

THE EFFECT OF MACROECONOMY ON STOCK PERFORMANCE OF LQ45 COMPANIES AT IDX

Angelica Giovanni Gunarto
H. M. Roy Sembel

ABSTRACT

Performance of economy can be measured by several indicators, such as, real GDP growth rate, interest rate, inflation rate, and exchange rate. These variables can in turn have impacts on the returns of securities. The performance of a firm is also influenced by these macroeconomic variables. It is imperative that firms should be aware of these elements to manage the effect on its future cash flows and profitability. This study examines the effect of changes in currency exchange rate of IDR versus USD, rates of real GDP growth, inflation, and interest on the stock performance of LQ45 companies at IDX from 2008-2018. The research designs used in this study are cross-sectional, time-series, and event study method. To have a more reliable result, these data undergone several tests, which are descriptive statistics, normality, auto correlation, multicollinearity, regression, F-test, and t-test. The result of this study showed that the currency exchange rate of IDR versus USD, the rates of real GDP growth, and interest were significantly affecting the stock performance and have negative coefficient. Whereas the inflation rate was insignificant in explaining the stock performance. In general, macroeconomic variables were found to have a strong relation with stock market. This means that macroeconomic variables can be used to explain fluctuation in the stock return of LQ45 index. The authors believe this study will be beneficial for investors, academicians, and firms.

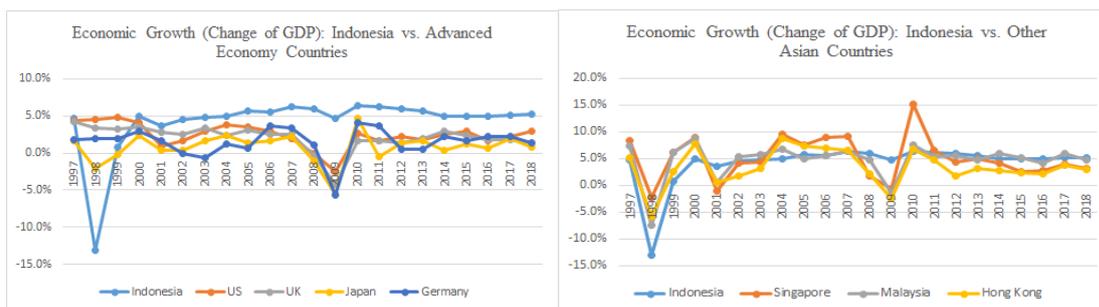
Keywords: Exchange Rate, Real GDP Growth Rate, Inflation Rate, Interest Rate, Stock Performance

1. INTRODUCTION

The Republic of Indonesia is a market economy in which the state-owned enterprises (SOEs), large private business groups (conglomerates) play a significant role. These big companies experienced negative impact of the Asian macroeconomic and financial crisis in 1997-1999. After the crisis of the late 1990s, Indonesian macroeconomic indicators started to come back on track in the mid-2000s. Figure 1. showed that the global economic downturn caused by the global financial crisis in the late 2000s had a relatively small impact on the Indonesian economy compared to its impact on most of the advanced economy countries and Asian countries in that period (Elias and Noon, 2011).

Indonesian economy also improved after the economic slowdown in the year 2011-2015 that happened in most of the emerging countries. Indonesia received international recognition from the upgrades of the country's credit ratings by international financial services companies, a couple of which are Standard & Poor's, Fitch, and Moody's (Trading Economics, 2019). The financial system that previously lacked of supervision and transparency was replaced by a system demanding more prudent fiscal policies (Indonesia Investments, 2016).

Figure 1. Economic Growth: Indonesia vs. Advanced Economy Countries and Other Asian Countries



As of December 2018, Indonesian fiscal sector showing positive developments. Sri Mulyani Indrawati, the finance minister of Indonesia has announced that government revenues were around 88% of the IDR 1.89 quadrillion or USD 126.3 billion target however tax receipts had increased by 15.2% from last year (The Jakarta Post, 2018). Furthermore, the increase in the tax receipt decreased the estimated budget deficit, and hence the government would need to borrow less next year. This great positive development in the revenue sector is partly due to the success of tax amnesty in 2017. Under Sri Mulyani's leadership, the government has indeed been disciplined in upholding the fiscal rules of limiting the cumulative budget deficit ad maximum of 3% of GDP and government debt at a maximum of 60% of GDP (The Jakarta Post, 2018). This shows that the government is strongly committed to prudent borrowing. Indonesia's government debt as a share of GDP has shown significant improvement. It declined from more than 150% of GDP in 1998 to around 30% in 2018 (Indonesia Investments, 2018; Bank Indonesia, 2019). Similarly, Indonesia's external debt has also shown a decline, from 46% in 2004 to 36% in 2018 (Bank Indonesia, 2019). These numbers measure the ability of the government to make future payments on its debt, thus positively affect the borrowing costs of Indonesia, government bond yields, and international credit ratings.

