of simultaneous hypothesis testing of each group of stock returns show that together macroeconomic factors, world oils and my source of competitive have a significant effect on high and low returns during the presidential of the SBY and JKW. The simultaneous test results are shown in Table 6.

**Table 6. Simultaneous Test Results**

	SBY High Return	SBY Low Return	JKW High Return	JKW Low Return
Value Prob.	0.000000 < 0.05	0.000000 < 0.05	0.000000 < 0.05	0.000000 < 0.05
<b>Result</b>	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>	<b>Significant</b>

Source: 2022 Processed Data

The results of partial hypothesis testing for each group during the presidential SBY are shown in Table 7, while during the presidential JKW are shown in Table 7.

**Table 7. Partial Test Results of High Return & Low Return Group SBY**

Factor	High Return SBY		Low Return SBY	
	Value	Description	Value	Description
Macroeconomics	0.2010 > 0.05	Insignificant	0.1050 > 0.05	Insignificant
World oil	0.0001 < 0.05	Significant	0.0053 < 0.05	Significant
Competitive Resources	0.6098 > 0.05	Insignificant	0.4954 > 0.05	Insignificant

Source: 2022 Processed Data

Table 7 shows that the partial test results in the high return and low return groups of SBY presidential, only world oils have a significant effect. The results of this study are in line with research which states that the movement of world oils has a negative relationship with stock returns, world oils can increase company production costs and reduce profitability, so that if world oils rise, it will affect the decline in LQ 45 stock performance (Hamzah et al., 2021).

In theory, a rising macroeconomic portfolio can generate growth in corporate earnings, thus influencing investors' preference for stocks as a more profitable asset compared to other assets. Macroeconomic movements are not always linear or predictable.

The results of the partial test of macroeconomic factors in SBY presidential show the result that the movement of macroeconomic factors has no effect on LQ 45 stock returns. This can be caused because macroeconomic factors require a certain time in influencing stock performance, such as the BI Rate policy which will feel its impact 1 month or 1 year later (Yuniara Rissa, 2015). In addition, portfolio diversification applied by investors can reduce the risk of the impact of macroeconomic changes. It can be concluded that the sentiment of macroeconomic movements has no effect because it can be influenced by other factors such as the performance of company stock that can maintain profitability, so that investors do not sell their stock when there is a decline.

The test results of the competitive resource factor show that it has no effect on LQ 45 returns, both high return and low return groups. These results are in line with research which states that the effect of competitive resources can vary, during SBY presidential, the monetary crisis event became a common concern for investors to store assets in stocks (Fardiansyah et al., 2018). It can be concluded that at the time of SBY presidential, the capital market in Indonesia was still in the stage of structural reform with the aim of reducing bureaucracy so that it could increase investors in the long term, and a monetary crisis occurred so that investors chose to store assets in cash or assets that were easily liquidated.

**Table 8. Partial Test Results of High Return and Low Return Groups JKW**

Factor	High Return JKW		JKW Low Return	
	Value	Description	Value	Description
Macroeconomics	0.0358 < 0.05	Significant	0.0000 < 0.05	Significant
World oil	0.0001 < 0.05	Significant	0.0012 < 0.05	Significant
Competitive Resources	0.0598 > 0.05	Insignificant	0.0000 < 0.05	Significant

Source: 2022 Processed Data

The results of the partial hypothesis test in the JKW presidential stock group show that only competitive resources have no effect on the high return of LQ 45. These results are in line with research stating that during the presidential of the JKW government, it prioritized renewable energy security and non-fossil energy, so that the movement of competitive resources did not really affect the high return, but rather affected the low stock return due to investor sentiment that was faster to capture the reaction of the movement (S. N. Maharani, 2006)

Table 8 shows that macroeconomic factors and world oils have a significant effect on the high and low returns of LQ 45 stocks during the presidential of the JKW. This is indicated by JKW presidential efforts in influencing infrastructure development so as to improve connectivity and economic efficiency, as well as having an impact on driving the value of macroeconomic growth and attracting foreign investors to invest in the Indonesian capital market as well as investment in fossil energy utilization.

## DISCUSSION

Based on facts and data, during SBY presidential, policies were implemented to strengthen regional ties in the Southeast Asia and Asia-Pacific regions by leveraging available opportunities, benefiting both sides, and fostering friendships with leaders of other nations. Consequently, during SBY presidential, the world experienced a monetary crisis resulting in a rise in national oil prices due to the high global oil prices. This situation created a strong incentive for investors to invest in LQ 45 stocks which offered high returns despite the corresponding high risks.

Macroeconomics and competitiveness are variables that can influence the stock market. However, in this research, it was found that macroeconomics and competitiveness did not affect the group of stocks with high returns during SBY presidential. Similarly, in the case of high and low return groups during JKW presidential, macroeconomics and competitiveness did not affect the high return stocks under JKW presidential. This is because the policy focus was more on macroeconomic stability, economic growth, and overall improvement of the investment climate rather than a specific focus on the development of the capital market. This could mean that the enhanced competitiveness may not directly or significantly affect the capital market quickly.



Under JKW presidential, which focused heavily on Indonesia's economic development, the global oil market had a significantly positive impact on LQ 45 returns due to the close economic ties between Indonesia and the outside world, including China. Development projects in remote areas as well as densely populated areas were partly financed by Indonesia's debt to China, supported by the projected growth in global crude oil demand of 3.4 million Barrel of Oil Per Day (BOPD) resulting from improved global economic activity, mobility, and industrial activity, as well as Russia's attack on Ukraine on March 24, 2022, which led to an increase in fuel prices in Indonesia.

The increase in macroeconomics led to a decrease in LQ 45 returns. These research findings are consistent with a study conducted in 2016 which found that inflation and interest rates have a negative impact on returns. Competitiveness did not affect the movement of the capital market because the human resources were still being developed to create superior, skilled, and knowledgeable workforce, which did not impact the group of stocks with high average returns but affected stocks with low average returns.

## CONCLUSION

The core concept of APT is that the price of a financial asset should reflect the influence of all available risk factors. If an asset is priced unbalanced (e.g., too high or too low) based on the risk factors present, then there will be an arbitrage opportunity, which can be exploited by investors to earn risk-free profits.

The results of this study show that factors that can affect the movement of macro factors and stock returns can result from different presidential policies or efforts to improve the capital market. During the presidential of the SBY government, the results show that only world oils affect stock returns. Because, the condition of the capital market is experiencing a revolution and also a monetary crisis so that investors prefer to store assets in cash or investments that are easily liquidated.

In contrast to the results of the study on JKW presidential, which shows that the sentiment of the movement of macro factors of Competitive Resources on stock returns does not affect high returns, one of the reasons is that investors during JKW presidential period delved more into information or studied capital market news before making investment decisions, so that investors could apply portfolio differentiation to minimize the risk of loss.

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