Despite such positive conditions of Indonesia's economy, it must take into account that there are periods of expansion, contraction, and recession in economic and business cycles. After the recession, the expansion starts again. As such Indonesia may be at the beginning of what can become another period of substantial economic growth.

Both micro and macro-economic variables influence the performance of a firm. It is imperative that firms are aware of these elements in order to lessen the effect on future cash flows and profitability. Microeconomics variables exist within the company and therefore the impact can be foreseen and controlled without much of a stretch. On the contrary, macroeconomic variables are beyond the control of a firm (Dioha et al., 2018).

An economy's performance can be measured by the real GDP growth rate, interest rate, inflation rate, exchange rate, and many other variables. These variables can in turn have impacts on the returns of securities. The performance of a firm is also influenced by these macroeconomic variables (Farrel, 1997; Sharpe et al., 2014). These variables are the most reliable macroeconomic variables that can explain stock markets fluctuations (Adrangi et al., 2011). Because of the recent development of digital economy and industry 4.0, the characteristics of the impact of macro economy on stock performance may have change. Therefore, a further research is needed to investigate the possible new pattern of the effect of macro economy on the stock performance. Thus, the thrust of this study is to examine the effect of macroeconomic variables, which are, exchange rate, real GDP growth rate, inflation rate, and interest rate on the stock performance of companies, represented by publicly listed companies, utilizing more recent data.

2. LITERATURE REVIEW

Taher et al. (2010) stated that the macroeconomic refers to those conditions and forces which are external to the firm and are beyond the individual business unit, but they all operate within it. Davis and Powell (2012) view macroeconomic as forces surrounding a firm that have the potential to influence the way it operates. Variety of economic phenomena such as inflation, economic growth, exchange rate, gross domestic product (GDP), money supply, and unemployment are thoroughly examined in macroeconomics (Chen, 2018).

Exchange rate is a currency value of one nation versus another nation's or economic zone currency (Kramer, 2019). It is the price at which a currency can be converted into another country's currency (Dwijayanthi and Naomi, 2009). Gross domestic product (GDP) is one of the primary indicators used to measure the health of a country's economy (Kramer, 2019). It is often cited as the economy size of a country since it represents the total currency value of all final goods and services produced over a specific time period. How fast the economy is growing is measured by GDP growth rate. Inflation rate is a measure of the rate at which the average price of goods and services in an economy changes over a period of time (Hussein, 2017). Inflation is good when it is mild. There are two situations where this occurs; when inflation makes consumers expect prices to continue rising and when it removes the risk of deflation (Amadeo, 2018). From the borrower's point of view, interest rate is the cost of borrowing assets, such as cash, bonds, consumer goods, and buildings. From the point of view of the lender, it is the additional payment received for lending assets (Alam & Uddin, 2009).

Stocks are a share in the ownership of a company (Hayes, 2019). Stocks are issued by companies to raise capital in order to expand the business or undertake a new project. Investors usually purchase and sell stocks because it provides a certain level of profit. According to Brigham and Houston (2010), the difference between the purchasing and selling price which formed by the activity of stock trading in the secondary market is called stock return. It consists of capital gain as well as any loss experienced by the investors from the stock (Mugambi and Okech, 2016). Stock return determines how effective and efficient the stock market allocates shares and equities based on preference and availability of market information (Hussein, 2017).

The first group of studies investigates the relationship between stock returns and macroeconomic variables for developed countries. Kandir in 2008 investigated the relationship of macroeconomic variables, firm characteristics, and stock returns in Turkey. The findings shows that that exchange rate, interest rate, and world market return affect all of the portfolio returns, while inflation rate is significant for only 3 of the 12 portfolios. Ang, Brière, & Signori in 2012 found that there is negative relation between inflation rate and S&P 500 index, using monthly data from 1989 to 2010. Azar in 2014 analyzed the relationship among the exchange rate, inflation, inflation uncertainty, and S&P 500 index. The exchange rate is found to have a significant relation with S&P 500 index.

Second group of studies covers developing countries. A research conducted by Hendri in 2005 revealed that inflation has negative impact on automotive stock return in IDX. Further, Nazir (2005) and Hendri (2005) also found that the exchange rate has a negative effect on stock price and stock return. Osamwonyi and Osagie in 2012, using the annual data of Nigeria' stock market from 1975 to 2005 revealed that exchange rate, fiscal deficit, GDP, inflation rate, interest rate, money supply affect the stock market index in Nigeria.

There is another group of studies that examines the situation for more than one country. Ritter (2005) examined the data for 19 developed countries from 1970 to 2002 and for 13 large emerging markets from 1988 to 2002 in order to see the relation between GDP growth rate and stock market return. The finding indicated that there is a negative relation between stock market return and GDP growth rate in developed countries and a tiny positive relation for developing countries. Hussein and Mgamal in 2012 examined the relation among the inflation rate, interest rate, exchange rate, and stock market prices in Kingdom of Saudi Arabia and United Arab Emirate using monthly data from 2008 to 2009. The study revealed that exchange rate is negatively affect stock market prices while no evidence of relation exist between interest and inflation.

Based on the theory and previous research, the hypotheses for this study is as follows:

- H1: Exchange rate has a negative effect on the stock performance.
- H2: GDP growth rate has a positive effect on the stock performance.
- H3: Inflation rate has a negative effect on the stock performance.
- H4: Interest rate has a negative effect on the stock performance.

3. METHODOLOGY

3.1. Research Design

This research is categorized as quantitative research which according to Bougie & Sekaran (2013) relies on deductive reasoning and according to Saunders et al., (2009) makes use of a variety of quantitative analysis techniques to establishing statistical relationships among variables. The research designs used in this study are cross-sectional, time-series, and event study method. In a cross-sectional study, the researcher measures the relationship between variables at the same time (Setia, 2016). Time-series study involves variables that are measured repeatedly at regular intervals over time (Salkind, 2010). Event study analyzes the changes in the object under investigation relating to the events that have occurred (Jogiyanto, 2015). The objective of this study is to scrutinize whether macroeconomic variables, which are, exchange rate, GDP growth rate, inflation rate, and interest rate have an effect on the stock performance of a company.

3.2. Variables

There are three types of variables in this study. Dependent variable is the main variables that will be investigated as a viable factor, which is the stock return of companies that consistently listed in LQ45 index from 2008- 2018. Independent variables are the variables that have positive or negative influence on the dependent variable, which are changes in exchange rate, GDP growth rate, inflation rate, and interest rate. The control variable is the other variable that the researcher holds constant throughout the test in order to asses better the relationship between the independent and dependent variable (Helmenstine, 2019). The control variable of this study is the return of JKSE index.

3.3. Data Collection

In this study, secondary data are used and collected through several readings from various sources including articles, books, journals, news, proceedings, and website. Furthermore, in order to determine the sample for this study there are two factors that must be contemplated. First, the observation period of this study is from the year 2008-2018. Second, sample companies in this study are companies that are consistently listed in LQ45 index during the observation period, which are 14 companies.

Table 1. Research Sample

No.	Stock Code	Company Name	No.	Stock Code	Company Name
1	ASII	Astra International Tbk.	8	LPKR	Lippo Karawaci Tbk.
2	BBCA	Bank Central Asia Tbk.	9	PGAS	Perusahaan Gas Negara (Persero) Tbk.
3	BBNI	Bank Negara Indonesia (Persero) Tbk.	10	PTBA	Bukit Asam (Persero) Tbk.
4	BBRI	Bank Rakyat Indonesia (Persero) Tbk.	11	SMGR	Semen Indonesia (Persero) Tbk.
5	BMRI	Bank Mandiri (Persero) Tbk.	12	TLKM	Telekomunikasi Indonesia (Persero) Tbk.
6	INCO	Vale Indonesia Tbk.	13	UNTR	United Tractors Tbk.
7	INDF	Indofood Sukses Makmur Tbk.	14	UNVR	Unilever Indonesia Tbk.

3.4. Techniques of Data Analysis

To analyze the data in this study, Eviews 10 is being used. The tests are: Descriptive Statistics, Normality, Auto Correlation, Multicollinearity, Regression, F-test, and t-test. The need of regression analysis is to understand the type of relation between variables, whether it has a positive or negative relation. Panel data which also known as longitudinal data or cross-sectional time series is a data that is derived from a number of observations over time on a number of cross-sectional units, which could be individuals, firms, government or etc. The data is collected over space as well as time (Mishra, 2018). In this study, the number of cross-sectional units is 14 chosen companies from LQ45 index. The series of period is from the year 2008 to 2018. Therefore it is called balanced panel.

There are several types of models that need to be considered when perform regression with panel data. This is because different model has different effect and therefore are selected based on the suitability of the nature of this study’s variables. The first is Common-Effect Model, which combines the cross-sectional and time-series data just as it is with an assumption that the behavior of these cases, which could be individuals, firms, government or etc., are the same in the given set of periods (Widarjono, 2009). If this study used the common-effect model, the equation of the regression model with the variables is as follows:

$$Rit = a + EXCt \beta_1 + GDPt \beta_2 + INFt \beta_3 + INTt \beta_4 + JKSEt \beta_5 + eit$$

The second is Fixed-Effect Model. Variables assumed that the behavior of each cases is not the same in the given time series or vice versa. If this study used the fixed-effect model, the equation of the regression model with the variables is as follows:

$$R_{it} = EXC_{it} \beta_1 + GDP_{it} \beta_2 + INF_{it} \beta_3 + INT_{it} \beta_4 + JKSE_{it} \beta_5 + a_i + e_{it}$$

The third is Random-Effect Model, which the cross-sectional units do not have their own fixed intercept. Instead, the intercept represents the mean value of all the intercepts of the cross-sectional units observed (Gujarati, 2003). Further, there are two error components that are present in the random-effect model. These error components are the combined cross section and time-series error component and an individual-specific error component (Torres, 2007). If this study used the random-effect model, the equation of regression model with the variables is as follows:

$$R_{it} = EXC_{it} \beta_1 + GDP_{it} \beta_2 + INF_{it} \beta_3 + INT_{it} \beta_4 + JKSE_{it} \beta_5 + a + w_{it}$$

3.5. Model Selection

The three aforementioned model structures have different effect towards the variable in the regression model. That emphasizes the importance of estimation tests in order to estimate the suitable model for this particular study. The estimation tests are the Likelihood Ratio and the Hausman Test.

The Likelihood Ratio Test is a test to examine the significance of fixed effect. This test has the capability to compare the goodness of fit between the common-effect model, which individuals have fixed intercept for all, and the fixed-effect model, which individuals or time have their own fixed intercept in the regression mode. The hypotheses of the test are as follows:

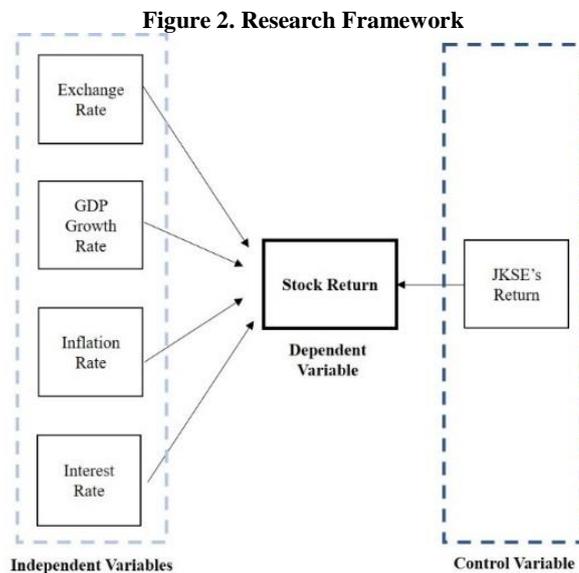
- H₀ : Common-Effect Model
- H_a : Fixed-Effect Model

The Hausman Test is an estimation model test developed by J. A. Hausman in 1978. It detects endogenous independent variables in a regression model. Endogenous variables have values that are determined by other variables in the system. According to Greene (2003), Specification Test is used to test for orthogonality of the random effects and the regressors in which have the capability to aid the researcher to decide in choosing the best-fitted model. The hypotheses of the test are as follows:

- H₀ : Fixed-Effect Model
- H_a : Random-Effect Model

3.6. Research Framework

Based on the literature review, the research framework is as follows:



4. FINDINGS, ANALYSIS, AND DISCUSSIONS

4.1. Descriptive Statistical Analysis

The mean of stock return is 3.20%. It is the quarterly return that investors received from these 14 companies from 2008-2018. The stock return of each companies fluctuates over time. Therefore, the positive return will subsets the negative return of one particular company. The maximum gain of these investments is 70% which was personally reached by Bukit Asam (Persero) Tbk. in the second quarter of 2009 and the maximum loss of these investment is 71.12% which was reached by United Tractors Tbk. in the third quarter of 2008. The standard deviation is 16.22%. After subtracted and added the standard deviation with the mean, it is known that the risk of gaining and losing from these 14 companies are between -13.02% and 19.42%. It must take into consideration that 100% of the sample data is being measured by the maximum and minimum range whereas 2/3 of the sample data is being measured by the standard deviation.

4.2. Normality Test

The normality test in Eviews can be seen from the Jarque-Bera Test's result. The probability of Jarque-Bera is 0.07, which is greater than the significance level (α) of 0.05. It indicates that this model is come from a normal distribution. Further, a positive skewness means that the distribution has a long right tail and a kurtosis value below 3 means the distribution is flat relative to the normal.

4.3. Autocorrelation Test

Autocorrelation can be tested using Durbin-Watson Test. This study has 585 number of observations which denoted as n and 4 regressors which denoted as k . Based on Savin and White Table, the dL is 1.728 while the dU is 1.809. Since the Durbin-Watson statistics value (1.9676) is greater than dU, the null hypotheses is not rejected. This model does not have significant autocorrelation problem.

4.4. Coefficient of Determination

The value of R-squared in percentage is 44.33%. This means that 44.33% of the variation of stock return can be explained by this model. The adjusted R squared is 43.85%, which means 43.85% of the stock return will not really affected by any changes in the model.

4.4. Multicollinearity Test

Table 2. Multicollinearity Test Result

Variable	Centered VIF	Variable	Centered VIF
Exchange Rate	1.581211	Interest Rate	3.916514
GDP Growth Rate	1.432235	JKSE's Return	4.662294
Inflation Rate	2.298290		

In order to detect a multicollinearity problem between each independent variables, Variance Inflation Factor (VIF) is used as a benchmark. Based on the result shown in the Table 4.7, the independent variables of this study did not have multicollinearity problem. Because all of the variables have a Variance Inflation Factor below 10.

4.5. Model Selection

In Likelihood Ratio Test, the probability of the Chi-square must be taken into account. The probability of Chi-square is 0.0542. It means the null hypotheses is failed to be rejected, resulted to the regression model of this study as a common-effect model. Therefore Hausman Test is not necessary.

4.6. F-Test

The probability F-Statistic (0.00) is shown to be less than the significance level (α) of 0.05. Subsequently, the null hypotheses is rejected. It can be inferred that the regression model of this study is fit and in the presence of JKSE's return, the exchange rate, GDP growth rate, inflation rate, and interest rate have a significant effect on the stock return.

4.7. T-Test

Succeeding the F-Test, t-Test is needed to decipher to what extend each independent variables could affect the dependent variable in the presence of control variable. The t-Test is also being used to test the hypotheses of this study. If the probability is less than the significance level (α) of 0.05, it indicates the dependent variable is affected by the independent variable.

Table 3. T-Test Result

Variable	Coefficient	Prob.	Variable	Coefficient	Prob.
Exchange Rate	-0.3615	0.0023*	Interest Rate	-2.007	0.0000*
GDP Growth Rate	-1.8024	0.0379*	JKSE's Return	0.8063	0.0000*
Inflation Rate	0.3098	0.3620	Intercept	0.2347	0.0001

Significance Level (α):

* $\alpha = 0.05$

When the exchange rate of IDR vs USD increase which means the depreciation of Rupiah, the stock returns tend to decrease, because the investor sees the rupiah depreciation as a signal that the economy is weak and vulnerable. Rather than buy stock, investor prefer to sell it, which resulted in a greater supply and lower demand. Consequently, the stock price would plummet. Further, changes in exchange rate also can affect the operation of a firm. The profitability of import-oriented firms will decrease since the price of goods would be higher which then leads to a stock price decrease. This result supports the first hypotheses of this study.

It can be concluded from the regression results that when the GDP growth rate increase, the stock return tend to decrease. This result is similar to Ritter (2005). Two factors that cause these discrepancies include but are not finite to valuations and expectations. The market determines the value of a company with various components such as sentiment, confidence, and emotions. Thus indicates that although the economy is growing there are other factors that become the basis of the valuation of the company. Whereas expectations divided into two. First, the expected economic growth may already reflected into the prices and thus reduces future realized returns. Second, the market expects the economy to grow higher than it is. When the expectation

is not met, the market would be crestfallen and it would decrease the stock price. This result denied the second hypotheses of this study as it is inconsequential to prove that GDP growth rate has a positive effect on the stock return.

The probability of inflation rate is 0.36. It is greater than the significance level (α) of 0.05, which means inflation rate do not affect the stock return. It can be assumed that inflation rate is inconsequential in explaining the stock return. This result is considered as insignificant to the third hypotheses.

When the interest rate increase the stock return will be decreasing. People resort to saving their money in a high-interest rate economy since they receive more from the savings rate. Further, businesses also have limited access to capital funding through debt, resulting in economic contraction. Thus, decreasing the stock price. This result supports the fourth hypotheses of this study.

In addition to the findings of the independent variables above, the control variable, which is JKSE's return perfectly affects the stock return. JKSE's return is proven to have a positive coefficient of 0.80, which means when the JKSE's return increases, the stock returns will also increase. This happens because the stock returns of this study are included in JKSE's return.

4.8. Individual T-Test

Table 4. Individual T-Test Results

		Exchange Rate	GDP Growth Rate	Inflation Rate	Interest Rate	JKSE's Return	Intercept
ASII	Coefficient	0.21	10.74	-2.05	4.61	1.54	-0.77
	T-Stat. Prob.	0.53	0.031*	0.09	0.06	0.000*	0.01
BBCA	Coefficient	-0.69	-4.81	0.77	-1.89	-0.15	0.42
	T-Stat. Prob.	0.10	0.19	0.54	0.31	0.55	0.13
BBNI	Coefficient	-1.12	-6.80	1.74	-4.11	0.46	0.60
	T-Stat. Prob.	0.012*	0.09	0.23	0.025*	0.031*	0.03
BBRI	Coefficient	-2.81	-9.71	4.47	-3.94	-0.34	0.71
	T-Stat. Prob.	0.000*	0.10	0.027*	0.12	0.40	0.09
BMRI	Coefficient	-2.03	-7.85	2.36	-3.22	0.17	0.60
	T-Stat. Prob.	0.000*	0.05	0.09	0.047*	0.53	0.03
INCO	Coefficient	-0.34	-6.56	0.14	-2.98	0.99	0.54
	T-Stat. Prob.	0.69	0.14	0.95	0.20	0.002*	0.07
INDF	Coefficient	-0.97	-3.62	0.45	-0.40	1.17	0.23
	T-Stat. Prob.	0.08	0.21	0.67	0.69	0.000*	0.21
LPKR	Coefficient	-0.07	6.22	3.88	-1.84	0.69	-0.45
	T-Stat. Prob.	0.91	0.037*	0.001*	0.24	0.004*	0.03
PGAS	Coefficient	0.80	4.35	-0.60	1.30	1.14	-0.33
	T-Stat. Prob.	0.30	0.22	0.75	0.49	0.000*	0.22
PTBA	Coefficient	1.21	0.18	-3.34	4.22	1.41	-0.08
	T-Stat. Prob.	0.08	0.97	0.19	0.18	0.000*	0.82
SMGR	Coefficient	-0.09	1.08	-0.83	0.41	0.89	-0.03
	T-Stat. Prob.	0.83	0.73	0.54	0.77	0.000*	0.89
TLKM	Coefficient	0.01	-1.99	0.89	-1.23	0.44	0.19
	T-Stat. Prob.	0.97	0.58	0.47	0.49	0.005*	0.41
UNTR	Coefficient	1.38	-1.97	-0.22	2.97	1.67	-0.09
	T-Stat. Prob.	0.009*	0.58	0.85	0.10	0.000*	0.72
UNVR	Coefficient	-0.72	0.59	1.30	-0.71	0.38	0.00
	T-Stat. Prob.	0.16	0.87	0.27	0.60	0.14	0.99

There are four companies that are affected by the exchange rate. Exchange rate has a negative coefficient on BBNI, BBRI, and BMRI. On the contrary, the exchange rate is shown to have positive coefficient on UNTR. Exchange rate fluctuations affects financial sector especially banks both directly and indirectly. The direct effect comes from bank's holdings of assets or liabilities with net payment streams denominated in a foreign currency. Exchange rate fluctuations alter the domestic currency values of such assets. Conversely, the indirect effect comes from bank customer who have import-oriented business. When the exchange rate weakens, the customer's cash flow will have a greater burden. Exchange rate positively affect UNTR because the company engages in mining industry. When USD appreciates, aforementioned company gains higher profit since they export the coal and received USD in return. Subsequently, the increase in exchange rate will also increase the profitability of UNTR which lead to a rise in its stock price.

The effect of GDP growth rate on ASII and LPKR is statistically significant and have positive coefficient. An increase in GDP growth rate means the economy is growing. When the economy is growing, people tend to spend more which make the businesses growing as well. It supported the formula of GDP growth rate. A rise in the consumption will lead to an increase in GDP growth rate.

BBRI and LPKR are positively affected by inflation rates. An increase in inflation rate will cause the price of goods and services to go up and therefore increase the company's profitability. Accordingly, this will increase the stock price. The increase in

inflation rate is good as long as it is still categorized as moderate inflation level. Because inflation is needed to drive consumption to support the economic growth.

Interest rate has negative coefficient on BBNI and BMRI. When interest rates are high, customers are reluctant to take loans from banks and businesses also reluctant to increase capital to finance their production. This lower credit demand and also lower banks' profits. A decrease in bank's earning resulted in a decrease in the stock price.

There are nine companies that are perfectly affected and one company that significantly affected by the JKSE's return. The coefficient is positive, which means when the JKSE's return increases, the stock return will also increase. This happens because JKSE's return includes the stock return of this study.

5. CONCLUSIONS AND RECOMMENDATIONS

The t-test reveals that (1) changes in the currency exchange rate of IDR versus USD negatively affect stock return, (2) GDP growth rate negatively affects stock return, (3) inflation rate is insignificant in explaining the stock return, (4) interest rate negatively affects stock return, (5) JKSE's return positively affects stock return. However, the individual t-test result varies from company. In general, it is found that macroeconomic variables and stock market have a strong relationship, which supports the results that these variables' changes have some kind of association with the return of the stock market. In other words, the fluctuation in the stock return of LQ45 companies can be explained by macroeconomic variables.

One has to bear in mind, however, that this study used theories based on the perfect market while the Indonesian stock market has not been perfect yet. One of the criteria of the perfect market is buyers have complete information about the product being sold and the prices charged by each company. Thus, these results should not be carried away to the future without considering this aspect. From the foregoing, this study recommends that in order to maintain the stable exchange rate, there is a need for policymakers to ensure effective implementation of existing monetary policy instruments and device a strong way to harmonizing monetary and fiscal policies. The inflation rate also should be maintained at a moderate level so it does not have an adverse effect on the stock returns. Further, the policymakers should consider the company's performance when increasing or decreasing the interest rate. Because these variables are proven to affect the stock return of a company.

An investor who actively invests in the stock market and businesses should take macroeconomic variables like exchange rate, GDP growth rate, inflation rate and interest rate into consideration. The result of this study revealed that aforementioned variables are either positively or negatively affect the stock return. Accordingly, investors are expected to be more prudent in investing their assets in the stock market and businesses should be prepared with strategic planning if unfavorable changes in macroeconomic happens.

In order to attain a more thorough result, this study still has areas for improvement. The result manifested that the R-squared is still low. For further study, it is advisable to increase the macroeconomic variables to strengthen the result of this study. Further, understand the business background in deep, in this matter is the background of the companies included in this study to provide more wide insight into the research study. For example, to analyze the reason why companies engage in the same industry could have a different relation with macroeconomic variables.

REFERENCES

- Adrangi, B., Chatrath, A., & Sanvicente, A. (2011). *Inflation, Output and Stock Prices: Evidence from Brazil*. Journal of Applied Business Research (JABR), 18(1), 61-77.
- Alam, M.M., & Uddin, M.G.S. (2009). *Relationship between Interest Rate and Stock Price Empirical Evidence from Developed and Developing Countries*. International Journal of Business and Management, Vol. 4(3), pp. 43-51.
- Amadeo, Kimberly. (2018). *Reasons Why Inflation Is Good*. Retrieved from <https://www.thebalance.com/why-is-inflation-good-4065995>
- Ang, A., Brière, M., & Signori, O. (2012). *Inflation and Individual Equities*. Financial Analysts Journal, Vol. 68, No. 4 (July/August 2012), pp. 36-55. doi: 10.2469/faj.v68.n4.3
- Azar, Samih. (2014). *The Determinants of US Stock Market Returns*. Open Economics and Management Journal. 1. 1-13. 10.2174/2352630001401010001.
- Bank Indonesia. (2019). *External Debts Statistics of Indonesia*. Retrieved from <https://www.bi.go.id/en/iru/economic-data/external-debt/Pages/SULNI-March-2019.aspx>
- Bougie, Roger, & Sekaran, Uma. (2013). *Research Methods for Business: A skill Building Approach (5th Edition)*. New York: John Wiley & Sons.
- Brigham & Houston. (2010). *Dasar-dasar Manajemen Keuangan (edisi III)*. Jakarta : Salemba Empat.
- Chen, James. (2018). *Macroeconomics*. Retrieved from <https://www.investopedia.com/terms/m/macroeconomics.asp>
- Davis, G.F. and Powell, W.W. (2012). *Organization-Environment Relations*. Handbook of Industrial Organizational Psychology, 2nd ed., Consulting Psychologists Press, Palo Alto, CA.
- Dioha, C., Mohammed, N.A. & Okpanachi, J. (2018). *Effect of Firm Characteristics on Profitability of Listed Consumer Goods Companies in Nigeria*. Journal of Accounting, Finance and Auditing Studies, Vol. 4 No. 2, pp. 14-31.
- Dwijayanthy, Febrina & Naomi, Prima. (2009). *Analisis Pengaruh Inflasi, BI Rate, dan Nilai Tukar Mata Uang terhadap Profitabilitas Bank Periode 2003-2007*. Karisma, Vol 3. 87-98.
- Elias, S., & Noon, C. (2011). *Τη Γρωτη ανδ Δεωελομεντ οφ τηε Ινδονεσιαν Εχονομυ*. Retrieved from <https://www.rba.gov.au/publications/bulletin/2011/dec/pdf/bu-1211-4.pdf>

- Farrel, J. (1997). *Portfolio Management Theory and Applications*. New York: Mc Graw Hill.
- Greene, W.H. (2003). *Econometric Analysis, 5th edition*. Upper Saddle River, NJ: Prentice Hall.
- Gujarati, D. N. (2003). *Basic Econometrics (4th Edition)*. New York, United States of America: The McGraw-Hill Companies, Inc
- Hayes, Adam. (2019). *Stocks Basics: Different Types of Stocks*. Retrieved from <https://www.investopedia.com/university/stocks/stocks2.asp>
- Helmenstine, A.M. (2019). *The Role of a Controlled Variable in an Experiment*. Retrieved from <https://www.thoughtco.com/controlled-variable-definition-609094>
- Hendri. (2005). *Pengaruh Faktor-Faktor Makro Ekonomi IHSG, SBI, Inflasi, Kurs, dan Uang Beredar Terhadap Return Saham Otomotif di BEJ 2000-2003*. Thesis. Universitas Indonesia, Depok.
- Hussein, A.A. (2017). *Effect of Inflation Rate on Stock Market Returns in Uganda Security Exchange*. Thesis. Kampala International University, Uganda.
- Hussein, M., & Mgamal, H. (2012). *Effect of Inflation, Interest Rates and Exchange Rates on Stock Prices: Comparative Study among Two GCC Countries*. International Journal of Finance and Accounting 1:179-189.
- Indonesia Investments. (2016). *General Economic Outline of Indonesia*. Retrieved from <https://www.indonesia-investments.com/culture/economy/general-economic-outline/item251>
- Jogiyanto, H. M. (2015). *Teori Portofolio dan Analisis Investasi*. Yogyakarta: BPFE Yogyakarta.
- Kandir, S.Y. (2008). *Macroeconomic Variables, Firm Characteristics and Stock Returns: Evidence from Turkey*. International Research Journal of Finance and Economics, Vol. 16 No. 1, pp. 35-45.
- Kramer, Leslie. (2019). *What is GDP and Why is It So Important to Economists and Investors?* Retrieved from <https://www.investopedia.com/ask/answers/what-is-gdp-why-its-important-to-economists-investors/>
- Kramer, Michael (2019). *Exchange Rate Definition*. Retrieved from <https://www.investopedia.com/terms/e/exchangerate.asp>
- Mishra, Madhav. (2018). *Understanding Panel Data Regression*. Retrieved from <https://towardsdatascience.com/understanding-panel-data-regression-c24cd6c5151e>
- Mugambi, M. & Okech, T.C. (2016). *Effect of Macroeconomic Variables on Stock Returns of Listed Commercial Banks in Kenya*. International Journal of Economics, Commerce and Management, Vol. IV.
- Nazir. (2015). *Analisis Suku Bunga SBI, Nilai Tukar, Inflasi, Return IHSG di Bursa Efek Jakarta (BEJ) (Penelitian periode 2000-2004)*. Thesis. Universitas Indonesia, Depok.
- Osamwonyi, I.O., & Osagie, E.I. (2012). *The Relationship between Macroeconomic Variables Stock Market Index in Nigeria*. J Economics 3: 55-63.
- Ritter, R. (2005). *Economic Growth and Equity Returns*. Pacific-Basin Finance Journal 13 489 –503
- Salkind, N. J. (2010). Encyclopedia of Research Design. DOI <http://dx.doi.org/10.4135/9781412961288>
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students (5th Edition)*. Edinburgh, England: Pearson Education Ltd.
- Setia, M.S. (2016). *Methodology Series Module 3: Cross-sectional Studies*. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4885177/>
- Sharpe, W., Alexander, G., & Bailey, J. (2014). *Investments*. Upper Saddle River, NJ: Prentice-Hall Internat.
- Taher, M.A., Uddin, M.S. & Shamsuddoha, M. (2010). *Determinants of Key Favorable Environment for Entrepreneurship Development: An Empirical Study of Some Selected Companies in Bangladesh*. Journal of Public Administration and Policy Research, Vol. 2 No. 4, pp. 54-57.
- The Jakarta Post. (2018). *Low Deficits and Fiscal Prudence*. Retrieved from <https://www.thejakartapost.com/academia/2018/12/10/low-deficits-and-fiscal-prudence.html>
- Torres, Oscar. (2007). *Panel Data Analysis Fixed and Random Effects using Stata*. Princeton University. Retrieved from <https://www.princeton.edu/~otorres/Panel101.pdf>
- Trading Economics. (2019). *Indonesia - Credit Rating*. Retrieved from <https://tradingeconomics.com/indonesia/rating>
- Widarjono, A. (2009). *Ekonometrika Pengantar dan Aplikasinya (3rd Edition ed.)*. Yogyakarta, Indonesia: EKONISIA.

Angelica Giovanni Gunarto,
Sekolah Tinggi Manajemen IPMI, Jakarta 12750, Indonesia
Email: angelica.gunarto@ipmi.ac.id

H. M. Roy Sembel
Sekolah Tinggi Manajemen IPMI, Jakarta 12750, Indonesia
Email: roy.sembel@ipmi.ac.id